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Seville ' s Cycling Gender Gap: the Utalitarian Use of Bicycles Analyzed from a Feminist Perspective

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ABSTRACT

Cycling has been a gendered practice since the invention of the bicycle and in many cities a gender gap in bike use continues to exist today. Cycling for transport is praised by many policy-makers and scientists for its benefits to the quality of the urban environment and the health of its citizens. Many cities have included cycling into their policy plans for sustainable mobilities. However, as feminist geographers have shown, women's daily mobilities vary greatly from those of men and are often neglected in transport planning practices. My research focuses on the case of Seville, where since the construction of a city-wide segregated bicycle-path network, the amount of people who use bikes has multiplied sixfold. Yet, a noticeable gender gap in cycling persisted with women making up only one third of cyclists. I used concepts related to the construction of gender, time-geography, and motility to find out which factors inhibit women from cycling in Seville. Basing myself on the work of feminist urbanists I applied a mixed method approach, using Seville as a case study as well as conducting a survey and online workshops. My findings indicate that there are a variety of factors that inhibit different women from cycling. However, I make two main conclusions. On the one hand, for many women in Seville the bicycle is not seen as either convenient or appropriate to conduct care mobilities, such as transporting things or people and making multiple stops in one trip. One major reason of this is fear of theft. On the other hand, women do not fully trust their bodies on a bicycle, either due to lack of confidence in their physical capacities and/or due to fear of accident. The conditions that create these perceptions should be addressed to facilitate cycling for women, enabling them to a sustainable and -based on my findings- enjoyable mobility.

Keywords: *cycling, gender, urban mobility, care mobilities, feminist perspective*

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ABSTRAKT

Radfahren ist seit der Erfindung des Fahrrads eine geschlechtsspezifische Praxis, und in vielen Städten gibt es auch heute noch ein Geschlechtergefälle bei der Fahrradnutzung. Das Radfahren als Verkehrsmittel wird von vielen politischen Entscheidungsträgern und Wissenschaftlern wegen seiner Vorteile für die Qualität der städtischen Umwelt und die Gesundheit der Bürger gelobt. Viele Städte haben das Radfahren in ihre politischen Pläne für nachhaltige Mobilität aufgenommen. Wie feministische Geographen jedoch gezeigt haben, unterscheiden sich die täglichen Mobilitäten von Frauen stark von denen der Männer und werden in der Verkehrsplanungspraxis oft vernachlässigt. Meine Forschung konzentriert sich auf den Fall Sevilla, wo sich seit dem Bau eines stadtweiten, getrennten Radwegenetzes die Zahl der Radfahrer versechsfacht hat. Dennoch besteht nach wie vor ein deutliches geschlechtsspezifisches Gefälle beim Radfahren, denn Frauen machen nur ein Drittel der Radfahrer aus. Ich habe Konzepte zur Konstruktion von Geschlecht, Zeitgeographie und Mobilität verwendet, um herauszufinden, welche Faktoren Frauen in Sevilla am Radfahren hindern. In Anlehnung an die Arbeit feministischer Urbanistinnen wandte ich einen gemischten Methodenansatz an, wobei ich Sevilla als Fallstudie nutzte und eine Umfrage sowie Online-Workshops durchführte. Meine Ergebnisse zeigen, dass es eine Vielzahl von Faktoren gibt, die verschiedene Frauen am Radfahren hindern. Ich komme jedoch zu zwei wesentlichen Schlussfolgerungen. Einerseits wird das Fahrrad von vielen Frauen in Sevilla nicht als bequem oder geeignet angesehen, um Versorgungsaufgaben zu erledigen, wie z. B. Dinge oder Personen zu transportieren und mehrere Stopps auf einer Fahrt zu machen. Ein Hauptgrund dafür ist die Angst vor Diebstahl. Andererseits haben die Frauen kein volles Vertrauen in ihren Körper auf dem Fahrrad, entweder aus mangelnder Zuversicht in ihre körperlichen Fähigkeiten und/oder aus Angst vor Unfällen. Die Bedingungen, die zu diesen Wahrnehmungen führen, sollten angegangen werden, um das Radfahren für Frauen zu erleichtern und ihnen eine nachhaltige und - nach meinen Erkenntnissen - genussvolle Mobilität zu ermöglichen.

Stichworte: *Radfahren, Geschlechter, urbane Mobilität, Versorgungsmobilität, feministische Perspektive*

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1 INTRODUCTION

1.1 THE GENDERED HISTORY OF CYCLING

While difficult to imagine with today's mobility enthusiasm, for several centuries the structures of many societies were based on people's geographical stability, such as 17th century Europe (Friberg et al., 2012). Tora Friberg, Christina Scholten and Annika Sandén (2012) describe how in Sweden an individual's mobility was determined by their gender, social class, age, and purpose of journey. Women who did not belong to the nobility were not allowed to leave the farm, beyond going to mass on Sundays. Nobel women on the other hand, could move around the landscape mostly for networking, however never doing so unaccompanied. Their networking practices laid the foundation for empowerment strategies of upper-class women. On the contrary, unmarried mothers, who were seen as the ultimate threat to societal order, experienced forced mobility due to being expelled from the local community and condemned to wonder by themselves (Friberg et al., 2012).

In the beginning of the 19th century, western women's mobility was still highly restricted and affected by social class. Frances Willard, an important suffragette from the United States, wrote in her book 'A wheel within a wheel': *"no women having regard of her social state or standing would have dreamed of entering one of these pavement gondolas unless accompanied by a gentleman as her escort"* (1895, p. 14). The scene she is describing refers to London in 1835, when one-horse drawn carriages gained mass popularity. However, it was a century marked by the women's rights movement, who relentlessly challenged existing societal gender norms. In a few decades, society's perception of appropriate mobility for upper & middle-class women changed drastically. To the point that in her book Willard did not shy away from claiming that a woman must not be in her right mind to still follow such an outdated tradition (Willard, 1895).

Meanwhile, the first bicycles developed in the 1880s called *penny-farthing*, *high wheeler* or *ordinary* were used as a luxury sport item for young, healthy, aristocratic men according to Lisa Strange (2002). During the 1890s the first *safety bike* was invented. The safety bike is essentially the bike-model we still use today: with inflatable tires, two same-size wheels, and most importantly, brakes. This made the bike much safer to use, which played an important

role in sparking women's interest, who were starting to enjoy new freedom of movement (Strange, 2002).

However, previously cycling was seen as an exclusively masculine activity explained Ellen Garvey (1995). Women riding bicycles still raised considerable social issues as it challenged gender definitions. Especially, considering that bicycles serve as a completely individual form of transportation, which makes it difficult to control the user's mobility. For these reasons conservatives went to great length to disown the use of bicycles for women. Nevertheless, it was in the manufacturers interest to make bicycles acceptable for women as they significantly enlarged the consumer base. Different strategies were developed to 'gender' bikes, in order to make them more compatible with the existing gender roles. These adaptations for the woman's version can still be recognized in bicycles today: a lowered-entry bar to make it easier to use with skirts, wider saddles and an upright position, both to avoid any contact with the female genitals in order to not compromise a women's sexual innocence (Garvey, 1995).

Lisa Strange (2002) describes that there were considerable differences in opinion towards the gender roles from the female advocates in favor of women cycling. Francis Willard who was a fierce defender of the benefits for women to engage in the physical activity of cycling, did however do so through the assurance that it would not harm traditional societal gender structures. In contrast, Elizabeth Cady Stanton a contemporary of Willard saw the bicycle as a tool for radical change in through the emancipation of women. She connected it to the dress reform, as the activity helped to diffuse less restrictive clothing. Through the controversy around the bicycle, Stanton argued against the naturalized gender differences linked to the separation of the public and private sphere. While women were considered as naturally too delicate and thus inadequate to spend time outside of the home, she referred to the bicycle as a tool to lead them outside (Strange, 2002).

Cycling did indeed bring about changes in western societies, however not as radical as Stanton had fought for. It would take another century for women in some countries to ride bikes completely free of embarrassment and wear clothing according to their desires (Strange, 2002). Nonetheless, even today gender still plays a significant role in mobility and cycling.

1.2 RESEARCH SCOPE

In this research I explore the question of cycling from a feminist perspective. As described in the introduction, cycling has been gendered practice since the early days of the bicycle. Even today, women in most cities of the world cycle significantly less than men (Shaw et al., 2020). I argue that this difference needs to be addressed as the bicycle is a form of transportation that has a positive impact on its regular users in terms of heath, low financial burden and high flexibility (Fernández-Heredia et al., 2014). Additionally, the ordinary bicycle is only powered by muscle strength and does not require another form of energetic input. For this reason and unlike the combustion engine car, the use of the bicycle for transport in cities does not contribute to air and noise pollution, which have a high impact on the livability of cities (Marqués et al., 2015).

I want to contribute to the body of literature that aims to not only understand the difference in utilitarian use of the bicycle by gender. I aim to analyze the use of the bicycle of different women by using an intersectional feminist approach considering an array of factors that play into our identity. This allows me to understand their mobility needs as well as the social, institutional, and psychological barriers that impact their use of the bicycle for transport. I combine quantitative and qualitative methodologies proposed by different feminist geographers to render these barriers visible. Further I conduct a case study to be able to undertake context sensitive analysis. In order to direct my research, I formulate the following research question:

Which are the factors that inhibit women's utilitarian use of the bicycle in Seville?

This thesis is structures as followed: First, I review the literature on sustainable mobility, how it connects to the bicycle and the existing research related to women's mobility. I further explore the works of feminist geographers that help to explain the gender gap in cycling. Then I discuss my positionality as a researcher and present my analytical framework using concepts from the construction of gender, motility, time-geography as well as introducing my mixed method approach. Subsequently this thesis is split into three chapters. In each I present the methodology, results, and discussions of the three approaches: case study, survey, and workshop. Finally, I conclude with a combined synopsis of the chapter discussions relating it back to the research question.

1.3 RESEARCH STARTING POINT

SUSTAINABLE MOBILITY & WOMEN

Our current transportation system causes many negative environmental impacts such as reduction of air quality, high-level energy use, waste production and land use (Banister, 2000). Kębłowski & Bassens (2018) reflect on how the field of transport has been dominated by the often called 'neoclassical' approach which reflects neo-liberal values of efficiency, utility, economic growth demanding rational planning. Banister (2008) describes the dominance of the car in cites, through the loss of attractiveness of local public transport, cycling and walking.

As an alternative to the neoclassical approach, Banister (2008) presents the sustainable mobilities paradigm. It is based on a shift away from the mathematical dimensions of mobility towards the social dimensions and focuses on three realms of action. *"The sustainable mobility approach requires actions to reduce the need to travel (less trips), to encourage modal shift, to reduce trip lengths and to encourage greater efficiency in the transport system"* (Banister, 2008, p. 75). His approach emphasizes the link between land-use and transport as well as the necessity to turn away from car-centered policy towards soft mobility, including cycling in urban environments.

However, the sustainable transport policies derived from this paradigm have been criticized for not questioning the underlaying structures that guide people's movements. So far, the policies have failed to provide a transformational change in urban mobility and may even reinforce social injustices, despite the focus on social dimensions of mobility in Banister's work (Reigner & Brenac, 2019).

Susan Hanson (2010) states that for any mobility policy aimed at sustainability to be effective, it must be based on an analysis of the context specific conditions. Knowledge on the specificities of the time and place where a mobility shift shall be created, need thus to be incorporated.

Further, Hanson (2010) makes a compelling argument on the more sustainable travel practices of women compared to men. For this, she reviewed the relevant literature and concludes that even if not all women nor in all places, overall women's daily mobility involves shorter distances, more public transport and less use of the car when compared to men. Considering

these are all the aspects of realm of action described by Banister (2008), it is hard to argue with Tanja Joelsson & Christina Scholten's statement *"if men began to travel by public transport and use sustainable modes of transport in comparable numbers to women, there would be net effects on the emissions from traffic"* (2019, p. 14).

Hanson (2010) makes a case for the importance to evaluate the potential impact on different groups of the population, when adopting policies for sustainable mobility. In this vein, she questions the wide-spread assumption of mobility researchers that more mobility is always a 'good thing' as in, equivalent to more power and access to opportunities. To underline this, (Hanson, 2010, p. 14) quotes Doreen (Massey, 1993, p. 62) statement, *"mobility and control over mobility both reflect and reinforce power*". Hanson (2010) postulates that these assumptions are often made without knowledge of the reasons of particular mobility patterns. She argues that it matters whether in given context, women's limited mobility is due to power structural constraints or personal choice. Especially, in view that women's daily mobility continues to involve more trips to serve people under their care, such as children (Craig & van Tienoven, 2019; (McGuckin & Nakamoto, 2005) and are more complex in order to facilitate domestic tasks (Rosenbloom, 2006). Also, Hanson (2010, p. 14) argues that it is rarely considered *"what observed mobility patterns mean to people",* which she views as essential when creating policies aimed at the change of people's behavior.

It is thus, crucial to emphasize context and revisit assumptions when analyzing mobility, the same is applicable for the understanding of the gender gap in cycling.

THE CONTINUED GENDERED PRACTICE OF CYCLING

"the bicycle is a contemporary symbol of sustainable mobility" (Hanson, 2010, p. 7).

Cycling is considered an active transport such as walking and promoted by the sustainable mobility paradigm (Banister, 2008). For this reason many cities have implemented some sort of cycling policy, within their sustainable mobility plans and a proliferation of bike-sharing systems can be observed (Midgley, 2011). However, a significant gender gap is prevailing in most cities of the world (Shaw et al., 2020). For this reason, a gender sensitive analysis of urban cycling can bring valuable insight for the improvement of policies aimed at the promotion of this transport mode.

However, as we have seen from in the previous section, in general women already have a more sustainable travel pattern than men. From this perspective it is thus questionable whether the investment into proliferation of cycling amongst women is necessary or even desirable. Nonetheless, following Hanson's (2010) call the question of *what* causes women's mobility patterns should not be left out when talking about the cycling gender gap. It matters whether women cycle less for reasons of personal choice or external constraints.

Researchers have come to the conclusion that women are less likely to cycle for transport than men in places where cycling makes up a small percentage of the total mode share (Garrard et al., 2008; Bell et al., 2006). Nevertheless, unlike the assumptions of some earlier scholars, it is generally accepted within the field of research that this is not due to women's disinterest in cycling (Garrard et al., 2008). Lea Ravensbergen et al. (2019) present two main hypotheses that can be synthesized from the literature on the gender gap in cycling:

First, women cycle less than men because they tend to be more risk averse than men. This increases their concerns for safety (Gustafsod, 1998) and can inhibit them from cycling on two levels. On one hand, it accentuates the importance of cycling infrastructure, as it significantly reduces the perception and statistical risk of accidents (Garrard et al., 2008). On the other hand, the general perception of safety of the urban public space has an impact on women using bicycles, especially at night (Prati et al., 2019).

Second, women cycle less due to having more complex travel patterns and often being accompanied or having to transport things. This is caused by the greater number of reproductive tasks many women are responsible for compared to men. Thus, potentially limiting the usefulness of the bike as transport mode (Ravensbergen et al., 2019).

Ravensbergen et al. (2019) insights bring two valuable starting points to this research. For this reason, in the next section we are going to review the work within feminist geography that has explored the two aspects that appear to have an influence on the gender gap.

2 FEMINIST LITERATURE

2.1 CHALLENGING THE NEUTER COMMUTER

As we have seen in the introduction, historically gender has been very relevant when it came to mobility and cycling. Yet, even after women have attained the right to vote, visit universities and even become professors, the field of transport geography continues to be strongly male dominated (Law, 1999). In the late 1970s Sandra Rosenbloom (1978) and Genevieve Giuliano (1979) made a significant argument for the gender-blindness of the field. They called out the need of addressing women's mobility, as they observed that there were considerable differences to men's travel behavior. Rosenbloom (1978) shows that at the time the focus of research lied on transport patterns of the home-work-home commute, aimed at solving peak-hours car congestion and focusing on paid workers. This led to the lack of understanding or even acknowledgment of travel behavior of those who moved outside of the set framework, which were mostly women. While women increasingly participated in the labor market, their domestic activities did not appear to decrease as significantly. These daily tasks strongly influenced women's trip pattern, which were rendered invisible by the statistics that the field of transport was using (Rosenbloom, 1978). Finally, Rosenbloom (1978) argues that gender should be considered an essential variable in transport, even if it stands as a proxy for others that are harder to define.

Their foundational work, marked the beginning of the rejection as the *neuter commuter* from a growing group of critical social scientists (Law, 1999). The term of the neuter commuter aims to point out the implicit assumption that looking at the commute of home-work-home is sufficient to understand mobility patterns of the whole society (Best & Lanzendorf, 2005). The body of work produced from there was embedded in a larger feminist critique on the *"urban land-use structure in contemporary capitalism, of the spatial separation of production and reproduction, and of the cultural dichotomy of public and private space"* (Law, 1999, p. 569) such as had already been verbalized Elizabeth Cady Stanton a century ago.

2.2 FROM TRANSPORT TO DAILY MOBILITIES

Robin Law (1999) describes how the study area around women and transport then developed in two main directions. For one, the *geography of women's fear* (Valentine, 1989) which methodology is qualitative and based around the experience of women. It builds around the threat of sexual violence as a structural oppression mechanism that leads to women's auto-restricting their mobility and presence in public space as self-imposed safety measures. Gill Valentine (1989) emphasizes that these precautions also stem from societal expectation and victim blaming.

The other strand Law (1999) identifies is often called journey-to-work. It is based on quantitative analysis and Marxist thought. The main mechanisms of oppression are conceived through the social relations around household and workplace (Markusen, 1980). This strand produced rigorous research on the significant difference of work trip journeys between men and women, especially in the case of married women (Hanson & Hanson, 1981). However, as Law (1999) emphasizes the focus on the trip undertaken to arrive to the workplace leaves out many aspects to complete the understanding of women's mobility. The trips done for leisure, those of women who do not work and the trips that are not being undertaken (Law, 1999), similarly to the preceding critiques on transport research done by Rosenberg and Giuliano.

Further, Law (1999) elaborates how the transport and gender field of research has neglected to integrate of the post-structuralist development of feminist theory. This is due to field focusing on the structural constraints that are imposed on women's mobility. To go beyond women and transport and frame the topic within social and cultural geographies, Law (1999) proposes the use of *daily mobility* instead of transport. This concept *"incorporates a range of issues central to human geography, including the use of (unequally distributed) resources, the experience of social interactions in transport-related settings and participation in a system of cultural beliefs and practices."* (Law, 1999, p. 574). By observing the flow of people, we perceive how human beings are not fixed in space but move fluidly between the public and the private spheres, often viewed as opposing.

Using the concept of daily mobilities for the analysis of women's use of bicycles in Sevilla for utilitarian purposes can help shed light on the structural constraints as well the constraints more related to perception and identity construction.

2.3 TWO APPROACHES TO GENDER & MOBILITY

Similar to Law a decade before, Hanson (2010) identifies two strands within the academic literature on gender and mobility: studies that aim to understand the influence of gender on mobility and those that focus on the influence of mobility on the construction of gender.

First, we are going to understand the nature of research that focuses on the influence of gender on mobility as described by Hanson (2010). These studies are connected to the strand that Law (1999) identified as *Journey-to-work* and faces similar issues. They tend to go into great depth to understand mobility patterns using large statistical data sets collected on national or regional level. However, studies within this strand of research often simplify aspects of gender by only considering the binary social categories of 'men' or 'women' without making any distinctions within the two groups (Hanson, 2010).

While these social categories are convenient for the overwhelmingly quantitative methodological nature based on travel surveys within transport planning, it risks reducing the complexity of reality by rendering many people's mobility invisible. The importance of including other social aspects such as age, class, ethnicity and other variables is being stressed by a growing number of researchers (Joelsson & Scholten, 2019).

Yet, the strand of research helps to point a light to the generalized but important differences in travel patterns between 'men' and 'women' (Hanson, 2010) such as that women compared to men:

- travel shorter distances
- are more likely to trip chain (make multiple stops in one journey)
- use less cars and other motorized vehicles
- travel more often accompanied by someone
- use public transport more often

FIGURE 1 ILLUSTRATION OF GENDER DIFFERENCE IN MOBILITY[1]

It is the type of studies that Ravensbergen et al. (2019) detected to dominate the field of cycling research. As observed by Hanson (2010) and Ravensbergen et al. (2019), this strand of studies fails to explain the underlaying reasons for these differences.

The other strand identified by Hanson (2010), analyses the influence of mobility on gender and puts emphasis on the understanding of the social construction of gender. It makes use of qualitative data by focusing on women's lived experiences within their social environment and situated by context. The deficit of these studies lay in the superficiality of analysis of the mobility patterns and characteristics.

Hanson (2010) suggests that two strands of research should be integrated to benefit of each other strengths to work towards more sustainable mobility modes. In order to address this very pertinent call I am going review three concepts that can help integrate the two strands of research in the next section and show how they can help understand the cycling gender gap in Seville.

[1] All figures without source indication were created by the author.

3 CONCEPTUAL FRAMEWORK

3.1 CONCEPTS TO UNDERSTAND THE GENDER GAP

THE SOCIAL CONSTRUCTION OF GENDER

As seen in the introduction, Ravensbergen et al. (2019) analysis shows that most commonly a binary use of gender is applied within quantitative research to examine gender related differences in cycling behavior. In consequence, these analyses miss to investigate the underlaying processes that create these differences, meaning to understand how mobility shapes gender. Ravensbergen et al. (2019) call upon three concepts from feminist theory performativity, intersectionality and embodiment to address this knowledge gap. To understand their application to women's use of bicycles it is important to review what these concepts entail and how they relate to the construction of gender.

According to Joelsson & Scholten (2019), in feminist geography 'gender' is viewed as a social concept that stands in contrast to the deterministic gender-conservative conceptions. In this vein, feminists critique the causal connections made between biological sex and gender as a social concept. Further, its social construction implies a fluidity shaped by the societal norms that define the accepted performative acts around it: mundane gestures, movements and other acts involving the body. This phenomenon is often described under the concept term *performativity*. Judith Butler (1988, p. 519) describes gender as *"an in no way a stable identity or locus of agency from which various acts proceede; rather, it is an identity tenuously constituted in time -an identity instituted through a stylized repetition of acts"* and *"the possibilities of gender transformation are to be found in the arbitrary relation between such acts, in the possibility of a different sort of repeating, in the breaking or subversive repetition of that style"*. Gender is thus susceptible to changes and strongly dependent on the cultural context it exists in.

According to Ravensbergen et al. (2019, p. 7) the concept of performativity is relevant to cycling as it may explain how *"the bicycle fits into the identity performance of some people, and not others"*. If from a socio-cultural perspective it is not seen as 'womanly' to ride bicycle, those who do identify with this gender will be less likely to perform the act of cycling. Doing so would

stand in conflict with expected performance of an embedded part of their identity. However, if enough people who are identified as women do take up the cycling, the societal perception of who should ride bicycles may change through an adaption in the accepted performance of the feminine gender. Nonetheless, such changes are usually met with resistance as we have seen in the introduction in the case of women riding bicycles in the 19th century.

