emerald PUBLISHING

Journal of Place Management and Develo

Gender and placemaking: talking to women about clean air and sustainable urban environments in changing cities

Journal:	*Journal of Place Management and Development*
Manuscript ID	JPMD-04-2021-0035.R4
Manuscript Type:	Academic Paper
Keywords:	Urban environment, Gender, Sustainability, Air pollution, Placemaking

Gender and Placemaking: talking to women about clean air and sustainable urban environments in changing cities

1. Introduction

Placemaking can be defined as creating suitable living spaces through the involvement of all interested parties, including community members (Strydom et al. 2018). As a democratic process, those engaged with placemaking must thus consider the extent to which there is diversity in any decision-making processes. In understanding this diversity, placemaking also acknowledges that characteristics such as job situation, income, gender, ethnicity, and age give rise to knowledge, expertise, and unique experiences that are central to building environmentally friendly, healthy, and just places (Bradley, 2009; Kaijser and Kronsell, 2014). Consequently, the responsibility of policymakers and place managers to engender effective placemaking, such as improving access to pedestrianised areas and greenspace and reducing air pollution, requires a careful exploration of different societal groups (Hemmati and Röhr, 2009; Webb, 2021).

A growing body of interdisciplinary research agrees that gender is central to placemaking (Beebeejaun and Grimshaw, 2011; Hudson and Rönnblom, 2020; Webb, 2021), especially in dealing with sustainable mobility and access to the city (Beebeejaun, 2017; Buckingham, 2016; Root et al., 2000). This focus on women is necessary because a greater responsibility for unpaid work (Garcia-Ramon et al., 2004; Madariaga, 2016a; Root et al., 2000), economic inequality (Buckingham, 2016; Chalifour, 2011; Johnsson-Latham, 2007; Polk, 2009), longer life expectancy (Madariaga, 2016b), and greater fear of crime (Gardner et al., 2017; Roberts, 2016a; Root et al., 2000) shape the mobility of women, their experiences of the city and public spaces, and consequently their contribution and exposure to clean air. For example, via the health consequences of air quality on pregnant women (Koman et al., 2018) or the influence that perceptions of air quality may have on their sense of place (Galina et al., 2014)

It is within this context of access to clean air that this study presents data from thirty qualitative interviews with women in Greater Manchester (GM), a metropolitan county and combined authority area in Northwest England, in which their conceptualizations of a city with clean air are explored.

Two important factors make GM a significant context to investigate gender within placemaking. Firstly, the GM region is currently undergoing a devolution process through which certain powers and responsibilities are transferred from the central government to this region. This devolution process has enabled GM to have more control over transport, planning, housing, and health, all of which are essential in the design of sustainable and just cities. Secondly, GM is committed to several social

consultation initiatives and engagement efforts aimed at involving citizens' experiential knowledge in the early stages of the place management process. The 'Beelines' project (TfGM, 2018) is a good example of this, being an initiative aimed at developing an extensive joined-up cycling and walking network, created as a response to social consultations that suggested walking and cycling do not currently feel safe, attractive, or easy in the region.

By focussing on air quality in GM, and in particular the ways in which women participate in placemaking, this study thus aims to answer the following research question:

RQ: what does a gender approach to placemaking reveal about the relationship between air quality and placemaking?

2. Placemaking and Gender

Placemaking has multiple benefits for places. For example, integrating local and experiential knowledge can contribute to environmental improvements that cannot be tackled by one-size-fits-all and top-down strategies alone (see e.g. Toolis, 2017). Since the 1990s, the focus of placemaking has shifted from being outcome-oriented (i.e. concerned with what living spaces look like), to process-oriented (i.e. concerned with how these living spaces are designed), paying special attention to what voices are being integrated in decision-making processes (Strydom et al., 2018), as well as who actually participates and who is excluded (Kalandides, 2018). This participation can build stronger communities and foster support among residents, with this social cohesion having the potential to then be translated into a greater capacity for action.

Placemaking has been described as a gathering of joint efforts by communities in a place to rethink and improve lived spaces, so that these become more liveable and functional for its members, while maintaining and accentuating place-based characteristics (Strydom et al., 2018). Similarly, given that place management decisions about greenspace, public spaces, pedestrianization, mobility, urban structure, and urban density all have an impact on the quality of air, air quality itself should be seen as a placemaking problem. Poor air quality (i.e. air pollution) can also lead to the stigmatization of communities, contributing to a lack of cohesion and negative place identity, beyond the social and economic problems caused by breathing polluted air alone (Bush et al. 2001). Placemaking also has the capacity to strengthen place identity through participation (Sorensen and Sagaris, 2010), especially via the consideration of power relationships, who it is that initiates participation, and who actually participates (Sorensen and Sagaris, 2010). This study is concerned with the latter of these, i.e. who participates in such processes, in

particular focussing on the ways in which a gender perspective should be considered.

One key factor with regards to this gender perspective is fear of crime. Fear of crime as documented in the literature is not about the likelihood of being attacked, rather it is concerned with perceptions or feelings of insecurity (Roberts, 2016a). For example, when it comes to choosing a form of transport, safety is sometimes valued over cost or travel duration (Root et al., 2000). Fear of crime also translates into women having to avoid poorly lit areas or underground passages within a city (Gardner et al., 2017).