As the name indicates the concept of *embodiment*, has to do with the body itself. Iris Marion (Young, 1980) analyzes how women use their bodies in an inhibited way, due to the internalization of gendered situations in the patriarchal society, linked to performativity. In her work *Throwing like a girl: A Phenomenology of Feminine Body Comportment Motility and Spatiality* (1980), she reflects on to Erwin Straus (1966) depiction of the differences in use of the body when throwing between a five-year-old girl and a five-year-old boy. When attempting to explain the very limited use of the body of the girl, he is unable to find sufficient biological differences that would explain it. He then attributes it to a 'feminine essence' that naturally resides in girls. Young (1980) concludes that *"the female person who enacts the existence of women in patriarchal society must therefore live a contradiction: as human she is a free subject who participates in transcendence but her situation as women denies her that subjectivity and transcendence"* and *"the modalities of feminine bodily comportment, motility, and spatiality exhibit this same tension"* thus leading to a inhibited use of the body and its physical capabilities (Young, 1980, p. 141).

This Ravensbergen et al. (2019) argues, can lead to lower confidence in women in their ability to ride a bicycle, increasing their concern for safety. Embodiment in their view should be considered as a possible explanation for the risk aversion observed in women (Ravensbergen et al., 2019).

Intersectionality originates from black feminists and was used by Kimberle Williams Crenshaw (1991) to explore how gender and race played into violence against black women. Later she argues for the necessity of the use of intersectional frame of analysis in order to understand how race and gender interact with structures that determine reproductive and productive activities. Thus it enables to transcend a limiting single-axis understanding of gender issues (Crenshaw et al. 2013). Intersectionality has also been picked up by researchers working in feminist geography. Maria Rodó-de-Zárate & Mireia Baylina (2018) describe how space and

intersectional relation are closely intertwined by rendering their multitude visible in place while also arranging them. Thus, the importance of applying intersectional approaches to feminist geography is to contextualize and add depth to social relations it aims to understand. Intersectionality is used by feminist scholars to show how different axes of identity such as race, gender, age and class intersect with each other creating multipliers of oppression (Crenshaw, 1991).

Using this concept allows for an analysis beyond the dichotomy of the binary gender by acknowledging that neither all women nor all men will have the same experience around cycling (Ravensbergen et al., 2019). Further, an intersectional approach should be applied when considering performativity and embodiment. As cultural context is crucial to understand the performativity and embodiment of gender, different women's relationship to cycling will be highly dependent on where, when and with whom they grew up.

Thus, all three concepts are crucial to understand the influence the importance of mobility on the construction of gender and the influence of gender on mobility. Their application can help to address Hanson's (2010) call for the integration of both, in order to work towards more sustainable mobility systems, that are equitable.

MOTILITY

Another useful concept to understand women's daily mobilities is *motility*, which according to Kaufmann et al. (2004, p. 750) *"can be defined as the capacity of entities (e.g. goods, information or persons) to be mobile in social and geographic space".* They argue that social structures are defining for any movement of a person, object or information and that *"mobility patterns may be at the base of fundamental societal changes, whose consequences for people and territories are only now becoming intelligible"* (Kaufmann et al., 2004, p. 746). When applied with a feminist perspective, the concept of motility can help shed a light on a range of structural constraints that influence choice of mobility of women.

Motility as social capital comprises three components: access, competence, and appropriation.

First, *access* refers to the availability of mobility according to contextual constraints, dependent on infrastructure and costs. It is limited by *options* and *conditions*, whereas options

refer to the available transportation and communication methods, while conditions are determined by the physical location and the costs of these options.

Applied to cycling, owning a bicycle makes under the concept of motility would be considered an *option*. However, if the owned bicycle is stored in a garage that is inconveniently located the *condition* may restricting the person from using it. Similarly, let's assume there is a shared-bike system in the city, making it an option, but the price of use is to high so again conditions limit its use.

Second, there is *competence* which includes the physical ability, acquired skills and organizational skills. Physical ability is related to the required skills an individual needs to possess to access the available mobilities. Acquired skills refer to the knowledge and in some case institutional permission a person needs for a mobility mode. Finally, organizational skills relate to the ability to plan to attain the skills, information etc. necessary to access mobilities.

In the case of cycling, this physical ability, would relate to knowing how to ride a bike, while the acquired skill refers to understanding the traffic symbols and rules to use the physical ability for transport. Finally, organizational skill can be understood in terms of needing to know where to buy a bike or how to rent one from a shared system.

Third and for the purpose of this study arguably the one of the most relevant is *appropriation*. Agents, who have necessary access and competence to use certain forms of mobility still need to actively select it, which is closely related to values, needs, aspiration and understanding (Kaufmann et al. 2004).

Someone who owns a bike, knows the traffic rules, and knows how to ride a bike may still chose not to use it for transport due to other reasons. This can be of cultural nature linked to the performativity of their gender, meaning feeling like it is inappropriate to ride as a woman. It may also be of more practical nature, such as needing to transport many things that do not fit on the bike that is owned.

TIME-GEOGRAPHY

One example of what Hanson may consider a study that observes the impact of mobility on gender is Friberg et al. (2012) *Re-reading time-geography with a gender perspective.* They show

how this approach can be used to visualize obstacles and constraints due to spatial-temporal conditions of women's mobility.

Time-geography was developed by Hägerstrand in 1972 in order to analyze the allocation of time as a scarce resource. For this the availability amongst the population of transportation modes and telecommunication is crucial. It emerged as a response for an academic tendency of decontextualization. Yet, it faced strong feminist critique due *"the individual in time-geography was a non-sexed body, structuring itself in non- defined (public) spaces of society and juggling with technology"* (Friberg et al., 2012, p. 587).

However, the authors argue that time-geography can be a powerful tool to show the different level of obstacles for mobility projects. A mobility project is each unit of mobility undertaken to accomplish a set purpose. Through the identifications of mobility restrictions, qualitative analysis of the every-day lives of different women can demarcate specific struggles and possibilities related to resources of mobility. Time-geography identifies three categories of restrictions: capacity constraints, coupling constraints and institutional constrains.

Capacity constraints are limits that an individual face due to their personal physical capabilities (such as knowing how to ride a bike or having a driver's license etc.) or the resources they have access to (time availability of the family car or public transport etc.). In the understanding of time-geography a person who owns their personal car, is less constrained than someone who's options are limited to walking (Miller, 2008).

Coupling constraints are defined by the geographical relation of the location of different spaces an individual need to visit (Friberg et al., 2012). Another aspect of this restriction is the, time and space for which an individual has to be in presence of other individuals (work hours, escorting children to school etc.) (Miller, 2008).

Institutional constraints are formed by transport legislation (tax on petrol, price of public transport, physical infrastructure etc.) that facilitate or impede the use of a transport mode through either space (cycling paths) or time (limited access to streets at night ex.) (Friberg et al., 2012).

In order to apply time-geography from a feminist perspective it is necessary to go beyond its classical use of where the body is used simply as a trajectory, without considering emotions,

or limiting it to spaces as understood under patriarchal structures (Friberg et al., 2012). This coincides with Hanson (2010, p. 14) call for weighing what *"what observed mobility patterns mean to people"* as discussed in the sustainable mobility section of this literature review. Time-geography also addresses the essential question of *"when and where women's lower (or equal or greater) mobility level reflects choice or constraint"* (Hanson, 2010, p. 15).

The concepts presented in this last section allow for a deeper analysis starting from the two hypotheses suggested by Ravensbergen et al. (2019) women cycle less because they are more risk avert and because of the complexity of their travel patterns. In the next part I will present my analytical framework on how I use these concepts to respond my research question.

3.2 ANALYTICAL FRAMEWORK

To address the issue of the gender gap in Seville, I decided to use mixed methodologies. agreeing with Joelsson & Scholten *"We argue that both qualitative and quantitative perspectives are needed in order to develop transport politics and a transport system that take account of people's different needs."* (2019, p. 4). I use an intersectional gender sensitive approach to my analysis to identify the needs and barriers of different women living in Seville. I base myself on the work and concepts of feminist geographers presented in the previous section to frame my analysis. I used these concepts to structure my methodological approach and for the presentation of my findings. First, I conducted interviews with a diverse range of actors who are relevant to understand the cycling development in Seville, with a special focus on role of women. This allows to create situated knowledge. Second, I created a survey addressing the bike use of woman living in Seville, gaining mostly quantitative data. I used the concepts to for the development of the survey questions and to structure the findings. Finally, I did a workshop to get insight into the personal mobility experiences of women living in Seville considering the emotions felt during their daily trips.

The figure below gives an overview of the different concepts used for my analysis, as discussed in my literature review. The example questions help illustrate the operationalization of the concepts for my research.

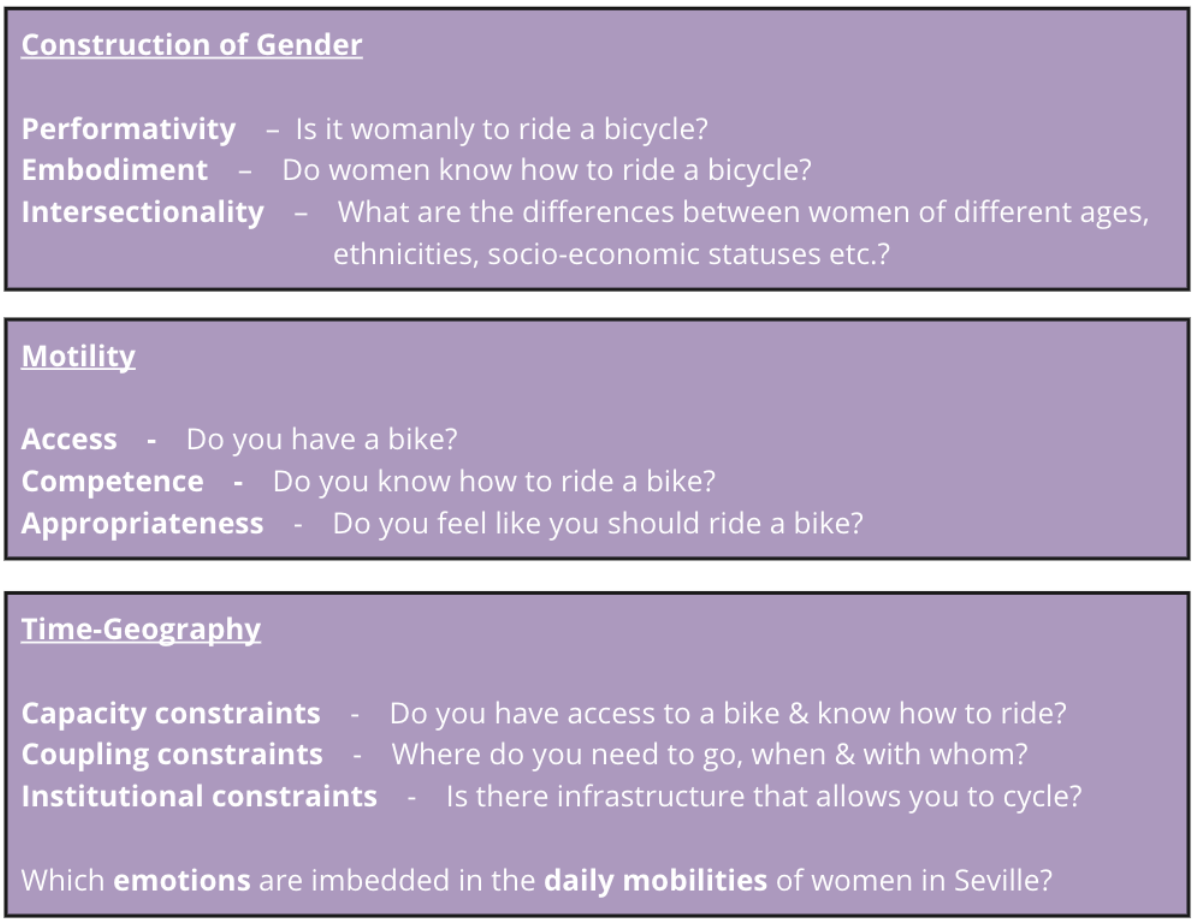

FIGURE 2 KEY CONCEPTS WITH EXAMPLE QUESTIONS

I am analyzing cycling from a gender perspective through the tool of *case study*. This allows to create context sensitive, situated knowledge. Further, I use the concept of *performativity* to understand the *appropriateness* from a gender perspective. In the same vein, *embodiment* is essential to consider when looking at *competence*. Moreover, I aim to make my analysis *intersectional*, meaning that I take into account that *appropriateness*, *competence* and *access* can vary among women depending on other identity axes. *Institutional constraints* can be important in term of *access*. *Access* and *competence* together are two aspects that impact *capacity constraints* and to lesser degree *coupling constraints*. In the discussion parts I will present how the interconnection of the concept plays out for women cycling in Seville.

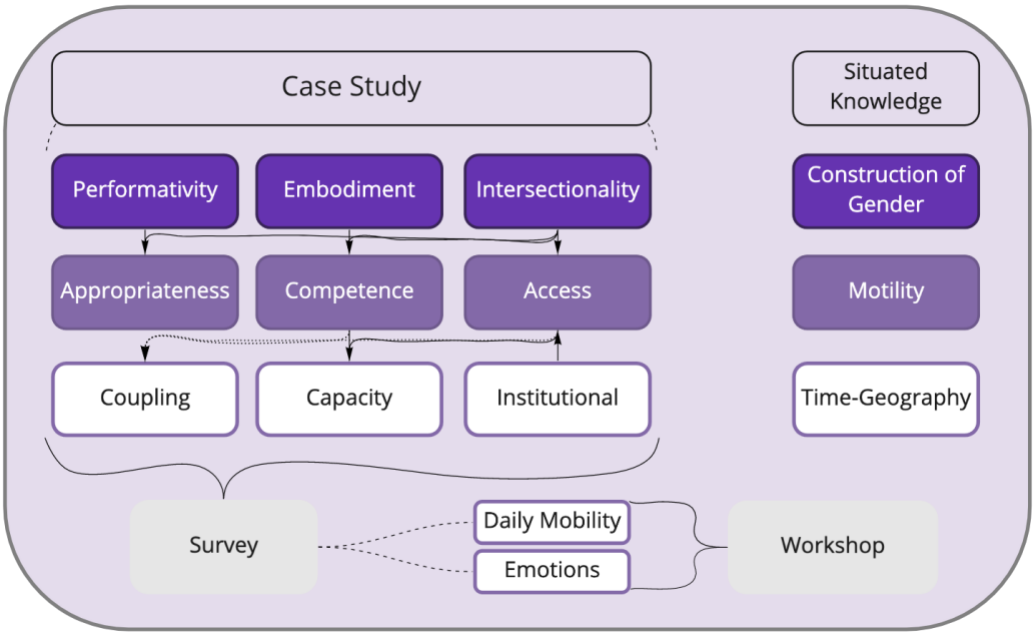

FIGURE 3 SCHEMA OF CONECTIONS BETWEEN CONCEPTS AND METHODOLOGIES

The next part of my work is structured into three chapters, in each I am going to explain the methodology I used, present the results gathered and discuss the finding using the concepts of my analytical framework. The chapters center around the description of the case study, the survey, and the workshops in that order. As these three elements build on top of each other, I incorporated the insights I gained from each part into the next.

3.3 POSITIONALITY THROUGH REFLEXIVITY FOR SITUATED KNOWLEDGE

In this section I want to reflect on my positionality as a researcher. Following the path of many feminist geographers such as Donna Haraway (1991) who argues that knowledge always depends on who it creators are. For this reason, I aim to consider how my own position within societal power structures influences and shapes my analysis. Through this process of reflexivity I become aware of my own subjectivity aims to avoid the false neutrality that is dominant in much scholarly work (Rose, 1997). Further, feminist geographers use this kind of reflection as a strategy to circumvent the trap of claiming universality by creating situated knowledge. The call for doing so within feminism also stems from a place of self-critique of "*the way the feminisms of white straight women ignored the specificities of black and lesbian women; more recently, with the academic institutionalization of at least some feminisms, it is also an argument directed at academic women (still mostly straight and white, especially in geography)*

whose knowledges may exclude others." (Rose, 1997, p. 307). Further, situated knowledge comes from a point of understanding the local context in which the analysis is undertaken. It is aware of the limits it harbors and how it is characterized by partial reality it reflects.

I thus aim to reflect upon the perspectives I can take as a young, European, middle-class woman, who has benefited of master level education and was raised bilingually with German and Spanish as well as knowing important academic languages such as English and French. While I grew up in Switzerland, my is from Sevilla, due to which I have frequently visited the city. I will further elaborate how this influence my choice of methodology in the first part of the following chapter.

Concerning my personal experiences relevant for my research question, I have learned how to ride a bicycle when I was a small child, while living in car free neighborhood. Starting secondary education, I regularly rode my bike to school, mostly because it was faster than public transport and those where the only two options available to me. I used bicycles for transport in all four cities (Brussels, Vienna, Copenhagen, and Madrid) during the 4cities master program because of the high-flexibility, time efficiency and physical exercise. This allowed me to have a sense of how the experience of cycling changes from city to city and why context sensitive analysis is key. My personal experiences and observations have clearly shaped my perception with which I am going into this research. I am aware that my sense of risk, usefulness and enjoyability linked to cycling may not be shared by other women in a different context, with different bodies or care responsibilities. For this reason, I here state my experiences with the urban bicycle, which despite my efforts to not have these influence my analysis, I cannot avoid the existence of underlaying biases and assumptions.

My motivation to choose cycling as a research topic is strongly driven by my personal preference of using the bicycle as a transport method in cities. However, the raison for which I find my research pertinent is due to my conviction of the need to drastically reduce the presence of cars in the urban environment and that the bicycle an essential element for an alternative mobility system.

Throughout my methodology parts of the next chapters I am going to reflect upon which methods I was able to use and how my identity and positionality may have influenced the data gathered and interpretation of it.

4 CASE STUDY

4.1 METHODOLOGY

To answer my research question, I use the methodological tool of a case study. This allows for a context sensitive analysis, such as Hanson (2010) argues for discussed in the introduction. Connected to this idea is also the aim of creating situated knowledge as discussed by Haraway (1991). According to Yin (2003), case studies enable the understanding of the underlaying dynamics of a complex social phenomena. In order to gain an in-depth understanding of a case from various angles a multitude of methods are used (Johansson, 2007). For this reason the *"case study methodology […] bridges the gap between quantitative and qualitative methods in the social sciences"* (Johansson, 2007, p. 48). The objective is the understand the case from the perspective of different actors, complementary to the information attained through literature and other sources. For this, I also look back at historic situations to grasp the development that reached the position of today. Finally, this case study is of rather descriptive nature, as the focus is on setting the context for further analysis.

CASE STUDY SELECTION

The case study on women cycling in Seville was based 'purposefully selected' as an extreme or extraordinary case as opposed to a 'representative sample' as used for 'correlational research' (Johansson, 2007, p. 52). A purposeful selection comes from the intention of formulating generalizations about the knowledge gained from the case study. This is how I contribute to the body of literature that aims to understand the factors that influence women's cycling behavior. However, these generalizations are not of statistical nature but based on analytical reasoning (Johansson, 2007). In my analysis I must thus carefully assess, to what extend the context specific knowledge can be generalized without falling into the trap of false universality criticized by feminist scholars. In any case the context specific thus situated and limited knowledge gained through this analysis can be used for comparative studies. At the same time, my selection of Seville as a case study is also based on my personal interest in the city and the cycling phenomenon that has developed, which is what Johansson called selection founded on 'intrinsic interest' (Johansson, 2007, p. 52).

I chose to investigate cycling in the city of Seville for multiple reasons in the early stages of my research. First, I have visited the city many times in different years throughout which I had personally observed the development of cycling infrastructure in the city center and the followed increase of the use of bicycles for transport. The exceptional growth in use of bicycles in the city is also the main reason why I think that researching this case in particular is of interest the scientific community focusing on urban mobility. Second, as a significant part of my analysis is qualitative the importance of understanding and speaking the local language is crucial for the feasibility of my research. This felt especially true when doing research in southern Spain, where in many cases the use of English is not as widespread as in northern European countries. Finally, due to having family in Seville I am to a degree familiar with the local culture, festivities, landmarks and its history which facilitates understanding of the gathered data. In view of my attempt to be reflexive on my positionality, I am aware that my relationship with Seville may on the other hand bias my data collection and interpretation.

Seville is not known for its traditional cycling culture such as cities in the Netherlands or Denmark. It is in my view the rapid increase of the use of bicycles, as I will show in results, that makes this case particularly interesting to study. I argue that the case of Seville can help us understand which conditions and efforts are enabling factors to promote urban cycling successfully in cities that do not have a high cycling modal split.

DATA COLLECTION

For the collection of information on my case study I proceeded the following way. I first scanned the related literature on cycling in Seville. I thus gained knowledge about the existing research that has been done on the development of the cycling infrastructure and growth of the number of urban cyclers. Through the literature I realized the strong involvement of the cycling association 'A contramano'[2] in the raise of cycling for transport in Seville. For this reason, I contacted the association and came in touch with Ricardo Marqués, the president and founding member of 'A contramano'. Ricardo Marqués is also a researcher of the University of Seville and has published multiple papers on the topic of cycling promotion. He invited me to a seminar held for master students of transport studies at the University of

[2] Translated in English, literally: 'opposite direction', figuratively: 'going against the flow of traffic'

Seville, on the development of the bicycle infrastructure of Seville. The participation at this seminar gave me a deeper understanding of the historic development of the cycling movement in Seville and the logic used for the creation of the cycle lanes. It further allowed me to gain a broader overview of my case concerning some important actors, policy documents and urban developments.

Through my contact with Ricardo Marqués I came in touch with array of actors who were involved in different aspects of cycling in Seville. To complement my understanding of the context in which my research takes place I conducted five semi-structured interviews with the actors of different domains involved in the promotion of the bicycle for transport.

Talking to Ricardo Marqués gave me great insight into the cycling history and culture of Seville, especially in view of gender differences and the cultural meaning attached to the bicycle. I also interviewed Isabel Porras a member of 'A Contramano' who has been closely working with Ricardo Marqués, actively addressing the gender gap in the use of the bicycle. Further I conducted an interview with Pepa Garcia Jaen the former director of the city's bicycle office during the development of the main cycling infrastructure. Her insights allowed me to get an overview of the participatory process and the perspectives used in the development and execution of the directory bicycle plan of 2006. Through my interview with Elena Yust Escobar, who is one of the two current staff members of the cycling office, I came to understand objectives of the plan for 2020. She also explained the administrative and bureaucratic workings of the city hall important to understand my case study. Finally, I also interviewed Milagros Rossi Sammartino a local bike business owner who together with her associate won the competition for sectoral plan for the promotion of women cycling. Further, she shared her observations as a user and professional of the development of cycling in Seville.

After these conversations I esteemed that the knowledge I gained on the context of the case was sufficient to continue my research, without the need for more interviews for the description of the case study[3].

[3] I received explicit consent from all interviewees to be able to use the information they shared in my thesis. The quotes used were translated from Spanish by the author.

4.2 RESULTS

This case study focuses on the cycling practices of women in city of Seville due to being an exceptional case when it comes its cycling development in the past two decades. Before 2007 utilitarian cycling was neglectable in the mobility modal split. Yet, in just five years cycling started to make up almost 10% of the Seville's mobility modal split (Marqués et al., 2015).

Seville is located in the south of Spain and is the capital autonomous community of Andalusia. Administratively, the province of Seville is divided into municipalities. The city of Seville is located at the center of the province and governed by the city hall. Eleven districts make up the city. Around 700'000 people living within the municipality of Seville with a population density of 4.881 hab/km^2 (SIMA, 2019) and 1'400'000 in the metropolitan area (Marqués, 2011) with a population density of 4.881 hab/km^2. The average age is 43.2 years old, and foreigners make up 5.6% of the population with the largest group being Moroccans (SIMA, 2019). The municipality of Seville stretches over 140km^2 and has a relatively flat topography. Seville is notorious for its hot summers, mild winters and very few rainy days. People of Seville have long learned to avoid peak heat hours during the summer days. Except for these moments when outside physical activity in the city is unreasonable, Seville provides good base conditions to have cycling be a proliferated mode of transportation (Marqués, 2011).

SEVILLE'S EARLY CYCLING HISTORY

As in many European cities in the 30s and 50s of the 20th century utilitarian cycling was still significant in Seville. However, it drastically declined in the second half of the century to the point that by 1990 it made up less than 1% of the city's mobility due to the increase accessibility and use of personal motorized vehicles (Marqués et al., 2015). However, a strong civil movement generated for the use of the bicycle for transport and at its origin were university students (Fernandez-Heredia & Fernandez-Sanchez, 2020). The university of Seville has over 70'000 students and a decentralized campus with buildings spread around the city. According to Ricardo Marqués, this is one of the key reasons why a pro-cycling movement evolved (personal communication, November 24, 2020). Despite complete absence of cycling infrastructure young predominantly male students would use bicycles to get to their classes in different locations around the city. In 1987 a group of male students created the association to engage the public in critical masses and other forms of protest to demand better

infrastructure. "[there were] *many people who used bicycles in the city, but simply under precarious conditions, as there were no bicycle lanes, so socially it was considered risky."* (R. Marqués, personal communication, November 24, 2020). Yet he also emphasized, that precisely because it was considered a dangerous mode of transport very few women engaged in cycling at the time.

FIGURE 4 BIKE MANIFESTATION IN 1993 (SOURCE : A CONTRAMANO, 1993[4])

According to the information presented in the seminar held by Ricardo Marqués (2020), the association organized different activities to engage the civil society in the protest for better cycling conditions. They used radio and other media outlets to reach the public with their slogan 'bike lanes now'. In 1993 a manifestation with 10'000 participants demanded the development of cycling lanes. It was the largest cycling manifestation to take place in Seville until today. Consequently, the city government under the mayor Alejandro Rojas Marcos of a

[4] I received written consent of for all images used.

central-left wing party start the conversation with ‘A contramano’ about a ‘special bike plan’. This plan concluded in the development of the first cycle lane along the newly liberated river Guadalquivir flowing through Seville. The narrative used at the time was about the creation of post-industrial city in which the bicycle as a mode of transport should be an integral part of. The association continued to organize yearly ‘day of the bicycle’ and in 1996 a demonstration in order to demand a cycle lane to connect the city center with the University of Pablo de Olavide, which at the time was only reachable by car. Further, they aimed to integrate the bicycle in the local culture by promoting to cycle to the ‘Feria de abril’ a one-week fair held in spring. The conversations with the city hall continued and the bicycle was declared as an integral part of the metropolitan transport master plan. Simultaneously, the discoursal focus also shifted away from the city to the entire metropolitan area, emphasizing sustainability and health (Marqués, 2020).

FIGURE 5 TWO MEN AT THE 'FERIA DE ABRIL' WITH THEIR BICYCLES (SOURCE: ARCHIVO ABC, 1965 ESTIMATE)

FIRST WAVE OF INSTITUTIONAL INVESTMENT

In 2006 started the construction of 164km mostly bi-directional segregated cycle-tracks and the implementation of a public bike-sharing system that includes 260 stations and 2650 bikes. In 2011 the was count of 72’565 cyclists in single day, making it almost 10% of the total modal split (Marqués et al., 2015). The legal base of the cycle lane is the ‘Plan Director de la Bicicleta

2007-2010' created under the left-wing government of a coalition between the Andalusian socialist party (PSOE-A) and United Left (IU) with the strong involvement of 'A contramano' (Garcia Cebrian, 2020). The local government also established a bicycle office and a civic commission, which was open to anyone who wished to participate. They met twice a month with officials of the bicycle office in order to discuss the plans for the bicycle infrastructure (R. Marqués, personal communication, November 24, 2020).

The network of cycle lanes was planned with five main guiding criteria: connectivity, continuity, evenness, bidirectional and segregated, to make it as save, useful, and comfortable as possible. The space for the bicycle lanes was taken from street parking spots (Garcia Cebrian, 2020). This however, brought a lot of resistance, especially from the car users living the city center. *"Seville is a 'classic' city and the car here is important"* states Milagros Rossi Sammartino (personal communication, December 3, 2020). At the beginning of the implementation of the plan, many public bike stations were sabotaged. Nonetheless the success of the infrastructure was evident, *"people were taking their bikes out on the lanes before the paint had time to dry"* (P. Garcia Jaen, personal communication, December 22, 2020).

FIGURE 6 BI-DIRECTIONAL CYCLE LANE AND STREET CROSSING (SOURCE: AUTHOR, 2021)

AN IMPLICIT GENDER PERSPECTIVE

Despite the important role of multiple women, including the director of the bicycle office from 2003-2007 Pepa Garcia Jaen, there was no explicit gender considerations in the 'Plan Director de la Bicicleta 2007-2010'. Yet, as the director she did insist on a gender balanced team within the bicycle office, which she considered important to counter the otherwise strongly male dominated project. Further, before the development of the cycling network a citizen survey was conducted which showed the large citizen support for the infrastructure development. Pepa Garcia Jaen described how the poll showed a clear difference between the preferences and needs of women and men, with women having a much greater concern for safety, which was taken into consideration (P. Garcia Jaen, personal communication, December 22, 2020). In the similar vein, Ricardo Marques stated *"the infrastructure was thought with perspective on safety, and this implies a gender perspective"* (personal communication, November 24, 2020). He also argues that this perspective influenced the choice of the type of bicycle lane that was made: one that is on the side-walk level. This choice, he and Pepa Garcia Jaen emphasize, gives riding a bicycle on it more a feeling of leisure than transport. However, they both argue this is precisely what increases the perception of safety (R. Marqués, personal communication, November 24, 2020; P. Garcia Jaen, personal communication, December 22, 2020).

Additionally, one criterion of the cycle lane network and location of the public bike station was, that all important public amenities such as hospitals, civic centers and schools need to be connected (P. Garcia Jaen, personal communication, December 22, 2020). According to Marqués, indeed once the cycle lane was developed one of the first new users of the bicycle were mothers, who accompanied their children to school. *"Many of these women don't have access to the family car as it is being used by their partners and the bicycle became a feasible option once the infrastructure increased the safety conditions"* (R. Marques, personal communication, November 24, 2020). Milagros Rossi Sammartino also stated that *"the infrastructure does not favor men's mobility needs over women. The network is well connected".* She describes how she can bring her kids to school and continue to work without having to leave the bike lane (personal communication, December 3, 2020).

FIRST PROMOTION OF WOMEN CYCLING

In 2011 with a change in the city government to the popular party (PP) the bicycle office and civic commission was dismantled (Garcia Cebrian, 2020). Marqués described that in Spain everything related to the bicycle is strongly associated with left-wing pollical ideology and for this reason other parties often do not support its development (personal communication, November 24, 2020). However, civic engagement for cycling did not end there. In 2012 Isabel Porras, a bike activist and member of 'A contramano', opened 'Santa Cleta'[5] an integral center for urban cycling including a store and workshop space. One of the objectives of the center was the promotion of women cycling, as they were a noticeable minority in the city (I. Porras, personal communication, November 19, 2020). In 2011, a research group of the university of Seville counted 68% men and 32% women on the bicycle tracks (Salazar et al., 2011). A gender gap is common in cities with a low cycling modal split, yet in no way 'natural' as there are cities like Amsterdam or Copenhagen where women make up half of the cyclists (Garrard et al., 2012). The team of 'Santa Cleta' soon noticed that only very few women participated in any of the different activities the center offered. For this reason, they decided to actively focus on a gender perspective, like taking kids to school by bicycle a typical care mobility mostly undertaken by women. However, the only activity to which a significant number of women appeared was the courses on how to ride a bicycle as they had not acquired the skill but were interested through the bike boom observable in their city. *"The demand for classes was huge, women came not only from the city center but from the outskirts even from villages"* (I. Porras, personal communication, November 19, 2020).

Porras also emphasizes the importance of the choice of cycle lane for these women: *"for people who don't know how to cycle very well it gives them a much greater sense of safety to be separated from cars"* (I. Porras, personal communication, November 19, 2020). She further stresses, that if they had built a cycle lane on street level next to the cars, many would not dare to use it. Thus, she is agreeing with the argument of Marqués and Garcia Jaen mentioned before and aligned with the findings of Obach Lapieza & Ramos Sanz (2020).

[5] Translation to English: 'saint [bi]cycle'

FIGURE 7 BIKE LANE AND SHARED BIKE STATION (SOURCE: AUTHOR, 2021)

CULTURAL PERCEPTION OF WOMEN & THE BIKE

Through the project 'Mujeres a golpe de Pedal[6]' led by Porras and supported by 'A contramano' more than 400 women were thought how to ride a bicycle. Porras describes that the women participating in the classes ranged from 20 years up to 60 with a majority around 35 to 55 years old. Their socio-economic profile was of middle-class even upper-middle class as they had to be able the financial and time-related resources to attend to the course. Porras describes that in many cases the women participating in the classes share a similar story: when they were children the bicycle was considered exclusively a toy for boys and the parents would gift one to their sons and teach them how to ride it. Those girls who did not have brothers would thus not have access to a bicycle in their childhood home. On the other hand, many girls would attempt to ride their brother's bicycle without assistance. In consequence, they would fall and become scared of using it again. She reflected upon how the cultural perception of girlhood and womanhood influences our physical abilities, much in line with the concepts of performativity and embodiment. *"Girls had to be clean and proper so they would be thought*

[6] Translation to English: 'Women at the stroke of the pedal'

to not stain themselves or fall on the ground" (I. Porras, personal communication, November 19, 2020).

Similar cultural expectation on women is also what Rossi Sammartino observed. She says there is definitely an age gap. Women over their fifties shared that when they were young, they were told *"the bike pronounces legs, a women must not have pronounced legs"* (M. Rossi Sammartino, personal communication, December 3, 2020)

Marques confirmed that when he grew up in Seville the bicycle was only considered a toy for boys and not something to be used by women. Yet, he is convinced that they will reach Dutch levels where more women use the bicycle for transport than men. *"The social-structure demands it",* he says, many women do not have access to cars and are using public transport which is inconvenient for their mobility needs. *"It's true that the change is slow due to cultural matters, many of them inherited. A woman in her sixties was young in the 1960s and the culture from back then we cannot change."* (R. Marques, personal communication, November 24, 2020). Here it is also important to consider, that final objective is to make care mobilities easier and sustainable, for which giving women access to cars would not be a solution.

In the same vein, Porras describes how today's culture around women cycling is indeed being transformed but that there are significant hurtles. For example, many girls whose mothers never were thought how to ride do not learn themselves either. This is something Rossi Sammartino mentioned as well, *"mothers may project their fears unto their daughters"* (personal communication, December 3, 2020). Yet, Porras believes that by teaching women one by one, you actively accelerate this change in culture around the ideas of womanhood, enable them to trust their bodies and in consequence become more self-assured in other areas of life as well (I. Porras, personal communication, November 19, 2020).

FIGURE 8 WOMAN CYCLING WITH THREE KIDS ON BIKE LANE (SOURCE: A CONTRAMANO, 2016)

SECOND WAVE OF INSTITUTINAL INVESTMENT

In 2015 the municipal government changed again to PSOE and the bicycle office as well as the civic commission were re-installed. A new bicycle plan was set up called 'Programa de la Bicicleta 2020'[7] With the plan a second wave of investments in cycling infrastructure was generated. The existing lanes were renovated wherever necessary and punctual corrections were undertaken where the infrastructure was either faulty or insufficient. Further, the cycling lane network was expanded, and additional bike parking was installed all over the city. Newly the aim of the plan is to foster inter-modal transport by installing bicycle stations close to public transport (E. Yust Escobar, personal communication, November 25, 2020).

SECOND PROMOTION OF WOMEN CYCLING

The 'Programa de la Bicicleta 2020' has as an objective to raise the percentage of bicycle in the total modal split from 9% at which it had settled after the boom of 2007 to 15%. For these different sectoral plans were established to promote the use of bicycles amongst different

[7] Translation: Program of the bicycle 2020

social groups. One sectoral plan focuses on the use of the bicycle for transport amongst women as in 2017 women were less than 35% of the users of bicycle in the city (oficina de la bicicleta, 2017). In order to address this discrepancy, the choice fell upon classes for beginner cyclers. According to Elena Yust Escobar, currently working at the bicycle office of Seville, the reasons were a continuous flow of incoming requests from citizens and the national statistics report 'barometro de la Bicicleta 2017' created by the 'dirección general de trafico'[8] showed that 11.3% of Spaniards do not know how to ride a bicycle of which 82% are women (GESOP, 2017). This combined with the advocacy of 'A contramano' and other actors, pushed the local government to include an explicit gender perspective in the program. Thus, municipally funded cycling lessons for women in each district, under the title 'Mujeres en bici por Sevilla' were established. The project is currently being executed by two women leading the business 'bici4city' a bike shop and workshop in the city center of Seville, who won the public competition for the project (E. Yust Escobar, personal communication, November 25, 2020).

Rossi Sammartino one of the two women in charge of the project, states that she indeed believes that teaching women how to ride is the most important measure the municipal government can do to address the gender discrepancy between the use of the bicycle. However, what she thinks is probably the next most important thing is to bridge the gap from learning how to ride to feal comfortable enough to ride on the cycle lanes for transport. *"It would be good if there was some kind of organized communal training"*. She believes the key is for them to gain confidence in their ability (personal communication, December 3, 2020).

Finally, Rossi Sammartino gave an interesting personal reflection on why women cycle less than men in Seville beyond of the skill factor. She says that women are lazier in the sense that there is a sports culture around men that facilitates the idea of taking a bike. The physical effort that cycling implies seems to be greater barrier for women than for men. However, Rossi Sammartino also believes that this barrier is much bigger before they start using the bike for transport. Once they become aware of all the advantages of the bike in terms of speed and flexibility as well as health benefits, the physical effort does not stop them anymore (personal communication, December 3, 2020).

[8] Translation: General directory for traffic

FIGURE 9 BIKE ATTACHED TO TREE NEXT TO BIKE LANE (SOURCE: AUTHOR, 2021)

4.3 DISCUSSION CASE STUDY

The case of the development of cycling in Seville is peculiar due to its rapid expansion of the use of bicycles for transport. The proliferation stemmed from a bottom-up movement, that started with predominantly male university students. Mostly organized by the cycling association 'A contramano', citizens demanded the construction of cycling lanes through the form of protest and other methods of civic engagement. Members of the cycling association then closely collaborated with the municipal government in order to plan the development of cycling infrastructure. Citizen participation was then executed through a survey and civic commission. However, the aim of my research is not an analysis of the participation process. Despite my conviction that it such research would provide very valuable insights for the future promotion of cycling in other cities. Nonetheless, I argue that the creation of a citizen survey previous to the development, not only helped adapt the infrastructure to the needs of the people, but also gave the construction considerable political legitimization. Especially, in the context of Seville and generally Spain where, as Ricardo Marqués mentioned, the bicycle is an ideological issue. The combination of a highly active civic association and a supportive

government in the first decade of this millennia enabled the rapid construction of an extensive cycling lane network and a shared bicycle system. Arguably, due to participatory process and the involvement of actors who were strongly committed, including a few key women, there was an emphasis on creating an infrastructure that is well connected and most of all save. From a gender perspective this is crucial in order to enable women to use the bicycle for transport.

However, despite these considerations the gender gap of around one third women to two thirds men cycling persisted over the years in Seville (Ayuntamiento de Sevilla, 2017). One of the reasons for this difference, recognized by the actors I interviewed, is clearly of cultural nature. It appears that the bicycle in the 1960 was not considered something appropriate for neither women nor girls. This manifested that a considerable number of women never learned how to ride a bicycle. The thus *embodied performance* of a cultural idea of womanhood deprived them from all three levels of motility as discussed by Kaufmann et al. (2004) and presented in the literature review. As it was not seen *appropriate* for women to cycle, they never had *access* to bikes and therefore also never learned the *competence* to use it for transport. Despite that today the general cultural view on bikes and women has changed, the inheritance from the past leaves many women without the *competence* necessary for using bicycles. This issue is now being addressed by the municipal government through the offer of free cycling classes for women. Considering that 11.3% of Spaniards do not know how to ride a bike and 82% of those are women (GESOP, 2017), it is supposedly 18.53% of all Spanish women who cannot ride a bicycle. It could be that this percentage in Seville is higher. Yet it still does not fully account for the gender gap. For this reason, the question remains what other factors are inhibiting women to use the bike for transport less than men in Seville.

First, there is a distinction should be made between knowing how to ride a bicycle and feeling comfortable riding everywhere your mobility needs require you to go. Comfort also does not only relate to safety but also physical strain. Milagros Rossi Sammartino mentioned that the physical effort may be a larger barrier to women than men. This could of course be in part be attributed to the on average 'weaker' physical disposition of female bodies over the male bodies. However, when reflecting upon the concept of embodiment, this 'weakness' of women may also be conditioned by the cultural perception on gender and the linked underdevelopment of potential the physical capacities, such as the skill of riding a bicycle. Additionally, as the as Rossi Sammartino described, it seems to be rather the idea of the

physical effort that inhibits women from using the bike, more than the actual effort itself. This could be an indicator for an underestimation of women's own physical capacity. Of course, this cannot be concluded from a single interview, but I will be taking these reflections into account in the continuation of my research. Further, it matters if the cycling infrastructure caters to the mobility and safety needs of women. While the people I have interviewed spoke strongly in favor of the connectivity and safety aspects of the infrastructure, this does not necessarily mean it sufficient for the requirements of a majority of women. In the second part of my research, an intersectional gender-sensitive survey shall shed some light onto women's perception of the different discussed aspects in Seville.

5 THE SURVEY

5.1 METHODOLOGY

CONTENT CREATION

In order assess the relevancy of the factors that may influence women use of the bicycle for transport discussed in the literature review and case study description I created an online survey. I used Collectiu Punt 6' survey as the base, which they created for a pilot project in collaboration with the city hall of Barcelona to do an analysis of cycling with a feminist perspective (Col·lectiu Punt 6, 2020). I went through their questions assessing if they address the concepts forming my analytical framework. I then added or changed questions to cover all the aspects I wish to find with the survey. For its creation, I used Google Forms, due to having experience using this software.

The survey was designed to take as little time to be filled in as possible to increase the number of respondents. For this reason, some questions allow for multiple possible answers each addressing different factors. Thus, the questions cannot be attributed to a single factor or concept. The survey is composed of 19 questions out of which ten are related directly to cycling and the other nine are about the identity of the respondents. This structure was chosen in order to properly integrate an intersectional approach into my methodology and to assess the differences in the use of the bicycle between women. Further, the participants had to indicate in which district in Seville they live. This could then be used to do a basic spatial analysis of the use of the bicycle among women.

DISTRIBUTION

My primary distribution method for the online survey was through social media, specifically Facebook. The advantage of using Facebook was that I could use its location and general search function. Thus, I could find groups that are based in Seville. I then asked to join the private groups, explaining that my intention was to post the survey for my master thesis. Most group admin accepted my petition. I posted the survey, regardless of what the content or purpose of the group is. This included marketplaces, tourist guides and hiking groups among others. Some of these groups were as large as having 35'000 members. I paid particular attention to find

groups for immigrants living in Seville. I contacted all different groups I could find such as Erasmus students, Expats, and support groups of specific nationalities. My goal was to increase the number of respondents from other nationalities to give emphasis to the intersectional approach of my methodology.

I sent the survey to the secretary of the association 'A contramano' who distributed it among their members. I additionally contacted all 87 women's associations of Seville appearing in the city hall official association list. Four associations replied and said they would defuse the survey amongst their members. Finally, I also distributed the survey through my personal contacts in Seville, ask them to share it with their network. My objective was to reach as many women as possible without any restrictions regarding age, profession, or nationality.

The online survey was open to all women and non-binary people living in Seville. In consequence women from the municipality but also the province of Seville responded to survey. The age of the respondents was quite diverse ranging from 19 years old up to 71, with the largest group being between 40 and 45 years old. The small number of responses of women older than 65 can be attributed to the digital nature of my survey, which for many women this age poses a significant barrier. Those women of this age group who responded were reached through my personal contacts. Sometimes having another person helping them to fill in the survey. On the other hand, I had no access to women younger than 20 years old through my personal contact and neither is this group present in Facebook. Thus, their absence in the survey.

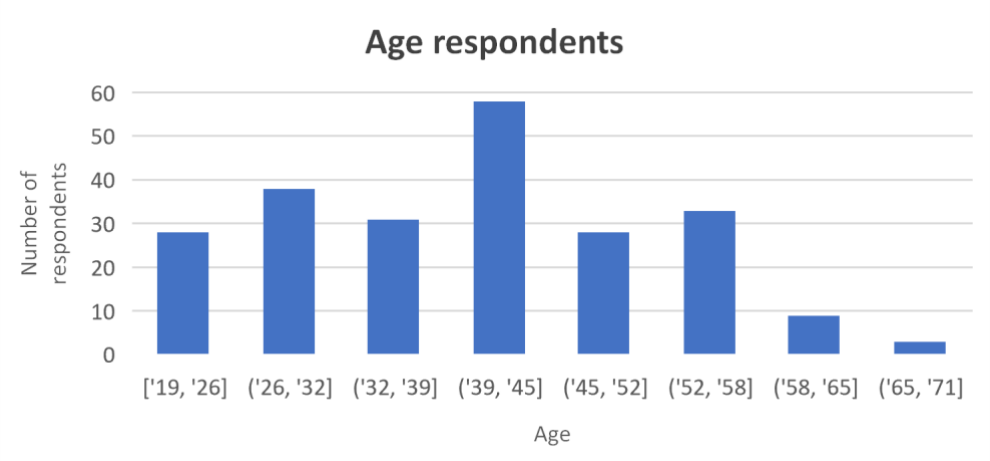

FIGURE 10 NUMBER RESPONDENTS BY AGE GROUP

80% of the respondents were born in Spain. A fifth were born abroad out of which 65% in Europe and 35% was born outside of Europe. Since the actual ratio of nationalities other than Spanish living Seville is 5.8%, I esteem that the level of responses from immigrants I collected is satisfying.

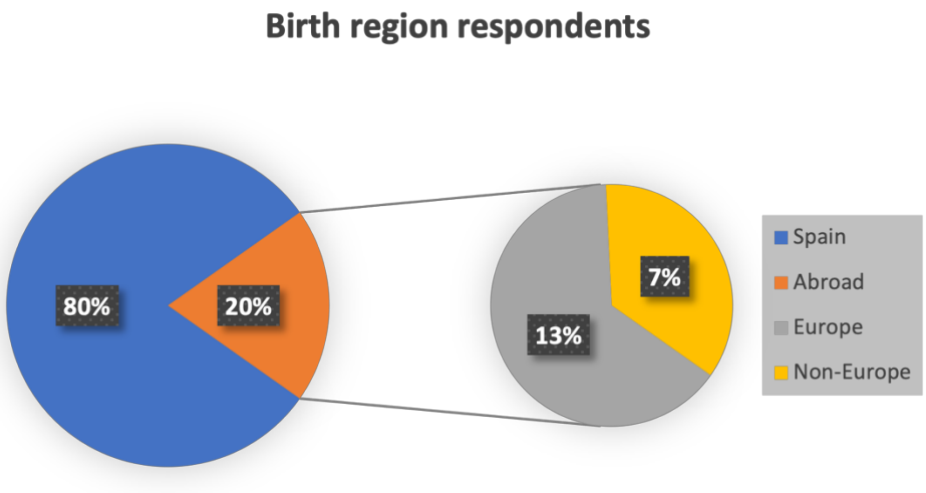

FIGURE 11 PERCENTAGE OF RESPONDENTS BORN IN EACH REGION

ANALYSIS

The total number of responses is 229, which with a confidence level of 95% leads to a confidence interval of 6.5 considering the population of Seville being around 700'000 at 'worst case' answer distribution of 50% (Creative Research Systems, 2012). This sample size should thus give a satisfying level of representation from a statistical point of view. However, conclusions should be made with precaution due to some limitations of the 'randomness' of the sample group. Despite the explicit mention that it is not necessary to cycle to fill in the survey a majority (74%) of respondents said cycle at least occasionally. This is probably due to the survey being titled 'Women Cycling in Seville' and in general being framed around the topic of cycling. Since the participants actively chose to fill in the survey, it is likely that they may have had some sort of interest in the topic of cycling in Seville. It is unlikely that 74% of women in Seville cycle since for the whole of Spain it is 39.1% of women who cycle at least occasionally (GESOP, 2017). This thus influences the representativeness of the survey regarding the whole female population of Seville. Nonetheless, due the large number of women who said to cycle, makes the survey close to representative for this specific group.

I analyzed the survey by using Excel to create visual representations of the answers. As none of the questions were mandatory, I always used the varying number of responses to each question as the base to calculate the percentages of the given answers. Most questions had the option to add an individual answer through the aggregation of 'Other'. Depending on the content of these additional answers I either added them to one of the existing answers, grouped them into a new specific category or generalized them as 'Other Reasons'. The advantage of these 'Other' answers is that in many cases they contain additional qualitative information from the respondents.

The spatial analysis was done using a map with the district border available on ArcGIS provided by the municipal government under a creative commons license. Then I created pie-charts of the responses of the use of the bicycle by district and arranged the pie charts into three categorical sizes representing the number of respondents. For the spatial visualization of the use of the bicycle per district, the answers were grouped into three categories. 'Almost daily' includes those who answered as 'Daily' or '5 to 6 times a week'. 'Ocasionally' groups together all answers that lay between at least four times a week to not every week. Finally 'Never' reprents the women who said they never cycle no matter if they technically know how to.

I further used R studio to assess the correlation between the different answers of the survey. To be able to use the correlation test I codified the survey answers into numerical variables. Depending on the question I either created ordinal (ex. level of fear: not afraid = 1, 'a little afraid' = 2, 'quite afraid' = 3, 'very afraid' = 4), binary using dummy variables (ex. access to car: no = 0, yes = 1) or continuous variables (ex. age). I used 'corrplot' function to visualize the correlation coefficients between all variables in a color-coded matrix using 'ggplot2' (STHDA, 2016). Additionally, I ran the cor.mtest function to compute the matrix of the p-value (STHDA, 2016). This allowed me to cross out the insignificant correlations, where p-value is bigger than significance level with default value of 0.05 (Creative Research Systems, 2012).

In the conclusion I then summarize, how the survey answers can be interpreted in relation to the concepts I used to the define the factors that may have an impact on women's use of the bicycle.

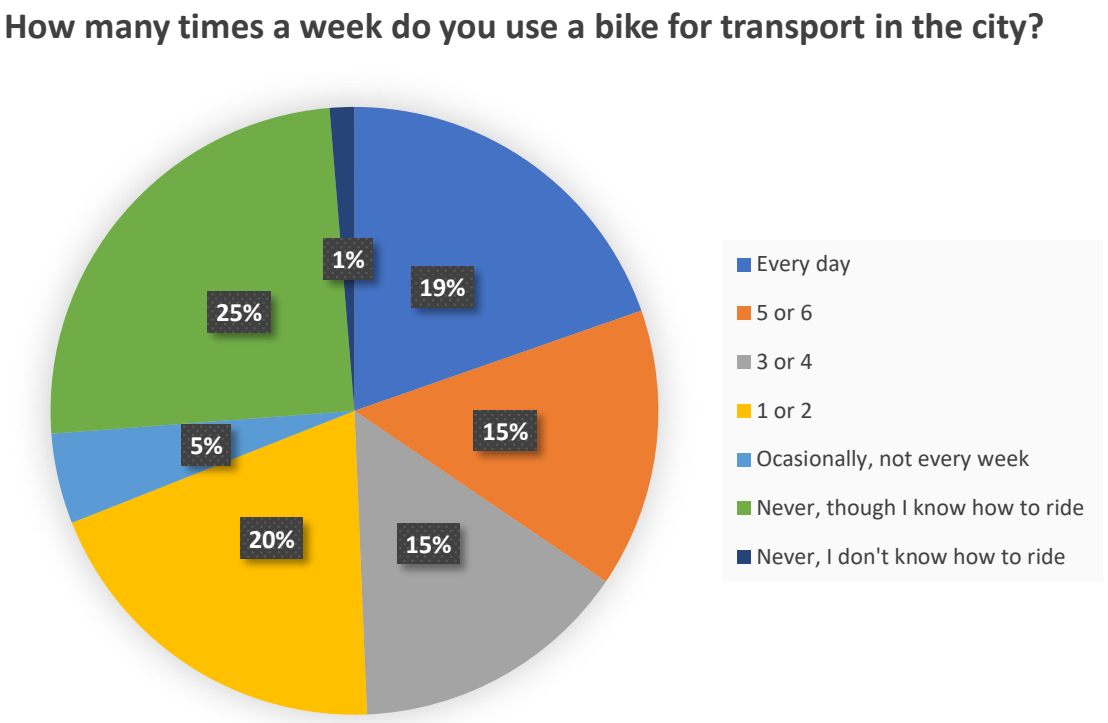

FIGURE 12 FREQUENCY BIKE USE FOR TRANSPORT IN SEVILLE

As already discussed in the analysis part of the methodology, 74% of women who responded the survey said cycle at least occasionally, meaning not every week. 34% of respondents indicated that they cycle almost daily. Close to the same number of women 35% said they use the bicycle once to four times a week. I created the category 'Occasionally, not every week' after the completion of the survey for a simplified visualization. The 5% of women who are represented under this category wrote in 'Other' that they use the bicycle sometimes but not consistently every week.

A quarter of women who filled in the survey answered that they never cycle despite knowing how to, in this category I also included those women who filled in 'Other' saying the only cycle for leisure but not for transport. Finally, only 1% of respondents said that they do not know how to ride a bicycle. This strikes me as especially interesting, considering that it was one of the most thoroughly discussed and addressed issues by the people I interviewed concerning the gender difference in cycling in Seville. One could argue that women who do not know how to cycle simply did not fill in the survey. Nonetheless, in my view there is not a clear reason

why women who do not possess the skill of riding a bicycle, should be less likely to answer the survey than those women who can cycle yet never do so.

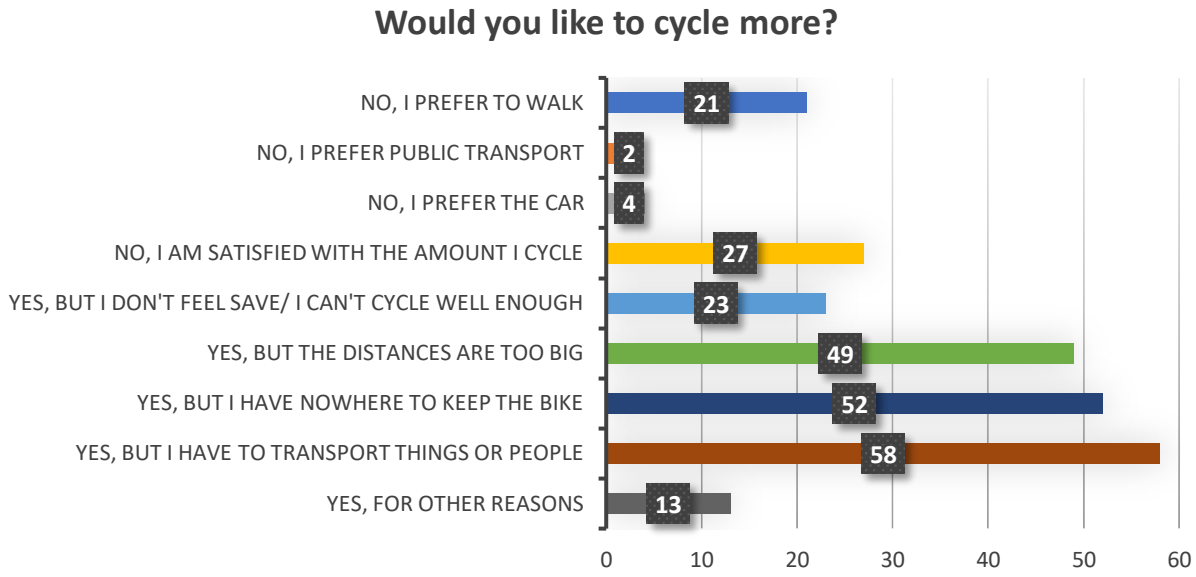

FIGURE 13 RESPONDENTS INTEREST IN INCREASING BIKE USE

This question is crucial as it allows to directly identify some of the capacity, coupling and institutional barriers that prevent women form cycling. Additionally, it also gives insight whether there is any interest from women to cycle more relative to other forms of sustainable transportation.

Out of the 220 women who responded this question, 195 (89%) answered that they would like to cycle more due to a variety of reasons. The most frequently chosen reason was ‘need to transporting things or people’ with 58 answers closely followed by having ‘nowhere to keep the bike’ and ‘distances that are too big’. 23 respondents answered that they would cycle more often if they felt saver or more skilled at riding.

27 respondents said they do not wish to cycle more due to the preference of other mobility methods a majority of which, namely 21, prefer to walk. Only to women said to prefer public transport and 4 to prefer using the car. Finally, 27 women said they are satisfied with the amount of cycling they do. When filling in this question the respondents could chose multiple answers, in case that more than one applies to someone. For this reason, the total amount of responses is more than the number of women who participated in the survey. Additionally, the survey participants had the option to write a personalized answer in ‘Other’. These were then

qualitatively assessed and either counted as 'Yes, other reasons' or 'No, I am satisfied with the amount I cycle'. Some of the individual responses were:

"Bad connection between some areas of Seville. Need for more bike lanes." [9]

"Yes, but sometimes the distances are too long or too short or I am afraid they will steal [my bike] or someone is accompanying me or I am carrying things"

"I always ride my bike"

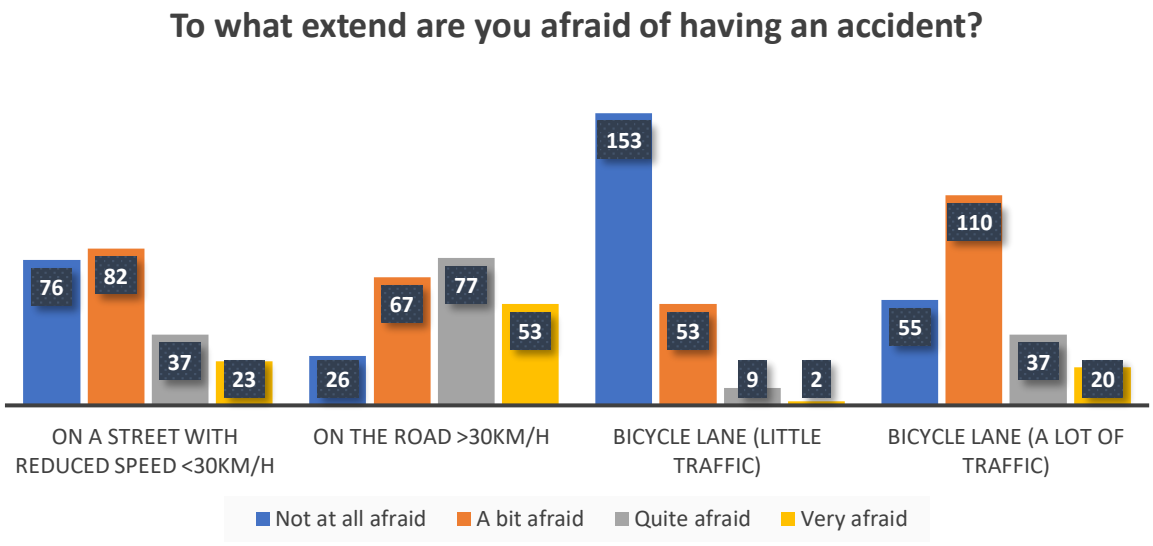

FIGURE 14 FEAR OF ACCIDENT BY CONTIDIONS

Perception of safety regarding accidents was reviewed as one of the most significant factors that impact the use of bicycles by women. At the same time this perception varies depending on the conditions under which cycling ought to be undertaken. For this reason, women living in Seville were asked to assess how afraid they are of getting into an accident when riding under the four different conditions.

Unsurprisingly, the biggest difference in the perception of safety is between riding on a bike lane with little traffic and riding on a road with vehicles driving above 30 km/h. The greatest variation can be observed with the response 'Not afraid at all' with 26 (12%) responses on the road with more than 30 km/h versus 153 (71%) on the bicycle lane with little traffic. Similarly,

[9] All quotes were translated from Spanish by the author.

53 (24%) almost a fourth of women said they are 'Very afraid' to ride on this kind of road, while on the bicycle lane with little traffic it was only 2 (1%).

It is interesting as well that the number of women who are 'Not afraid at all' of getting into accident on the bicycle lane drops from 153 (71%) with little traffic to 55 (25%) when there is a lot of traffic. This shows a strong variability of the perception of safety on the bicycle lane dependent on the conditions. However, studies undertaken for the local government have shown, that the ratio between men and women is more even where there is the most cycling traffic (Ayuntamiento de Sevilla, 2017). Thus, it seems that despite a significant increase in feeling of 'A bit afraid' instead of 'Not at all afraid' on the bicycle lane, it does not prevent women from using it. Thus, it can most likely be assumed that women feeling 'A bit afraid' is not a significant reason for the gender difference in cycling. In consequence, it may be that feeling 'Quite afraid' or 'Very afraid' has a stronger impact on their bike use.

The results show the importance of infrastructure and the speed-limits on shared streets for the perception of safety of women cycling. This perception of risk is also aligned with the actual bicycle accident rate in Seville. According to the data collected for the bicycle office, the accidents per journey ratio almost halved after the construction of the cycling lane in 2007 (Ayuntamiento de Sevilla, 2017).

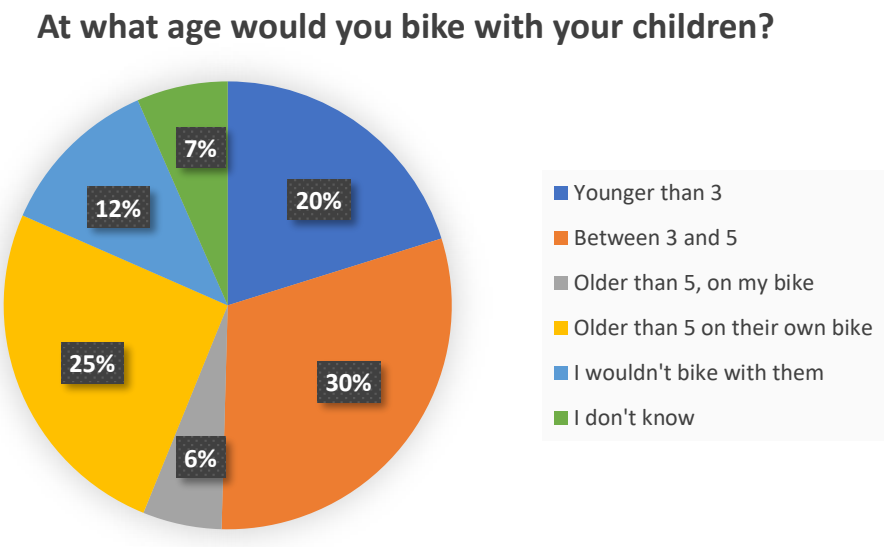

FIGURE 15 RIDE WITH CHILDREN BY AGE GROUP

As we have seen in the literature, women tend to travel more often accompanied, which can under certain circumstances create a barrier for using the bicycle for transport. Additionally, in the survey many women said they would like to bicycle more but need to transport things or people. This question aims to understand to what extend transporting their children is something women in Seville are willing to do. The age of the child is relevant because it reflects the years that a women would essentially not ride a bicycle when having to transport their children somewhere.

In the survey, a majority namely 56% of respondents said they would transport their children on their own bike. However, only 20% would do so if they were younger than three years old and 6% said they would transport their child on the bicycle if they were older than 5 years old. 12% of women stated they would not ride with their children regardless of their age. 6% of women used the option 'Other' and described that due to them not having children they do not know if they would transport them on a bicycle. The answers to this question show that having to transport their children can be a barrier for quite a few years, since a vast majority of women would either not ride with their children or only after they reached a certain age or can ride on their own bicycle.

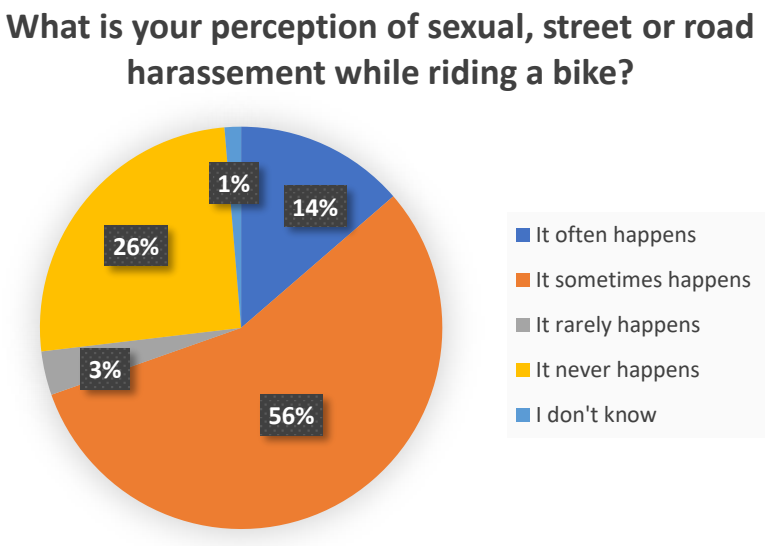

FIGURE 16 PERCEPTION FREQUENCY OF HARASSEMENT WHILE CYCLING

The question of sexual, street or road harassment is crucial when considering the sense of appropriateness and safety women feel to ride a bicycle. Road harassment can have an impact on your perception of physical safety regarding having accidents (Balkmar, 2018). On the other

hand, sexual or street harassment such as catcalling can have the effect of a verbal threat of sexual violence (Edwards, 2020), both thus effectively reducing the sense of safety women feel with their bodies on bikes in the city.

In the case of Seville, it appears that sexual, street or road harassment is an existing issue, yet not something that a majority of women consider to be happening often. 56% of women who responded to the survey said that sexual, street or road harassment happens at least sometimes. 14% answered 'It happens often' and 26% chose the answer of 'It never happens'. 3% of women wrote in 'Other' which I summarized as 'It rarely happens' due to it being responses like: *"It hasn't happened to me, but I think it does happen."*

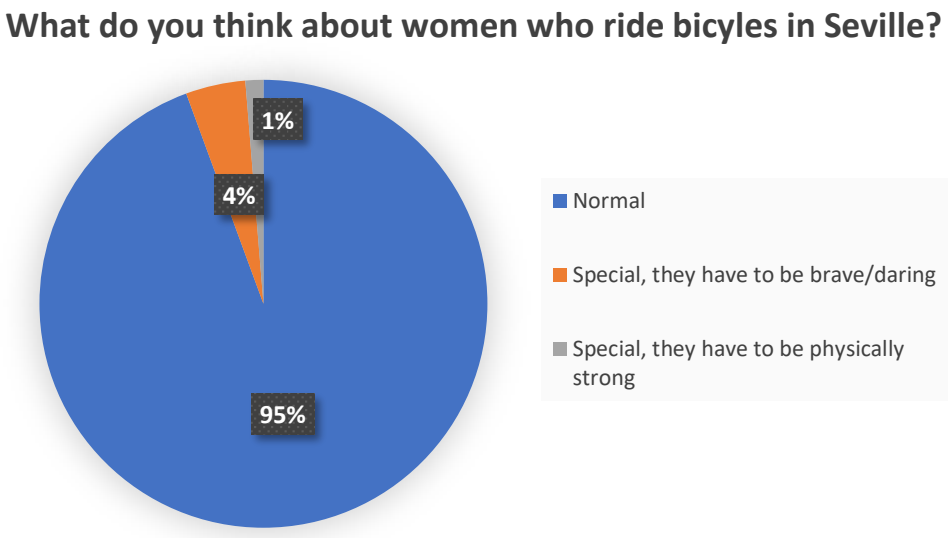

FIGURE 17 PERCEPTION APPROPRIATNESS

Regarding the question of the appropriateness of women cycling in Seville, 95% of respondents feel that women cycling in Seville are 'Normal'[10]. Only 5% percent of women chose the other two options 10 (4%) women saying 'Special, they had to be brave/daring' and 1% said cycling women have to be physically strong. It is a clear indicator that within the culture of Seville women cycling is nothing extraordinary nor inappropriate. Considering that according to the people I interviewed, 50 years ago the bicycle was exclusively thought for boys and women did

[10] The word 'Normal' was chosen on purpose, as it automatically tainted by the cultural values of the reader, meaning the women who filled in the survey. Thus, the respondents who said to consider women cycling 'Normal' did so from their perspective as women living in Seville.

not even know how to ride bikes, this change in the cultural perception is quite drastic. One women's response in 'Other' was:

"I think it is great, everyone can go as they please."

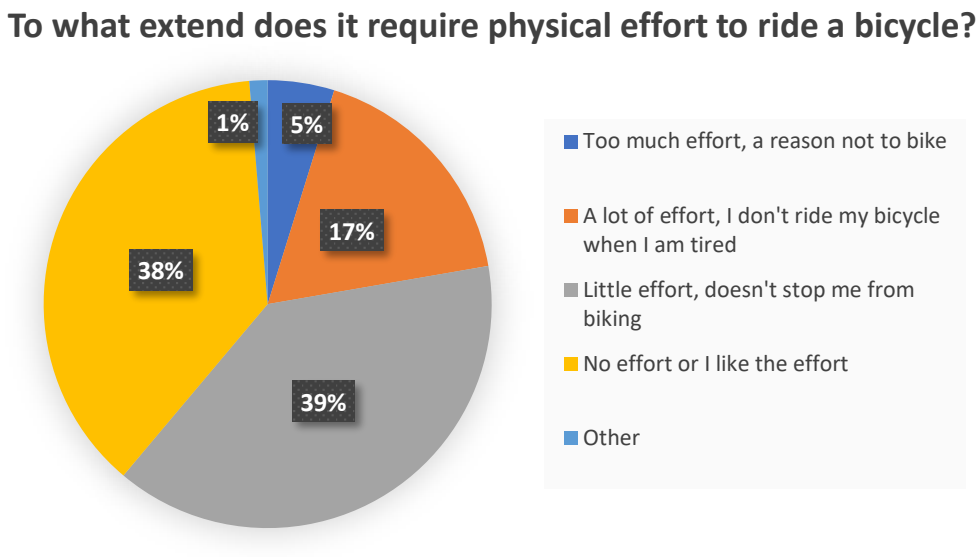

FIGURE 18 IMPACT OF PHYSICAL EFFORT ON CYCLING

To assess to what extend the physical effort it requires to ride a bicycle in Seville is a barrier for women to use it for transport, the respondents were asked about their perception of it. 77% of women said that the effort does not prevent them from cycling. Out of these women 38% chose the option that to them it was no effort or they like the effort. Nonetheless, 17% of respondents said that cycling to them implied a lot of effort which prevents them form cycling when they are tired. Only 1% of women who filled in the survey said that to them the physical effort was too great and a reason not to bike. Two of the three responses in 'Other' were about not knowing how to cycle and the third comment about the climate conditions:

"The weather in Seville does not make it viable with higher temperatures to take the bike."

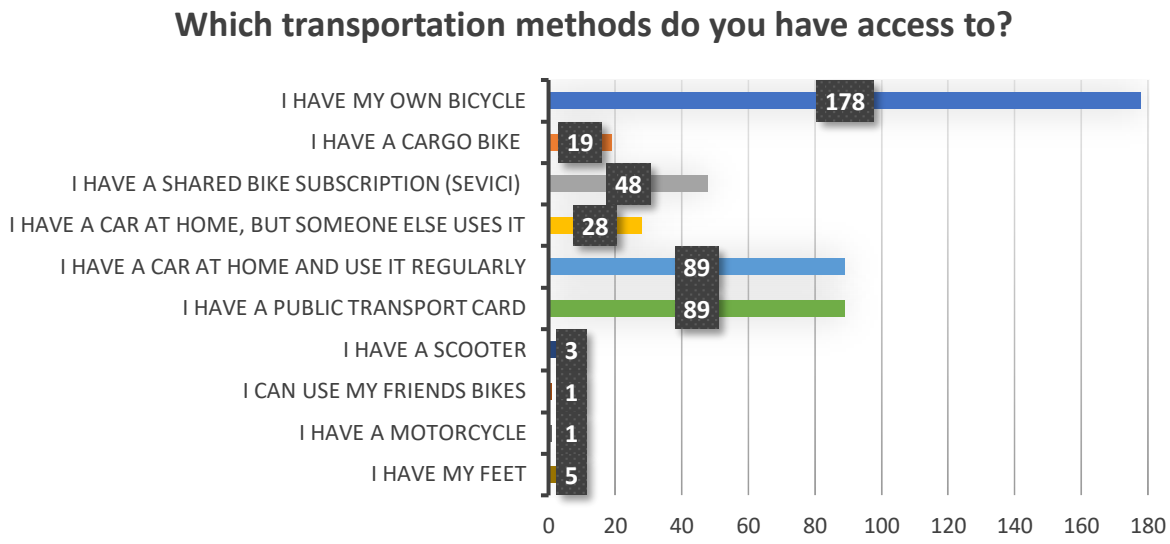

FIGURE 19 ACCESS DIFFERENT TRANSPORTATION METHODS

Access to transport methods is a key capital of motility and lack of access can be a significant capacity constrain for women according to time-geographers. 178 (78%) of women who responded this question said that they own a bicycle. This percentage is higher than the of the women who cycle at least occasionally (74%), which means at least some of the respondents own their own bicycle despite never using it for transport. 19 women said to have a cargo bicycle and 48 answered to have a Sevici shared bike subscription.

Only 28 respondents said to have a car at home that someone else uses versus 89 who said to regularly use their car. This comes a bit surprising since the idea is that many women do not have access to the family car (Obach Lapieza & Ramos Sanz, 2020). The same number of women who say to use a car regularly have a public transportation card[11]. Further, the respondents were asked to fill in any additional transportation method in 'Other', such as scooter, motorcycle, and access to friends' bikes. Here 15 of the respondents specified that have access to a car but they do not use it regularly with comments like these:

*"I **have a car** at home but the **whole family uses a bike** to get around the city."*

*"I also **have a car** and **I use it very little**."*

[11] The kind of subscription was not specified.

*"I usually walk, car **only long distances**."*

Five women added in 'Other' that they usually walk[12].

The most interesting result is that almost double the number of women who filled in the survey have their own bicycle than access to either a car or public transport. This could be due to the low economic cost of owning a bicycle, compared to the two other most common transportation methods. Further, it can be a reflection of the presence of bike shops within the city, as discussed by Marqués (2011).

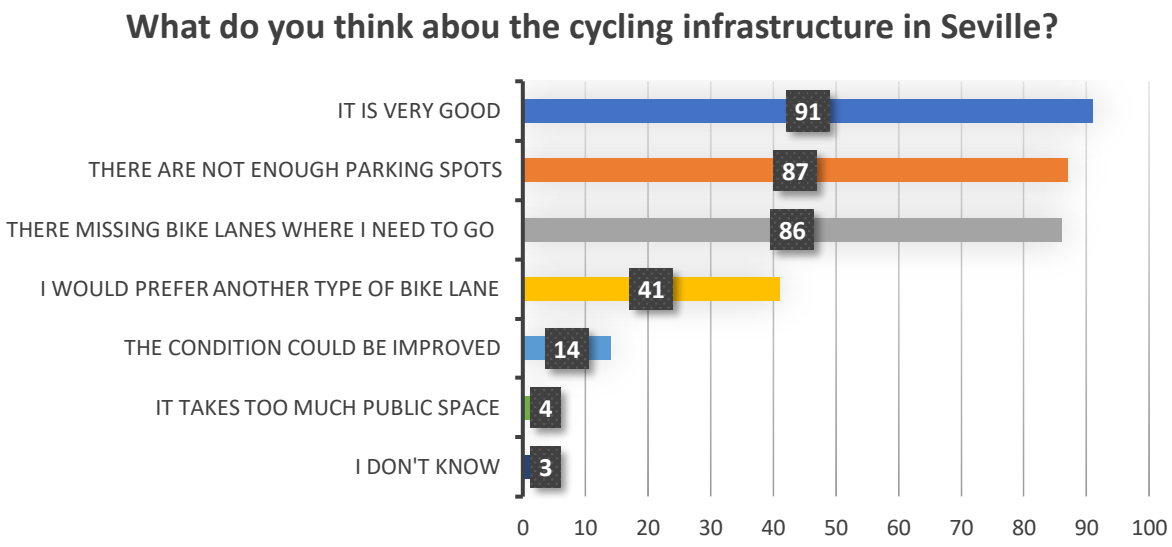

FIGURE 20 OPINION ON CYCLING INFRASTRUCTRE

Insufficient or absent Infrastructure can be a key institutional barrier for women to use a bicycle for their mobility. 91 (40%) out of 228 of respondents chose that 'It is very good'. Almost the same number of women 87 (38%) say there is a need for more parking and 86 answered that there is no bicycle lane where they need to go. Additionally, 41 (18%) said they would prefer a different type of bicycle lane. Three respondents wrote in 'Other' that they do not have an opinion about the cycle infrastructure as they do not use it.

[12] I originally did not include walking a transportation method because I considered that everyone has access to it. However, at a later stage I realized this implies an able-bodied perspective and that infrastructural conditions may not be given everywhere to make walking accessible as a form of transport. I decided thus to at least include the number of women who mentioned it explicitly. However, it could be that if it had been a pregiven option many more respondents would have chosen it, thus the number is not representative.

14 women described that the conditions of the cycle lane could be improved and 4 that it takes up too much public space. These are some of the comments that were written, addressing the condition but also other aspects that are related to the behavior of non-cyclists:

"Cycle lanes should be ***wider*** *and* ***better maintained****."*

"There is ***too much traffic*** *on the cycle lane at certain times."*

"In cycle lanes next to zebra crossings, there should be ***signs*** *that say pedestrians and cyclists have priority because they [car drivers] don't know the rules and cars often don't stop."*

"There are stretches in bad condition, when it rains a bit, the green paint is very ***slippery****, and* ***car drivers react aggressively*** *when you have to drive on the road with them when there is no lane. They shout and whistle, they change lanes rashly, they don't want to share the road. It's very violent."*

"The lanes need to be ***made more important****, just like the road for cars."*

"There are pavements where ***the cycle lane takes a lot of space away from pedestrians*** *and I think it is wrong."*

Additionally, the respondents were asked to write a measure that would increase their utilitarian use of the bicycle in Seville. The answers strongly reflect those of their opinion of the infrastructure yet with more nuance. 53 women said there is need for more secure parking options. Most of them specified that bike theft is a big issue that requires either more surveillance or police intervention.

"Guarded parking lots. ***I have had 4 bikes stolen****. Not having a place to store them is a big problem"*

Further, 47 women said that there is need for more bike lanes to increase safety. Some of them mentioned the necessity to connect the outlying villages and suburbs. Thirty responders wrote that there is a need to improve the bicycle lane's condition, proposing solutions such as: wider lanes, clearer separation from pedestrians and different material that is not as slippery in the rain.

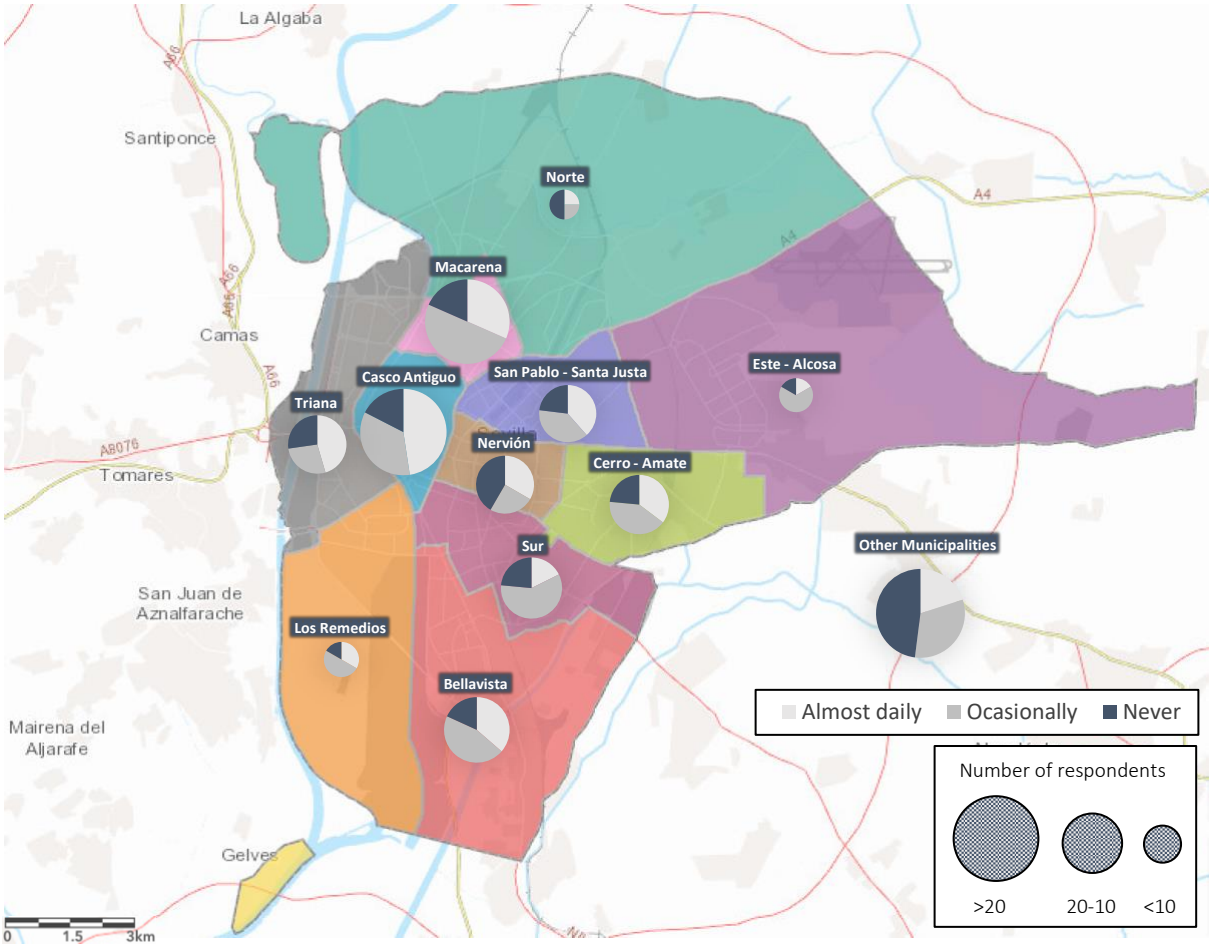

FIGURE 21 BIKE USE BY DISTRICT (SOURCE BASE MAP: IDE.SEVILLA[13], 2014; ADDED VALUES: AUTHOR)

An analysis of the bike use by district can help indentify barriers that manifest spatially. From the responses gathered, it can be concluded that more women ride bicyles within the municipality of Seville than those living outside of it. With the exception of the district 'Norte', all the other city districts show a higher use of bicycles than 'Other Municipalities' when combining the answers of 'Almost daily' and 'Ocasionally'. 12 (48%) of the 25 women who responded living outside of the municipality of Seville answered that they never use the bicycle. This makes sense as the bike lanes can mostly be found within the municipality of Seville (Ayuntamiento de Sevilla, 2017).

The highest proportion of 'Almost daily' bike users with 30 (48%) out of 63 respondants is present in 'Casco Antiguo'[14]. This is followed by the neighbourig district 'Triana' where 5 (46%)

[13] Creative Commons License
[14] Historic city center

women out of 11 said to use the bicyle ‘Almost daily’. Exceptional seems to be the district ‘Nervion’ which is surrounded by districts where the responses of ‘Never’ makes up less than 25% yet itself has a relatively high rate of 5 (42%) out of 12 of women who never cycle. However, these results should be interpreted with with precaution due to the sample number of each district being quite small. The largest group lives in the ‘Casco Antiguo’ with 63 responses followed by ‘Macarena’ with 38 responses. The smallest number of women responded living in ‘Los Remedios’ and ‘Este - Alcosa’ with six responses each.

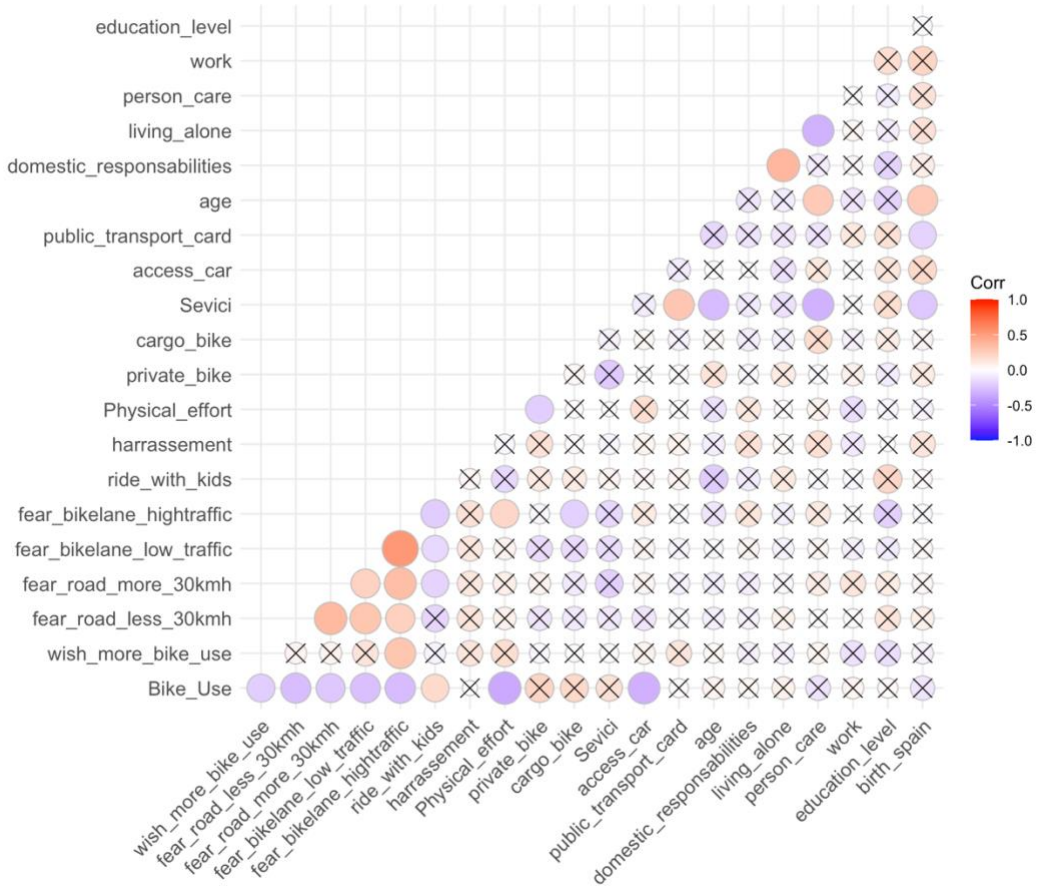

FIGURE 22 VISUALIZATION OF CORRELATIONS BETWEEN VARIABLES

In the previous graphics I discussed the answers to the survey questions individually. Yet, it is equally interesting to see the correlations between the answers, which helps recognizing patterns in the responses of women. We will look at the correlations that exist with the use of bicycle: the bottom row of the matrix.

It appears that there is a tendency that women who cycle frequently are those who have a lower interst in cyling more and vise-versa. Some women wrote that they already always use

their bicycle so they could not use it more, this could be part of the qualitative explanation of the negative correlation. Similar, there is a even stronger negative correlation between the use of bicyle and fear of having an accident.

Futher, there is a positive correlation bike_use and ride_with_kids meaning that a significant number of women who said they would ride with their children[15] also use bicyles for transport. However, fear of accident may be the third variable which explains this correlation. Which makes sense, as women who do not ride a bicyle out of fear would also not ride a bicyle with their children. The other two strong negative correlations that can be observed are between bike_use with phyiscal_effort and access_car. It can be that the physical effort is both a barrier that prevents women from cycling but also that once they cycle regularaly the preception of the the physical effort changes. This interpretation would be in line with the information gathered through the interviews.

Concerning car access, the negative correlation shows that women who do not have access to a cars cycle more and that those who have access to cars cycle less. Finally, no siginificant correlation was detected between access to a private bike, a cargo bike or Sevici. For the private bike, it may be that as we have seen in the the question more women have access to a bicycle than said to cycle even ocasionally. 19 women said to cycle ocasionally, but do not own a personal bicyle. While 27 women said to own a bicyle yet they never seem to use it.

What strikes me the most interesting regarding the responses, that none of the factors related to the women's identities such age, education level, country of birth appeared to correlate with the use of the bicycle. Meaning that according to the survey, it is not a specific 'group' of women who uses the biycle while others do not at all, but that it is relatively evenly distributed amongst the female population. Also there no significant correlation between the amount of domestic work of the respondants or being care taker of another person with the use of the bicycle.

[15] Regardless of their age

5.3 DISCUSSION SURVEY

I chose to present the discussion of the survey with the structure of my analytical framework. This facilitates the analysis and the comparison with the results of the workshop.

Capacity Constraints

Access

The most obvious access to cycling as a form of transport, is owning a bicycle. This kind of access seems rather widespread among the women who filled in the survey as 78% said to own a private bicycle. Further, the importance of this access is confirmed by the clear positive correlation between owning a bicycle and the use of it. Having a subscription to the public shared bike system is a less common but still relevant form of access that 48 women have.

When looking at the barriers of ownership we can see that storage appears to be the main one. 52 women said that they would like to cycle more if they had somewhere to store a bicycle. Thus, them having *access* to cycling through ownership of a bike is restricted through an *institutional constraint* as infrastructure falls into this category. Additionally, the problem of parking a bicycle clearly appears to go beyond the issue of lack of space. As seen in the results, the major issue appears to be bike theft.

Competence

Competence in cycling is first and foremost related to the skill of riding a bicycle and it can be considered another capacity constraint that has an impact on women's use of the bicycle for utilitarian purposes. As seen in the discussion of the case study, the ability of riding a bicycle in Seville is historically a gendered skill. When viewing this issue with the lens of feminist scholars as viewed in the literature, the lack of skill in women is an embodied social expectation of gender.

However, in the survey only three women who responded to the survey said to not know how to ride a bicycle, which represents 1% of respondents. 23 women said that they would ride more often if they felt more comfortable. As mentioned in the results, it shows that there is a difference between completely lacking the skill to cycle and feeling confident enough to ride a

bicycle as much as they desire. In this sense, confidence appears to be the more important factor that inhibits women from cycling in Seville than the basic skill.

Confidence is decreased perception of risk (Siegrist et al., 2005). 130 (58%) respondents said that they are either 'Quite afraid' or 'Very afraid' of getting into an accident when riding a bicycle on a road with speeds above 30 km/h. As the correlation showed there is negative relationship between the use of the bicycle and the fear of getting into an accident. Thus, it is likely that most women do not cycle on roads where there is no speed limitation. Additionally, a bit more than a between 27% and 26% of women said to be either 'Quite afraid' or 'Very afraid' to ride on streets with speed limitations of 30 km/h or the bicycle lane with a lot of traffic respectively. This means that despite existing infrastructure around a fourth of women may still not feel confident enough to cycle when there are a lot of cyclists on the lane, for example during peak hours. This could arguably influence the usefulness of the bicycle for transport. Similarly for these women, traffic calming measures may not be effective to increase their utilitarian bike use.

Finally, the last aspect that I consider under competence, is the physical effort it takes to cycle. While the percentage of women who answered that they consider cycling to be 'A lot of effort' or 'Too much effort' is relatively low 18%, this should not be neglected as there was a strong negative correlation with bike use.

Appropriateness

As discussed in the analytical framework the idea appropriateness in Motility is closely connected with the concept of performativity. Whether women cycling in a culture context is considered normal and feminine can have an impact on their use of the bicycle for transport. Looking at the answers of the women who filled in the survey, it seems that in Seville from their perspective, it is 'Normal' to see women cycling as 95% of respondents chose this answer. Ten women representing 4% said that to them women who cycle need to be daring or brave and only 1% said that they need to physically strong. As these percentages are very low, I consider that they can be neglected. Thus, it can be concluded that the cultural perception of women cycling in Seville has been 'normalized'.

The other aspect of appropriateness is the issue of street, road, and sexual harassment. Here the answers show a different tendency to the one above. While it does not directly relate to performativity of gender it does however have an impact on the perception of women's safety as discussed in the results. It can thus, strongly impact women sense of appropriateness riding a bicycle. More than half (56%) of the women said that some kind of harassment happens at least sometimes. There was no correlation between perception of harassment on women cycling in Seville and the use of bikes. However, this does not show how the actual experience of harassment impacts the use of bikes.

Coupling Constraints

As seen in the literature, women tend to have more complicated mobility patterns than men, due to performing more domestic care tasks. Further, this often includes the need to having to transport people in their care or things such as groceries etc. According to the survey, this poses a barrier to cycling for a bit more than a quarter (26%) of women. Further, 12% said they would not cycle with their children regardless of their age and 73% would not cycle with their children if they were younger than 3 years old. This means that for at least three years (depending on if the women would cycle during their pregnancy) almost three quarters of mothers would not use the bicycle when moving with their children.

Another coupling constraint that according to the literature is more often a problem for men than women, are distances who are considered too long to be doing by bicycle. Nonetheless, 49 (22%) of women said they would cycle more if distances were not as far. Meaning despite women on average traveling smaller distances than man it also impacts women's their choice of transport.

Institutional Constraints

The institutional constraints that were identified through the survey all relate to the bicycle infrastructure. 86 (37%) women said that there are no bicycle lanes where they need to go. This can be a bike barrier to cycling, as 58% of respondents said to be quite or very afraid to cycling on a street with speeds above 30 km/h. Additionally, the spatial

analysis showed that more women cycle in the municipality of Seville than in the suburbs, showing the impact of the cycle lane, that mostly exists within the city center.

Further, as discussed under capacity constraints, the problem of theft is an issue that prevents many from either using their bike or owning a personal bike. 87 (38%) said they would cycle more if there was more parking available. Finally, 30 women said a measure that would make them cycle more would be to improve the conditions of the cycle lane, such making it wider in to make traffic less of an issue.

Intersectionality

Nine questions were asked related to the women's identity and domestic responsibilities. These were to find out if the use of bicycle was dominated by a certain group of women living in Seville. However, the findings do not show a correlation between any of the identity axes asked and the use of the bicycle in Seville. Thus, it can be concluded that it is not a specific group of women who uses the bicycle or not.

6 THE WORKSHOP

6.1 METHODOLOGY

CONTENT CREATION

The objective of the workshop is to give more depth to the answers I retrieved from the survey. Through this purely qualitative approach, experiences, motivations, difficulties, and emotions can be captured. This is very difficult to achieve with statistics. Collaborative workshops have been used by feminist scholars as a methodology in urban studies, but also in policy making and planning, to improve participation of citizens (Lennie, 1999). Col·lectiu Punt 6 has created a manual on how to create these collaborative workshops for different aspects of the urban. They have recently published a guide for everyday mobility based on a case study in Buenos Aires, which would have been more relevant for my work. Yet, at the time of the creation of my workshop, this guide was not available yet. Instead I used their guide 'mujeres trabajando'[16], which gives insight into urban analysis from a feminist perspective (Col·lectiu Punt 6, 2014). However, as I made the decision of creating a virtual workshop, I had to strongly adapt the techniques for the implementation of the workshop. Nonetheless, I took three key elements out of the guide: the creation of individual profiles to record the intersectionality of the participants, the use of mental maps to visualize their daily mobility and the photo documentation of their mobility in real life. To this I incorporated different aspects and techniques I learned from the literature.

In the end I set up the workshop in the following way:

First, I presented them with the itinerary of the workshop, which was scheduled for one hour.

Second, I gave them a very brief introduction on the topic of women cycling and some observed, generalized differences between the mobility of women and men.

Third, I asked the participants to create a sticky note with their profile, writing down a first name that can be theirs or an invented one if they prefer to stay anonymous. The purpose of

[16] Translated from Spanish: working women

the creation of a profile is to record the intersectionality of participants and to consider how different aspects of their identity play into their mobility experiences.

Fourth, I asked to write down a detailed description of a typical day that represents most days of their week. The instructions were as following[17]:

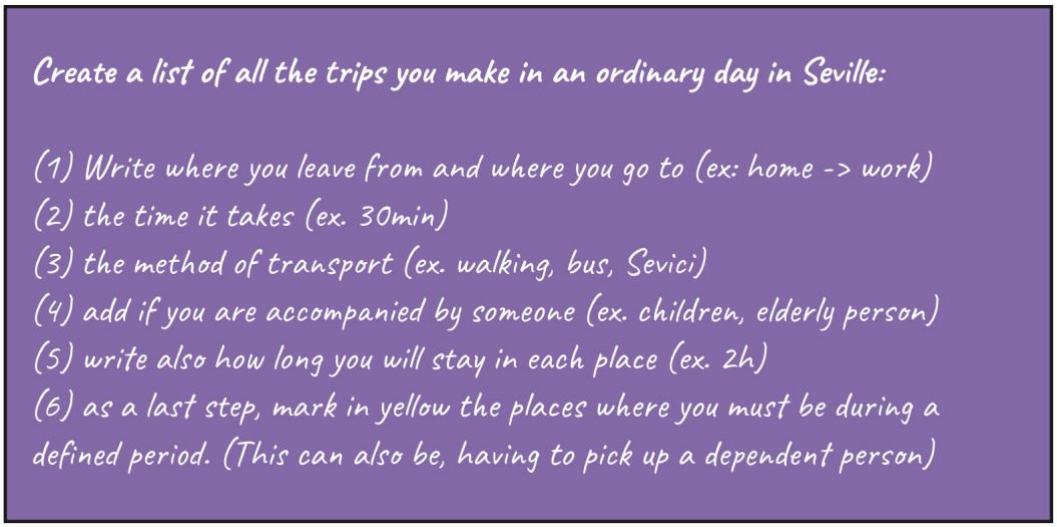

FIGURE 23 INSTRUCTIONS FOR DAILY MOBILITY SCHEDULE

This methodology comes from Time-Geography (Friberg et al., 2012) and has been used by feminist geographers for its value in showing the constraints and obstacles that women encounter in their daily lives through their mobility.

Fifth, the participants were asked to create a schema of their daily itinerary using emojis and drawing arrows. This allows to visualize certain patterns and helps reflect upon their daily experiences. I created an example schema so to facilitate the task.

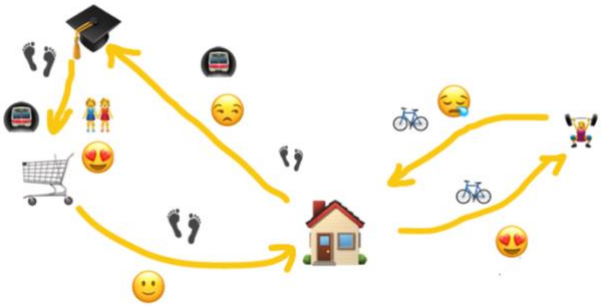

FIGURE 25 EXAMPLE MOBILITY SCHEMA

After they finished the schemas of their daily mobility itinerary, I asked to the participants to add emoji that represent how they usually

[17] All instructions and results presented were translated from Spanish by the author.

feel during each journey. Once everyone was satisfied with their schemas, they presented them to the whole group, explaining why they chose each emoji expressing an emotion.

Sixth, the participants had to write down on sticky notes the things that makes them associate some of their journey with negative emotions and explain it to the others. In a next step they were to think of ideas that would help to make the journeys more pleasant. Further, I asked them to write down what would incentivize them to use a bicycle, for those journeys they do not, or if they never cycle at all. The point for this part was to create a conversation and for them to also learn from each other.

Seventh, I asked the women if they wanted to document their mobility for a day and share the pictures with me to use in my thesis.

Eighth and finally, there was a round of feedback where the participants could share their thoughts on the workshop and some reflection on their own mobility.

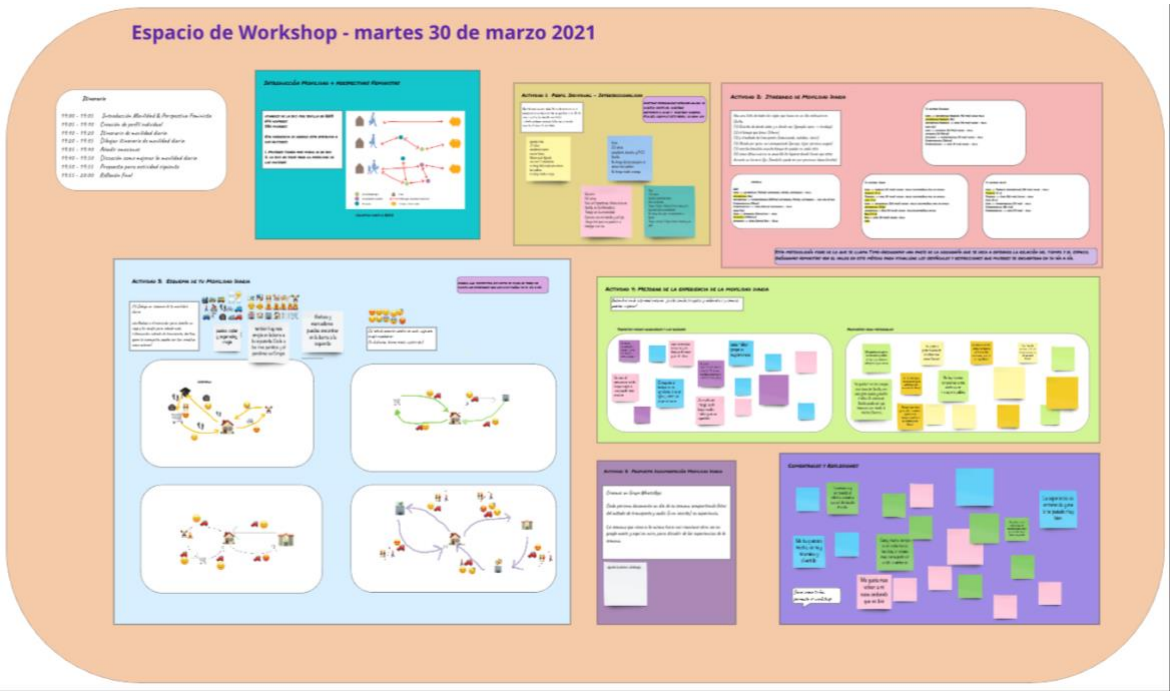

FIGURE 26 WORKSHOP SPACE OF A GROUP OF THREE AFTER COMPLETION

IMPLEMENTATION

I chose to do it online due to the pandemic related restrictions. This way the workshop could take place independently of changing regulations. The online format came with certain advantages and disadvantages. The two most evident advantages relate to time and space.

On one hand, it reduced the time it takes up to participate in the workshop since the women did not have to move to a physical place. This potentially increased the number of participants. Secondly, it allowed for women to participate who were not in Seville at that moment, since the workshop was open to all women who have lived in Seville at any point in time. For women who were not living in Seville at time of the workshop, I asked them to engage in the activities thinking about when they last were living there.

On the other hand, the disadvantages were related to the issue of technology. In many cases the participants had problems with the collaborative software Miro. None of the women who participated in the workshop had ever used it before. I had written some basic instruction in Spanish on how to use Miro on the board, as many of my participants are not necessarily fluent in English and Miro's user guide only comes in English. Additionally, I informed them that I would be also logged in to the video call fifteen minute early to help them figure out Miro. A few women did take on the offer and it proved very useful.

Further, the proper use of Miro requires to be logged in from a computer. Before the workshops I had not thought about this as a problem, because I had assumed that all participants would automatically use a computer for the workshop. However, it was a clear manifestation of my limited perspective, as two women during the workshop told me that they do not have access to a computer. We then solved this issue by them telling me what they would like to write and me transferring it to the Miro white board.

Another issue was that those women who have very limited knowledge and habit of using computer software beyond its most basic function, had great reservations towards being able to use Miro. However, in all cases after a bit of 'getting used to' they managed to work the software properly and the general feedback was that they really enjoyed using it. This respect or inhibition to use technology was mostly an issue with women on average older than fifty years old.

FINDING PARTICIPANTS

At the end of the online survey, I asked women to share their email address if they are interested to participate in an online workshop. This way I collected over 50 email address. However, once I sent out the invitation for the workshop only two women signed up and two

participated. For this reason, I had to resort to other measures of distribution. I thus though of applying the same methods I had done for the survey. I recontacted the cycling association 'A contramano', to help me distribute the invitation among their members. However, this time (unlike for the survey) I gained no participants through them. I also contacted over 90 other associations related to women in Seville. This way I came in contact with a feminist association of African women living in Seville, out which two participated in my workshop. Finally, I resorted to using my personal contacts. Three women who participated are family friends and I knew them personally before the workshop. Another four women whom I did the workshop with, were contacts of my personal contacts. Finally, I also did the workshop with one woman who is the business partner of Milagros Rossi Sammartino, whom I had interviewed for the case study section of my thesis.

As finding participants turned out to be a lot more challenging than expected, I had to adapt the format of the workshop. Originally, I intended to two workshops with 5 to ten women each, while in the end due to the circumstances of participants availabilities I ended up doing five workshops with usually two women. Once I did the workshop with one person alone and the maximum was three who participated in one. This format again brought a series of advantages and disadvantages. I would have preferred to have more women participate at once as they could share and discuss their experiences with each other. However, as I mentioned before technology posed a bigger difficulty than I had expected. Thus, the smaller groups allowed me to attend to the women's problems and questions with more ease.

ANALYSIS

The final groups of participants of the workshop were made up of 12 women between the ages of 19 and 56 years old[18]. Most of them were born in Seville to Spanish parents, except for three women who were born in different countries: United Kingdom, Iran, and Mauritania. The two women from Iran and Mauritia both said to identify as Senegalese. All women either work or are students, some of them both. Three women are living in a neighboring municipality of Seville, while the other nine live in one of the eleven districts of Seville. Seven women said to

[18] All participants agreed explicitly at the beginning of the workshop to the use in my thesis of the information they shared.

have their own bikes and two who do not have their own bikes said to have a public bike subscription.

FIGURE 27 PROFILES OF THE 11 PARTICIPANTS

For the analysis of the workshop, I first present the results by looking at each of the participants mobility pattern individually including their drawn schemas [19] and quotes [20], highlighting aspects that I find especially relevant for my analysis. In the discussion I then reflect upon how their experiences connect to the concepts of my analytical framework. This analysis is of purely qualitative nature and thus based on quotes and the drawing that the women made during the workshop, as well as the images they sent afterwards. As mentioned before, the objective is to record and evaluate the experiences of their daily mobilities, giving special emphasis on the emotions that are linked to these. Obviously, the testimonials of eleven women cannot be generalized to the entire female population. However, this is exactly the point, feminist approaches aim to give weight to the individual experience of non-hegemonic groups that often are neglected in quantitative methodologies.

[19] The shown mobility schemas were created by the participants during the workshops in 2021.

[20] All quotes were translated from Spanish by the author.

6.2 RESULTS

DAILY MOBILITY

ROSA

Rosa is a 27-year-old student from the UK, who worked as an English teacher in Seville for three years. She lived in the city center, Casco Antiguo with three flat mates. During her time in Seville, she owned a bicycle.

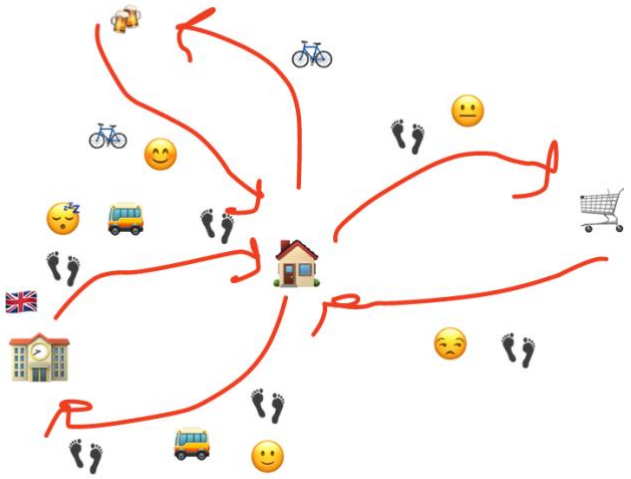

FIGURE 28 ROSA'S DAILY MOBILITY SCHEMA

Rosa worked in the afternoons and took a bus to work. *"I worked in Tomares,* ***there is a hill so I couldn't ride my bike there****. I didn't have the legs, nor the motivation".* She said to enjoy the ride to work, because she could look out the window and the weather usually was nice. After work she felt tired and often it was already dark, which made the ride less enjoyable for her. The journey took her about 30min from door to door having to walk about 15min to the bus station. *"After work I would always take my bike to grab a drink and have tapas.* ***I liked to ride the bicycle at night*** *because of the lights and the ambience with the people."*

Her least preferred mobility trip was coming back from the grocery store: *"I always went walking to the supermarket. But that means that I had to carry all the stuff back, which was heavy and I didn't like that."* Further she explained, *"****The bicycle was not convenient to transport things****. Also I find it uncomfortable to have to tie the bike to something for a short trip and then having to untie it with all the bags.".*

ELENA

Elena is 47 years old and works as a waitress outside of Seville. She lives with her husband and three children between nineteen and

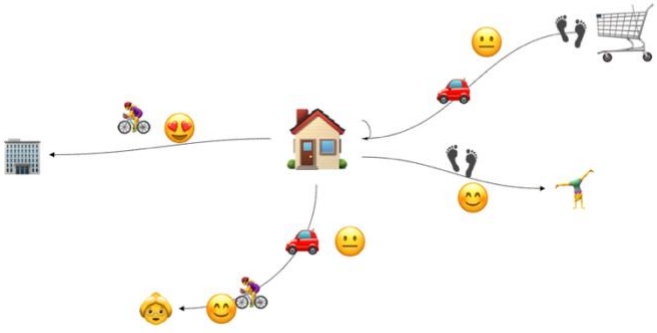

FIGURE 29 ELENA'S DAILY MOBILITY SCHEMA

twenty-two years old in Sevilla Este, the districts furthest east of the city.

On a normal day she rides her bike for 25min to get to work. *"Half of the journey I do on the bike lane in the city, the other half on the countryside.* ***I love it! I enjoy the journey a lot****. The part in the city on* ***the bike lane I don't enjoy as much****. You have to pay attention to a lot of things and many pedestrians walk on it. The bike lane itself is very nice, but sometimes the cars really can't see you, so* ***you have to be very careful****."*

During the workshop Elena described how after work she always goes straight home because she does not like to leave the bicycle anywhere. *"When I go to supermarket I either take the car or I walk."*

*"To go to the gym****, I always walk because it's close****."* She further told us that she often visits her mother *"Sometimes I ride my bicycle,* ***but I often bring her things, do the groceries or run another errand. Then I take the car.****"*

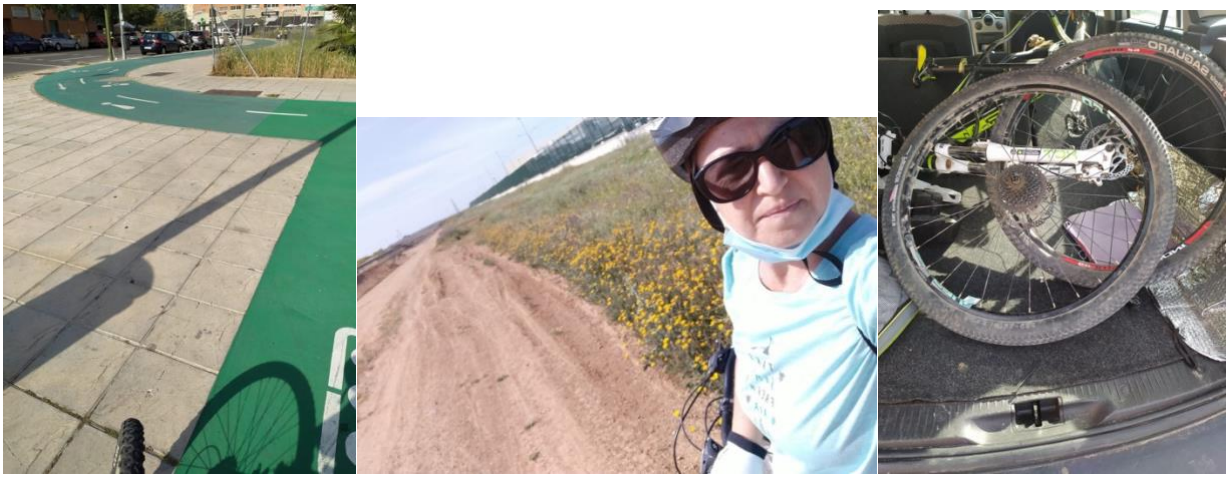

FIGURE 30 ELENA, LEFT: WAY TO WORK BIKE LANE, MIDDLE: WAY TO WORK COUNTRYSIDE, RIGHT: BRINGING HER BIKE TO HER SON BECAUSE HE HAD A FLAT AND SCHOOL BUS TAKES TOO LONG (SOURCE: ELENA, 2021)

SOCO

Soco is 56 years old and lives in Espartinas a municipality of the Province of Seville, with her husband, son and dog. She owns a bike.

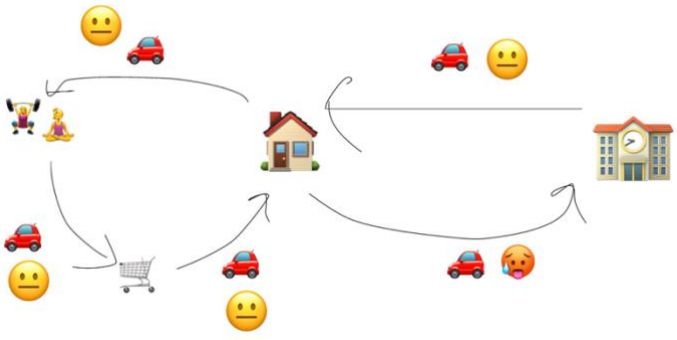

FIGURE 31 SOCO'S DAILY MOBILITY SCHEMA

Her journey to work takes about 40 min each way. *"When I leave the house in the early morning, I am always very stressed. If I leave even five minutes later* ***I will get caught in traffic****. Once I know i made it on time I am more relaxed but in general* ***traffic yams annoy me****"*

"I go to the gym also by car. I am usually pretty relaxed but the journeys neither excite nor bother me. ***It's just how it is. I never think about it.****"* Soco described that she usually will do the groceries straight after the gym to save time.

"Of course, I would like to go to work by foot. But the distances are just too long, also I live on a big hill." "I can't ride a bike because I live outside of Seville, with a big hill and a lot of traffic. If I lived in Seville, ***I might not be able to ride a bike either, out of fear from the traffic****."*

FIGURE 32 SOCO, LEFT: DRIVING WITH SOMEONE, RIGHT: WALKING THE DOG, (SOURCE: SOCO, 2021)

IRENE

Irene is a 23-year-old student from Seville, who lives with her family. She does not have her own bike but a subscription to the shared public bike.

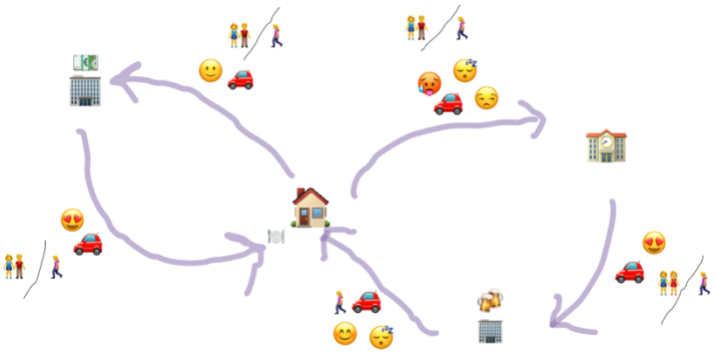

FIGURE 33 IRENE'S DAILY, MOBILITY SCHEMA

Irene goes to work in the morning in her own car, often a friend accompanies her. She says she enjoys it because she can put on her

music. *"After work I drive home very happy because at home I will eat. Most days I am* ***accompanied by one or the other friend who lives close by****."*

"After lunch I am usually very ***stressed because I have to hurry*** *to get to class. Often I am a little tired and* ***annoyed because there is a lot of traffic****. This is the worst trip of the day*." she explained. *"Normally after class,* ***a friend accompanies me*** *because most of them do not have cars. Those who took the metro distribute onto the cars and we go to the bar together. That's always fun."* From the bar she usually drives home alone.

"On the weekends I use the [shared] bicycle to move around the city."

CHIO

Chio is 56 years old and works as an administrative assistant. She lives with her husband, her son, and a cat. She does not have a bicycle. Chio did not specify where she lives, but it's somewhere in the outskirts of Seville.

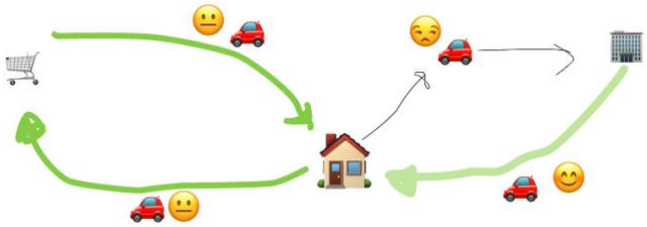

FIGURE 34 CHIO'S DAILY MOBILITY SCHEMA

*"****In the morning I go work by car, I am not very happy****, but I have to get a move on."* It takes her about 25min to get to work form her house by car. ***"There is usually a big traffic yam, it is the least pleasant trip****."*

"Usually when I go groceries shopping, I go by car. ***Neither happy nor unhappy*** *its just something that needs to get done."* The grocery store she goes to, is a 15min drive away, about this she comments *"not that it is unpleasant, but* ***I would prefer to go closer****".*

"On my way back from work ***I am happier, there is usually less traffic****." "I couldn't use the bike for my daily trips because the places I go to are too far."*

FIGURE 35 CHIO, LEFT: COMING HOME FROM WORK, MIDDLE: WALKING TO THE DOCTOR, RIGHT: WALKING TO THE CAR (SOURCE: CHIO 2021)

ANGELA

Angela is 23 years old and a student in Nursing. She lives with her parents in Bellavista in of the districts of the city Seville. Angela owns two bicycles and motorcycle.

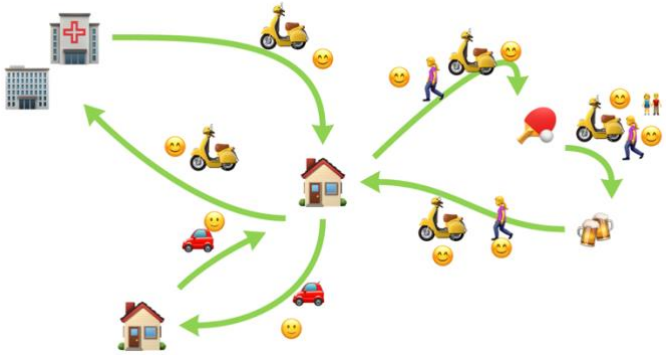

FIGURE 36 ANGELA'S DAILY MOBILITY SCHEMA

She explained that her schedule varies a lot, but usually her day starts with driving to the hospital in the morning, which takes her about 25min she said. *"Usually I go by motorcycle, because there is often* ***no space to park the car and it's too far by bus or by bicycle****." "****I enjoy taking the motorcycle more than the car!*** *In the summer I go by motorcycle everywhere."*

"After work I usually go to play padel and I either walk or take the motorcycle, depending on what I do afterwards.". "If at night I am meeting my girlfriends I often take the [parents'] ***car, because of the cold and it's just more convenient****."*

"Whenever I have to take ***public transport****, because I am going to drink or whatever****, I dislike it.*** *Not because of the public transport itself but* ***I just feel less save****. Especially if I have to walk far from the station to where I need to go."*

"To use a bike, I would need a place to leave it every time I move, without fearing that it would get stolen. And I would always have to ride on ***well-lit streets****."*

ALICIA

Alicia is 23-year-old software developer and master student. She lives with her partner in Nervión on of the central districts of Seville. She does not own a bicycle, nor does she have a public bike subscription. Currently, Alicia is working from home.

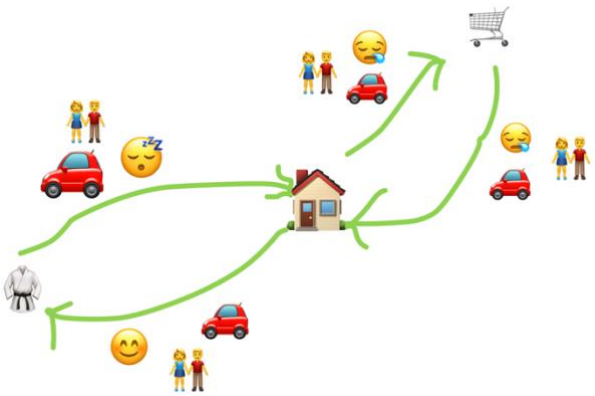

FIGURE 37 ALICIA'S DAILY MOBILITY SCHEMA

"After work, around five usually, I go do the groceries, by ***car so I don't have to carry all the stuff****. Generally I go with my partner he is the one that has a car." "If I only have to buy a few specific things I go alone by foot, because I don't have a car." "I prefer to walk but* ***I don't want carry everything****."*

"Around seven my partner and I go to Karate together, which we also do by car. I am usually very excited so that's why I enjoy the trip." This trip takes her about 15min.

*"****I don't like*** *when I go out with my friends and I return home* ***at night****, since I usually* ***walk alone*** *because* ***I don't have a car*** *and the* ***bus takes a long*** *time to arrive."*

"The [public] bikes should have something to hold the cell phones so that when I go home alone ***at night I can talk to my partner or a friend because that's what I usually do to feel safer****."*

REYES

Reyes is 19 years old and lives with her family in Gines, a neighboring municipality to Seville. She has her own bicycle.

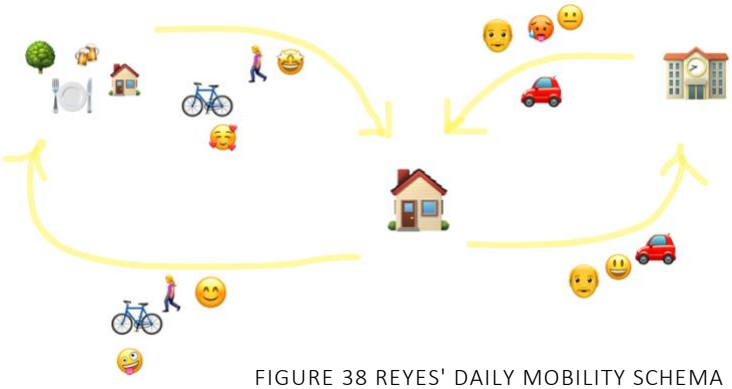

FIGURE 38 REYES' DAILY MOBILITY SCHEMA

Reyes explained that her father (sometimes her mother) drives her to university. *"I am usually happy because he is very punctual, so we don't have to rush."* He usually waits for her to finish her two hours class,

because the drive is 25min from her house to university. *"Sometimes he runs errands but often he just waits in the car. The way back is* ***not very enjoyable because I am in a hurry*** *to get to my online classes."*

"When I have time in the evening, I often meet friends to go to a bar, a park or a square. Depends who I go with I either walk or cycle because ***only one of my friends has a bike****. I enjoy both but I think* ***the bike is more fun and I feel more energised****. I love the wind in my face when I cycle."*

"Before entering university, I would ride it to school in my village [Gines]. I would be careful but not scared." "When I have to ride on the street, and I see there is a car coming from behind I try to ride faster because ***I feel like I am in the way****.* ***It is not a nice feeling****."*

"70% of times I ride on the bicycle lane, I wouldn't ride it on the big avenues. Maybe I would go on the pavement." She explained that the 30% she doesn't use the bike lane is mostly in Gines.

"If I am alone at night, ***I feel safer to ride my bike than to walk****."*

MALÓ

Maló is a student and 22 years old. She lives with her family in Triana one of the districts close to the city center. She has her own bicycle, that she keeps at her grandparents' place.

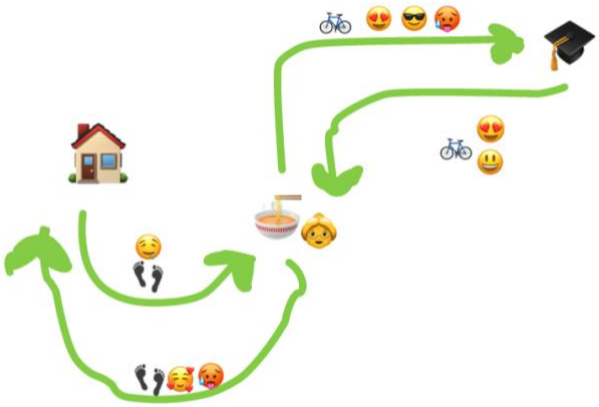

FIGURE 39 MALÓ'S DAILY MOBILITY SCHEMA

"I go from my house to my grandparents house, where I eat lunch." Maló said that her grandparents live a three-minute walk away.

"From there I take my bike to ride to university. At the beginning I really enjoy it but usually ***I get a bit tired towards the end, because I have to rush****."* Maló explained that the ride to university takes her about 20min and she can do almost all of it on the bike lane. "*The way back from university I really enjoy because I don't have to rush.* ***I really love to ride my bicycle****."*

I am glad I can cycle to university. It relaxes me, because it's a short ride. ***I also enjoy the outdoors and do some sport.*** *I like cycling.*

Finally, I leave my bike at my grandparents house because they have a courtyard where you can leave it. Then I walk back home, happy but tired.

"I am not afraid that they will steal my bike, maybe I am too trusting, but ***I do put two locks, one for each wheel****. Even so, they stole a wheel at some point."*

"I don't like when I have to ***ride on the street and there is a bus coming. It's quite scary****."*

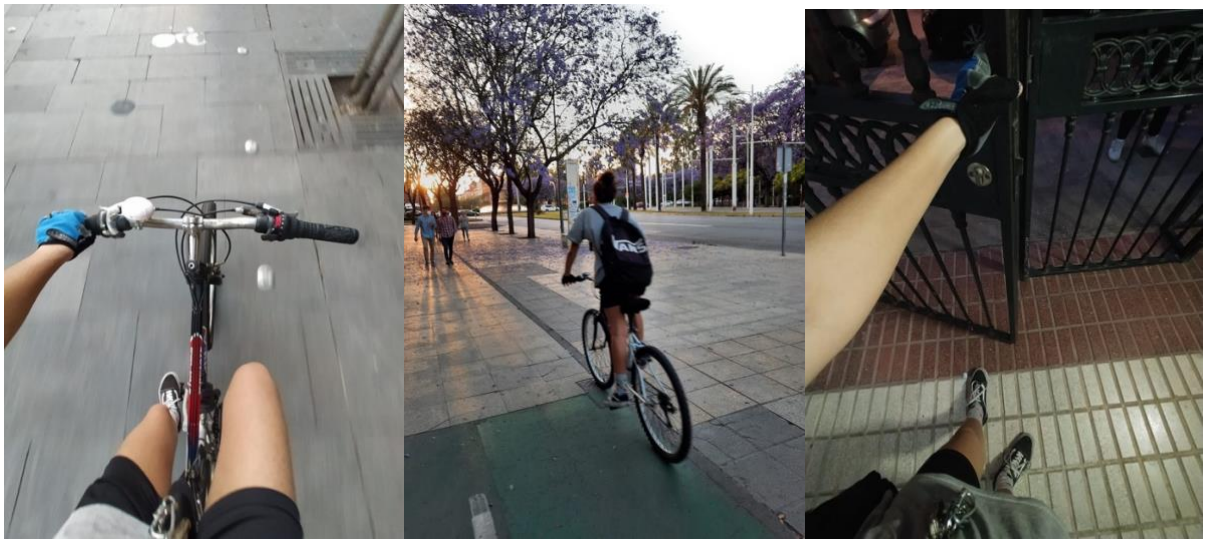

FIGURE 40 MALÓ LEFT: CYCLING TO UNIVERSITY, MIDDLE: CYCLING HOME, RIGHT: LEAVING HER GRANDPARENT'S HOUSE (SOURCE: MALÓ, 2021)

MATY

Maty is a 26-year-old Senegalese flight attendant who lives with six extended family members. She lives in San Jeronimo a neighborhood in the district 'Norte' north of Seville. She does not own a bicycle.

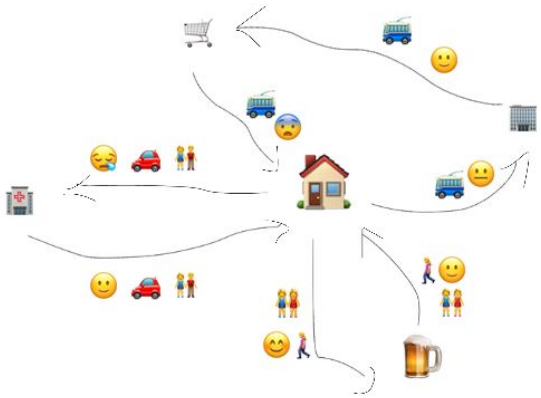

FIGURE 41 MATY'S DAILY MOBILITY SCHEMA

To go to work she has to walk for five minutes and get a bus for 25min. She explained that walking is painful for her, due to a physical condition*. "I leave my house, with* ***the heat and all it's not too pleasant****, otherwise I don't mind. Afterwards I go the mall to buy things. Then on my way home I have to carry everything, thats not very enjoyable."*

"When I have to go to the hospital, usually ***my cousin takes me because he has a car****. He usually waits for me about 30min to take me back home.* ***I am very glad he drives me****."*

"In the evening I usually go for a walk and meet up with friends to have a beer. ***I really enjoy that walk****."*

Regarding cycling she shared the following thoughts: *"If it wasn't for my physical condition,* ***I think riding a bicycle would make my life easier****. I wouldn't be dependent on the bus schedule." "I like traveling by myself and exercising, yet on the other hand* ***I like that the bus doesn't require much physical effort****." "I wouldn't ride bike to do the groceries, because of the weight." "****I've never ridden a bike; I am scared of falling****."*

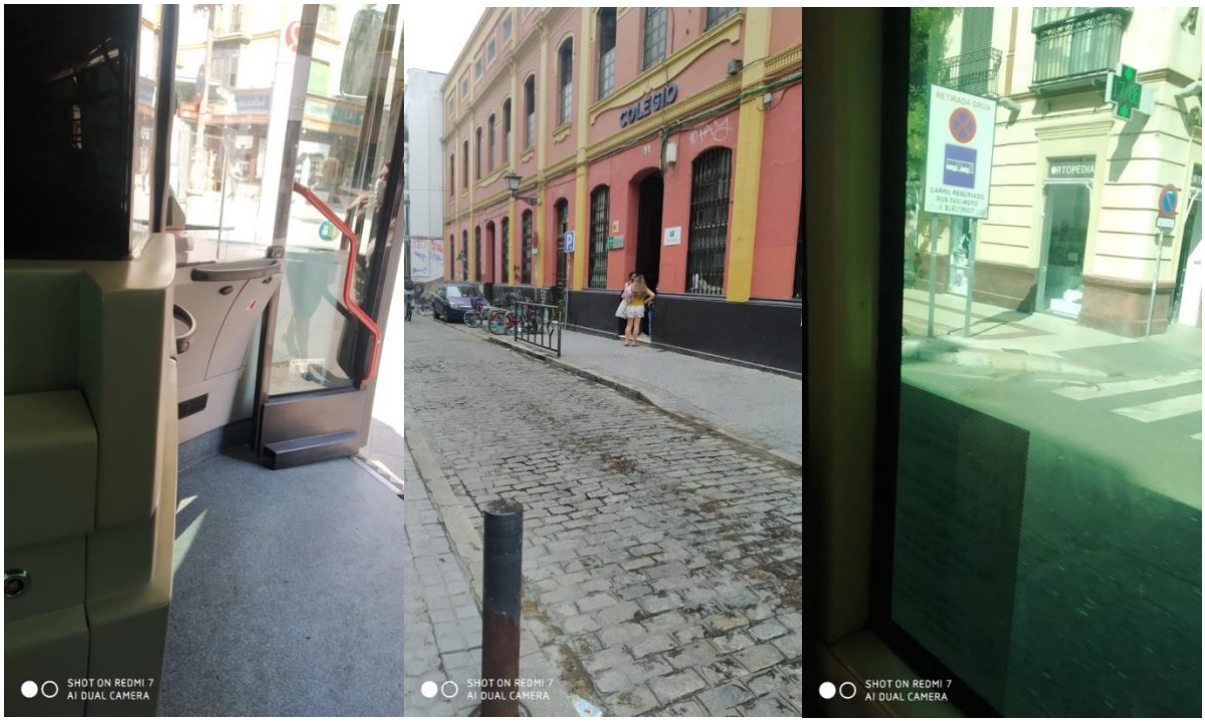

FIGURE 42 MATY, LEFT: IN THE BUS TO WORK, MIDDLE: WALKING IN THE CITY CENTER, RIGHT: VIEW FROM THE BUS TO WORK, (SOURCE MATY, 2021)

YATA

Yata is 33 years old. She works a as telephone operator and is part time student. Yata is Senegalese and lives in San Jeronimo (Norte), with 6 extended family members. She does not own a bike, but she used to have a small one.

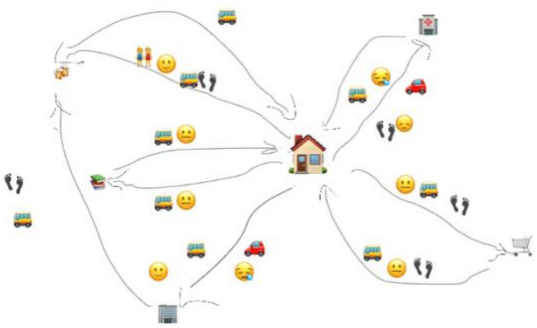

FIGURE 43 YATA'S DAILY MOBILITY SCHEDULE

"When I go to work, I usually go by bus except if my brother can take me. I don't like taking the bus in the morning because it's usually very full. In general I like traveling by bus, depends on how tired I am." The bus ride takes about 45min.

To the grocery store she goes either walking or by bus depending on what she needs to get. *"I feel indifferent about going to do the groceries by bus."*

"After work I sometimes go to have drink. Or I go home first. It depends where we go I either take the bus or I walk, often accompanied by my friends. During the day or early evening I like walking. If I need to get home late at night, which is rare I will take a taxi."

"I would like to ride to ride my bike to work to save time. I only feel save where it there is not a lot of traffic, and I can go slow. I used to like to take my small bike out, I don't like riding big bikes." She explained that she doesn't feel comfortable riding a big bike on the bike lane because she could fall.

FIGURE 44 YATA, LEFT: WALKING TO THE BUS STATION CLOSE TO HOME, RIGHT: GETTING OUT OF THE BUS (SOURCE: YATA 2021)

ANA

Ana is 39 years old and lives with her partner and two small children, 4 and six years old, in Macarena. The district of Macarena is north of the old town. Ana owns a bike shop /garage. She and her family all have their own bikes.

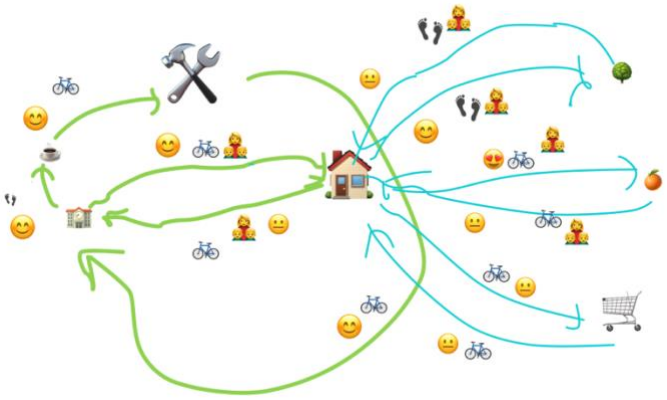

FIGURE 45 ANA'S DAILY MOBILITY SCHEMA

"I do ***almost all my trips by bicycle****. First thing in the morning* ***I bring the kids to school. Both of them on their own bike****. It's always a bit stressful to be on time: However, once we are on the bikes we tend to relax."* She used to have a bike trailer, in which she transported the kids, but it got stolen. Further, Ana explained that it is better for the kids to ride on their own, this way they are more awake once they get to school.

"After dropping the kids off I go have breakfast with the other mothers. For this I walk and am more relaxed. Then I cycle to get to the bike shop, which I enjoy." The bike shop is 5min away from the kids' school and the school 10min from their house. They can do **all of it on the bike lane, so she feels save to ride with the kids**. *"I really like picking up the kids from school by bike, because there is no rush, and* ***we talk and sing****."*

"When we go to the orchard, we are always very happy. However, on the way there there is a section where there is ***no bike lane****, and we have to ride on the street with the cars, motorcycles and electric bikes, there should be better signaling. This makes me* ***nervous when I am with the kids****."*

"I feel neutral about going to do the groceries, but I am glad I do it by bike, so I don't have to carry everything."

Finally, I asked Anna specifically about her cycling during the pregnancies and at what age she started cycling with her children. *"****I was riding my bike almost until the end of my pregnancies****, my gynecologist told me as long as it's an exercise I have been doing before it is fine."* She further explained that she would ride with her kids as soon as they could sit up straight, which is around 9 months.

Capacity Constraints

Access

The barrier to owning a bicycle did not appear to be very significant for these women's use of it. None of the women said that would like to have a bike but cannot effort or store it anywhere.

Concerning the question of storage, which was very significant in the survey, there is the interesting example with Maló. She resorts to store her bicycle at her grandparents' house because there is nowhere to leave it in her own. Showing the resourcefulness of people to overcome the problem of storage when the interest of cycling is present. Similarly, Irene who does not own a personal bike, said that she often uses the public bikes to move around the city on the weekends.

However, theft while not necessarily a barrier to ownership, yet it impairs its usefulness. Maló has had a wheel stolen and Ana the trailer to transport her kids. Elena said she does not dare to leave it anywhere and Angela also said she could only use a bike if she could leave it places where it does not get stolen.

From the workshop it appears that absence of the accessibility of car did not necessarily increase the use of a bicycle but more of public transportation. Rosa, Yata, and Maty all three described their use of busses regularly, also due to not having access to a car. Further, in the case of Yata, Maty, Alicia and Reyes show us their dependency of other people driving them in cars, when the journey with public transport was unfeasible. Similarly, Irene who owns her own car explained how some of her friends in a sense depend on her to drive them.

Competence

Regarding competence capital, the two Senegalese women explained they are afraid of falling while cycling. Maty said that she indeed had never ridden a bicycle. She would thus fall into the category of not knowing how to cycle, present in the survey. Yata on the other hand, knows how to cycle and even owned a small bicycle before. Nonetheless, she does not feel confident enough to cycle with a lot of traffic or where she would have to keep up a fast pace. Thus, Yata is a rather typical example of the women who technically know how to cycle but lack

confidence to do so in the context of the busy bike lanes. This obviously strongly limits her access to cycling as a method of transportation.

Further, we have the case of Soco, who own's a bicycle and feels confident in her cycling abilities but her fear of getting into an accident because of the traffic is one of the main reasons why she would not cycle for transport. What is interesting with Soco, is that her fear of cycling in Seville is not based on experience. There is thus a possibility that fear my decrease once the activity of cycling is taken up.

Physical effort was an important factor for many of the women who participated in the workshop. Rosa, who uses her bike in the city, told us how she would not cycle to work because it was on a big hill. Similarly, Soco said that she lives on a hill, and this also prevents her from cycling. Maty also said, that she prefers the bus because it's does not require effort. There is also an example of a women for whom the physical effort does not prevent them from cycling. Maló explained that she gets tired on her way to school as she tries to ride fast, but still said she is happy to do it. Finally, the flipside of the physical effort, is the exercise riding implies. Maló, Reyes, Elena and Ana emphasized how cycling makes them, in the case of Ana her kids, feel good, more energized, or happy.

Appropriateness

Similar to the survey, none of the women mentioned anything along the line that they esteemed it inappropriate for women to cycle. However, as discussed before, appropriateness can also be related to sense of social safety[21]. While the women of workshop did not say anything about harassment, the younger women mentioned considerations of riding or moving in general at night.

First the importance of illumination was described by Angela as requirement for her to ride a bike at night. Rosa said the lights and the presence of people was a reason why she enjoyed riding at night. Interesting is also that, Angela, Yata, Reyes, and Alicia mentioned their discomfort of either public transportation or walking alone at night. Alicia described how she would then talk on the phone to feel safer, which to her would be something she needs to be

[21] Related to assault

able to do when cycling at night as well. Finally, Reyes explained that she feels less vulnerable cycling than walking alone at night and thus saver. I think this is very interesting as it shows the potential of a bike as a tool to increase women's sense of safety in their individual mobility, without a car.

Coupling Constraints

Regarding coupling barriers, women's experiences are diverse. Elena and Rosa, who used their bikes frequently both consider the bike inconvenient to do groceries or transport other things. On the other hand, Ana said she was happy that she does not have to carry the groceries because she uses her bike. Having to carry the groceries, was something that moved many of the women to use a car if available and a reason for negative emotions for those who do not.

In my view, the reasons for which running errands or doing groceries is not suitable for the bike are essentially institutional barriers, influencing their *access*. A cargo bike in many cases would make care related mobility trips possible that are not with an ordinary bike. The fear of leaving the bike in front of a store, having saddlebags or the bike basket stolen or large distances to the next grocery store pose other problems. Many women mentioned that they would prefer to do their groceries closer if they had the option.

Regarding the need to transport other people, only Ana and Irene said to regularly having to do so. While Irene usually transports friends, to places she is going anyways, Ana accompanies her kids on bikes. Contrarily, Reyes, Alicia, Maty and Yata are regularly being transported in a car by someone else. This takes a significant amount of time for the other person. Maty said that she sees the value of cycling in being more independent of the bus schedule and other people driving her.

Institutional Constraints

I already mentioned a few institutional barriers, that are connected with other barriers, such as fear of theft, distances and lacking infrastructure to make it feasible to ride bicycles. Irene, Soco and Chio are the three participated who are the most continuous car users. They all shared their annoyance at traffic jams that appear to be a normality in their daily lives.

On the other hand, those who cycle seem to enjoy their daily trips more than those driving cars, especially alone. The presence of the cycling lane appears essential for those who do use bicycles for transport. Both Maló and Reyes said they are much more comfortable riding on the bike lane and would not cycle on big avenues. Similarly, Ana explained that especially with the kids riding on the bike lane is enjoyable, but on the street she gets nervous.

Mirroring the results from the survey, those women who live outside of Seville like Soco, Chio, Reyes and Irene cycle less, both due to the distance but also fear of accident as explained Soco. Later is most likely a result for the less developed presence of bike lanes.

Intersectionality

In conclusion, the experiences of the women's who shared their daily mobility in the workshop is as diverse as they are people. It shows the importance of a qualitative intersectional approach. Despite there not being a clear identity axis that can be identified as relevant for the use of bicycles in Seville, it becomes evident that factors inhibit women differently depending on their situation such as where they live, what culture they grew up with, their access to cars and their age.

7 FINAL DISCUSSION

After having discussed the individual approaches findings separately, this last section serves as an overall reflection on the combined findings of the different methodologies. It also connects my findings to the feminist theories discussed in the literature review and responds my research question:

Which are the factors that inhibit women's utilitarian use of the bicycle in Seville?

From the interviews I gathered the information that in Seville the perception of women cycling has changed drastically in the past fifty years. While the bicycle used to be viewed almost exclusively as a toy for boys, today it appears that cycling does not clash with the culturally accepted notions for feminine behavior. This was also confirmed with the survey, where almost all respondents said that they considered it normal for women to cycle. Similarly, in the workshops none of the women mentioned anything about feeling it was inappropriate for them to use bikes. However, there are more hidden other aspects of appropriateness like harassment. The survey has shown that most women do perceive that harassment occurs while cycling.

My interpretation of the findings is that harassment does impact women's use of bicycles in Seville due to reducing women's sense of appropriateness to ride. As mentioned before, research has shown that street harassment can reduce women's sense of safety (Edwards, 2020). In the workshop the issue of feeling safe at night was mentioned multiple times as key factor for their choice of transportation. Here the bicycle can also be an opportunity to feel safer at night, as two participants said they prefer to cycle than to walk. Certain infrastructures like street lighting are crucial to increase sense of safety (Ortiz Escalante, 2017). Valentine's (1989) work on geographies of women's fear tells us that women restrict their mobility due to the threat of sexual violence and the culture of victim blaming, causing the illusion that it is women's responsibility to not be assaulted. In the context of this research, this suggests that when harassment occurs frequently the sense of social safety the bicycle can provide may be diminished. More research is necessary to investigate to what degree the different kind of harassments impact women's sense of appropriateness and linked sense of social safety, especially at night.

Moreover, women often travel accompanied. For this reason, when looking at appropriateness also from an intersectional approach, it is important to consider mothers who need to move with their children. Thus, a key question is whether it is esteemed appropriate for a woman to ride with her child on a bike. In the survey, three quarter of women said they would not ride with their children under the age of three. This can be a very significant factor that prevents many women from cycling. However, women not wanting to cycle with their children is not a reality in other places. In Amsterdam kids in cargo bikes are a common sight (Boterman, 2020). In Seville, it is not impossible either, as a woman in the workshop described how she transported her children with a bike trailer. Yet a very key issue regarding this came up, the trailer got stolen.

Theft appeared to be a major problem in Seville that prevents women from buying bikes or taking it to places where they would have to leave it on the street, unsupervised. This highly reduces the usefulness of the bicycle for those who need to trip chain, which characterizes typical women's mobilities and came up both in the survey as well as the workshop. Further, to transport children safely cargo bikes or similar are required, especially if they are under a certain age. If theft is already a significant barrier to the use of ordinary bikes, it is with no doubt one for the much more expensive cargo bikes. In the same vein, theft also limits the use baskets or cargo bikes to transport things, like groceries.

Another aspect to the sense of appropriateness of riding with children is linked to confidence in one's riding skills. In the survey not feeling confident or safe enough was one of the major reasons chosen by women who would like to use the bicycle more often. This lack of confidence, I argue can be explained with the concept of embodiment because of performance of gender, that prevents women to full use and trust their bodies. I do not believe it is necessary to conduct empirical research to conclude that women who are not confident in their riding skills will most likely not ride with their children.

Furthermore, I found that physical effort, or at least the perception of physical effort, is a barrier as well. While the city center of Seville is flat, the outskirts are not. Especially in the workshop the women described the hills around Seville as unrideable. While electric bike could be a solution for this, the problem of theft becomes an even higher concern. Theft is neither a problem unique to Seville nor unsolvable. In the city of Montreal (Van Lierop et al., 2015),

inner-city of London (Mburu & Helbich, 2016) and in Copenhagen (Crowe et al., 2013) extensive assessments of bike theft were undertaken to address the issue. A similar analysis should be done in Seville to facilitate the implementation of appropriate measures.

Another related issue appears to be the long distances caused by the urban form. Further research would be necessary to investigate if women are willing to do the same number of kilometers on a bike as men. I argue that for those women who do not cycle the idea of physical effort may be higher than the actual physical effort cycling requires, especially in the flat parts of the city. I would go as far and say that it can be due to embodiment of the feminine gender that women doubt their own physical capacities which, again, links to the question of confidence discussed above. Experiences, such as Isabel Porras(Porras & Huerta, 2016) described in their report on the project '*Mujeres A Golpe de Pedal'* indicate that cycling indeed increases women's confidence in their bodies.

While not necessarily a gender specific problem, linked to the physical effort is also the climate, in the workshop as well as some of the individual answers in the survey pointed out that heat makes riding unpleasant. Providing shade, by for example planting trees along the bike lanes could be a solution.

Finally, my research has shown that the women who cycle appear to really enjoy doing so, especially compared to those riding the car by themselves. Contrary to the neo-classical approach where all that matters is the time and costs of travel, and in line with the work of Hanson (2010), what matters is what certain mobilities mean to people. From my research I conclude that policies that support and encourage women to ride bicycles – specially instead of using cars – can lead to greater happiness, better health, and make their daily lives easier by supporting care work. Not to mention that these efforts would also contribute to creating more inclusive and sustainable mobility systems.

As I show with this discussion the factors that inhibit women to cycle in Seville are manyfold. There is no single reason that explains the gender gap. They vary depending on different women's situations. This finding emphasizes the importance of addressing gender issues intersectionally. I thus believe my mixed method intersectional approach has been very valuable to assess the gender gap of utilitarian cycling in Seville. The survey was useful to generate an image of the main factors that play into the bike use of a representative number

of women. However, it did not show how the use or not of the bicycle for transport was connected to specific identity axes such as age, nationality, occupation, domestic workload, and education level. Only through the different women's described experiences in the workshop it became clear that the reasons and mode of usage (or not) of the bicycles are caused due to specific conditions often linked to the women's identities. Hence, this research also demonstrates and emphasizes the value of qualitative analysis to allow a correct interpretation of statistics.

8 CONCLUSION

Cycling is a gendered issue since the invention of the bike. One of the key reasons for this was that it enables the rider to a completely independent mobility. At the time, traveling unaccompanied was considered unsuitable for respectable women. Today women in many parts of the world are usually allowed to move freely by themselves. However, as society's main care takers their mobility is defined by the need to accompanying someone, often their children and having to transport things to complete other domestic tasks. Additionally, women's mobility choices are highly impacted by their sense of safety. This plays out in many forms, on one side women are careful to consider how they move at night, consequence to the latent threat of sexual street violence. On the other hand, fear for accident is a key factor that plays into their choice of mobility. Finally, the perception of physical effort also impacts their preferences.

When it comes to cycling these factors can be catered to but require specific conditions. In the case of Seville these are only partly given. First, the bike needs to be perceived as a safe form of transportation on a societal level as well as individual. In Seville, the bi-directional network of bicycle lanes has strongly decreased the fear of accident amongst women, especially with low traffic. However, women need to have enough confidence in their own riding skills to use the bike lanes. In the case of Seville, presumably due to embodied narratives of the feminine gender, this does not apply a considerable number of women. Concerning social safety, women have described that they feel safer cycling than walking, yet harassment is a continued issue that can have an impact on women's sense of appropriateness. Another key issue is that the

conditions in Seville does not facilitate trip chaining, the use of cargo bikes, bike trailers or saddle bags due to theft and lack of parking. These elements are crucial to increase the usefulness of the bike for women's mobilities.

The social structure that defines gender and gender roles strongly impact how women move around the city. Feminist geography has been crucial to understand the gender gap in cycling in Seville. My final assessment, is that the cycling conditions in Seville best caters to the kind of mobilities typical for hegemonic men, going to one place, unaccompanied, without any stops in between. As the gender roles are changing many women's mobility also fit into this schema and thus the bike is useful for them. Nonetheless, for many women, the embodiment of gender as the 'weaker' sex creates a further barrier to its use. However, such as already said by Francis Willard in 1895, the bicycle can be precisely a valuable tool to break these gender definitions and enable women to fully trust and embrace the capabilities of their bodies.

Finally, this research demonstrates that the conditions around the bike in Seville do not sufficiently facilitate care mobilities. Under a feminist lens, the objective is not necessarily to get women to cycle but enabling caring for ourselves, each other, and the environment (Herrero, 2019). Care tasks are essential to life and the facilitation of such should be a priority for city planning. To achieve this, we need to break out of the patriarchal capitalistic value system that prioritizes productivity above all else, to the detriment of our environment and our wellbeing. At the moment, mostly women are carrying the burden of society's care work. Yet, it is crucial that gender roles are deconstructed, and social relations change so that co-responsibility for the maintenance of this world is prioritized. For this, I believe making care mobilities more enjoyable and more responsive of gendered inequalities is a vital step.

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10 ANNEX

ONLINE SURVEY IN SPANISH

Mujeres y personas no binarias en bici por Sevilla

El objetivo de esta encuesta es el mejor entendimiento del uso de la bicicleta en Sevilla por parte de mujeres y personas no binarias. Esta enmarcada en mi tesis de máster en urbanismo la cual analiza el ciclismo en Sevilla desde una perspectiva feminista. Los esfuerzos de mi trabajo están dirigidos a mejorar las condiciones de movilidad sostenible para mujeres y personas no binarias.

No es necesario montar en bici para completar esta encuesta. Si ningunas de las opciones coincide con tu respuesta, escríbela en “otro”.

Esta encuesta te llevará menos de diez minutos y por supuesto, es totalmente anónima.

Muchas gracias por tu participación.

1. 1. ¿Cuántas veces a la semana usas la bici para transportarte por la ciudad?

   Marca solo un óvalo.

   - ◯ Nunca, no sé montar en bici
   - ◯ Nunca, aunque sé montar en bici
   - ◯ 1 a 2 veces
   - ◯ 3 a 4
   - ◯ 5 a 6
   - ◯ Todos los días
   - ◯ Otro: _____

2. 2. ¿Te gustaría ir más en bici?

   Selecciona todos los que correspondan.

   - ☐ No, prefiero caminar
   - ☐ No, prefiero el transporte publico
   - ☐ No, prefiero ir en coche
   - ☐ Si, pero no me siento segura / no sé montar suficientemente bien
   - ☐ Si, pero las distancias son demasiado grandes
   - ☐ Si, pero no tengo donde guardar la bici
   - ☐ Si, pero tengo que llevar cosas o personas
   - Otro: ☐ _____

3. 3. ¿En qué medida tienes (o tendrías) miedo a tener un accidente en...? (no importa si usas la bici a menudo o no)

Marca solo un óvalo por fila.

	nada	un poco	bastante	mucho
Calles de velocidad reducida (>30 km/h)	◯	◯	◯	◯
Carreteras (<30 km/h)	◯	◯	◯	◯
El carril bici (con poco tráfico)	◯	◯	◯	◯
El carril bici (con mucho tráfico)	◯	◯	◯	◯

4. 4. ¿A partir de qué edad llevas (o llevarías) tus hijos/as en bici por Sevilla?

Marca solo un óvalo.

- ◯ Menos de 2 años
- ◯ Entre 3 y 5 años
- ◯ Más que 5 años, en mi bici
- ◯ Más que 5 años, en su bici propia
- ◯ No los llevo/llevaría en bici
- ◯ Otro: _____

5. 5. ¿Cual es tu percepción de acoso vial, callejero o sexual montando en bici? (no importa si usas la bici a menudo o no)

Marca solo un óvalo.

- ◯ Pasa a menudo
- ◯ Pasa de vez en cuando
- ◯ No pasa nunca
- ◯ Otro: _____

6. 6. ¿Qué te parecen mujeres que montan en bici en Sevilla?

Selecciona todos los que correspondan.

- ☐ Normal
- ☐ Especial, tienen que ser atrevidas / valientes
- ☐ Especial, tienen que ser fisicamente fuertes

Otro: ☐ _____

7. 7. ¿En qué medida te supone un esfuerzo físico el moverte en bici? (no importa si vas en bici a menudo o no)

Marca solo un óvalo.

- ◯ Demasiado esfuerzo, es una razón por no ir en bici
- ◯ Bastante esfuerzo, cuando estoy cansada no voy en bici
- ◯ Poco esfuerzo, no me impide ir en bici
- ◯ Nada de esfuerzo o me gusta el esfuerzo
- ◯ Otro: _____

8. 8. ¿Cuál es tu acceso a diferentes modos de movilidad? (marca todos los que procedan y añade otro si hace falta)

Selecciona todos los que correspondan.

- ☐ Tengo bici priopia
- ☐ Tengo bici de cargo (para transportar niños o cosas)
- ☐ Tengo un abono-bici (Sevici)
- ☐ Tengo un coche en casa, pero lo usa otra persona
- ☐ Tengo un coche en casa, y lo uso con frecuencia
- ☐ Tengo abono de transporte público

Otro: ☐ _____

9. 9. ¿Qué te parece la infraestructura ciclista en Sevilla?

Selecciona todos los que correspondan.

- ☐ Muy buena
- ☐ Faltan carriles bici por donde voy
- ☐ Prefería otro tipo de carril bici
- ☐ Faltan aparcamientos seguros
- ☐ Toma demasiado espacio publico

Otro: ☐ _____

10. 10. Describe alguna medida que te haría usar más la bici en Sevilla

_____

_____

_____

_____

_____

11. 11. Selecciona tu distrito, sí vives en la municipalidad de Sevilla

Marca solo un óvalo.

- ◯ Casco Antiguo
- ◯ Macarena
- ◯ Nervión
- ◯ Cerro - Amate
- ◯ Sur
- ◯ Triana
- ◯ Norte
- ◯ San Pablo - Santa Justa
- ◯ Este - Alcosa - Torreblanca
- ◯ Palmera - Bellavista
- ◯ Los Remedios

12. 12. Di aquí cuál es tu municipio, si vives en otro que Sevilla

_____

13. 13. ¿Qué edad tienes?

_____

14. 14. De uno a diez, ¿en que medida te ocupas tu de las tareas doméstica en tu casa? (limpiar, cocinar, hacer la compra etc)

Marca solo un óvalo.

	0	1	2	3	4	5	6	7	8	9	10	
otra persona se ocupa	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	solo me ocupo yo

15. 15. ¿Con quién vives?

Selecciona todos los que correspondan.

- ☐ Hijo/as
- ☐ Pareja
- ☐ Personas sin vínculo sanguíneo
- ☐ Sola
- ☐ Otras personas de mi familia

Otro: ☐ _____

16. 16. ¿Tienes personas dependientes a cargo?

Selecciona todos los que correspondan.

- [ ] Bebes (0-2 años)
- [ ] Niños (3-12 años)
- [ ] Adolescentes (13-17 años)
- [ ] Jóvenes (18+ años)
- [ ] Ancianos
- [ ] Personas con discapacidad
- [ ] No tengo a nadie a cargo
- [ ] Otro: _____

17. 17. ¿Realizas una actividad remunerada?

Selecciona todos los que correspondan.

- [ ] Si, a tiempo completo
- [ ] Si, a tiempo parcial
- [ ] No
- [ ] Soy estudiante
- [ ] Estoy jubilada

18. 18. ¿Cuál es último nivel educativo que cursaste?

Marca solo un óvalo.

- ◯ Educación primaria
- ◯ ESO o Bachillerato
- ◯ Formación Profesional Básica o Formación Profesional Inicial
- ◯ Grado universitario
- ◯ Máster universitario o doctorado

19. 19. ¿En que pais naciste?

_____

¡MUCHAS GRACIAS POR TU PARTICIPACIÓN!

20. Escribe aquí tu email, si estas interesada de participar en un workshop online y te mandaré más información! (eres bienvenida no importa cuanto usas la bici)

_____