Biological differences can also be important in mobility. As the life expectancy of women is longer than that of men, in older age reduced mobility creates specific needs linked to both transport and urban design requiring the need for benches, wide pavements, etc. (Madariaga, 2016a).

Unpaid work also brings about a specific form of mobility, termed by Madariaga (2016a) the 'mobility of care'. Unpaid work disproportionately falls on women; 60% of it in the case of the UK (UK Census 2011). This type of mobility is slower as it happens in the company of children, elderly, or disabled people (Bauer, 2009); it often involves walking as a form of transport (Madariaga, 2016a), relies on public transport that is suitable for strollers or wheelchairs (Beebeejaun, 2017), and occurs in the form of chained trips requiring multiple stops (Madariaga, 2016a; Root et al., 2000). Significantly, responsibility for unpaid work translates into longer periods of time spent in public spaces and in the local environment (Buckingham, 2016; Garcia-Ramon et al., 2004).

Statistically women also suffer from economic inequality and lower salaries (Buckingham, 2016; Chalifour, 2011), and studies show that economic inequality is translated into a greater reliance on public transport (Polk, 2009) and lesser overall mobility (Johnsson-Latham, 2007), making women more tied to their local environment and public realm.

Although women have unique mobility experiences and different perspectives of the city and public spaces, their voices have mostly been unheard at all levels of placemaking, not only as citizens but also as scientist or policymakers (Gay-Antaki and Liverman, 2018; Hudson and Rönnblom, 2020). Key sectors within placemaking, like transportation, have also traditionally been male dominated. Even in Scandinavian countries where women are well represented (e.g. in national parliaments), the transport sector is still dominated by men (Magnusdottir and Kronsell, 2015).

Although it is important to consider women in their diversity and to acknowledge that there are different social identities intersecting with gender, talking about women as a group in society is still important, or as Madariaga puts it:

> In male-dominated institutional settings, where gender is still a new concept, frequently imperfectly understood and often resisted, simplification, at least at the present time, is a must (Madariaga, 2016b:330).

A gender approach is not just beneficial to women. There are various examples in the literature of how women-centred urban development approaches have brought benefits for societies at large in different European countries, such as Austria, Spain, or the Netherlands (see e.g. Zibell et al., 2019). Some of these benefits 'for all' that arise from incorporating the perspectives of women in architecture, urban planning, or transport design include: an improved work-life-balance, improved ageing strategies, shorter commutes, improved transportation systems that allow commuting without a car, improved liveability, quality of green and open spaces, safer streets and neighbourhoods, and spaces for events and community life that bring about social sustainability (Damyanovic, 2016; Irschik et al., 2016; Ruiz-Sanchez, 2016; Ullmann, 2016; Wankiewicz, 2016; Wotha, 2016). The aim of exploring the voices of women in placemaking is not only to encourage structural changes so that women can find it easier to combine paid and unpaid work, but ultimately, so that conditions that encourage a sharing of responsibilities and gender equality are created (Hemmati and Röhr, 2009; Damyanovic, 2016; Roberts, 2016b).

3. Methodology

Given the research question for this study, as well as the importance of diverse perspectives in considering placemaking that have been discussed in Section 2, social constructionism has been used as a theoretical framework to both guide the research method and subsequent analysis. If knowledge is subject to where one lives (Burr, 2003), as well as to social, economic, political, or gender factors (Guba and Lincoln, 1994), then social constructionism in this regard might be considered to be a question of whose views are to be heard and acted upon.

Following on from this interpretation and adoption of social constructionism, it was decided that any research method used in this study should be primarily qualitative in nature, viewing knowledge and truth as created by the interactions of individuals within a society. As such, it was determined that a semi-structured interview technique should be adopted. These types of interviews are widely used in both qualitative and placemaking studies, as they are conversational and informal in tone, feeling natural to both the researcher and the interviewee (King et al., 2018), and

allowing them to open up and respond using their own words (Longhurst, 2003), i.e. they attempt to balance any power relationship in the context of the investigation. The interviews used in this study were conducted following a predesigned list of questions to orient discussion, but participants were allowed and encouraged to take the interview in the direction they wished.

In this study, contributors were invited for interviews following a purposive sampling strategy (Bryman, 2012; Gill, 2020), assuring there was diversity in terms of age, ethnicity, nationality, occupation, co-habitation, responsibility for unpaid work, and number of children. This sampling strategy was complemented with a snowball sampling technique (Bryman, 2012; Gill, 2020) to expand the sample size of relevant interviewees, which was controlled by an ongoing analysis of sample characteristics. All interviews took place during the spring and summer of 2019 and were conducted in public spaces between the lead author and the interviewee.

With regards to the 30 women that took part in this study, they had the following demographics: 14 of the participants were younger than 40 years old, 17 of them had children, and 19 of them were mainly or totally in charge of unpaid work (i.e. taking care of children, older relatives, grocery shopping, etc.). In terms of transport choices, 11 of the women interviewed travelled mainly by car, 9 mainly by foot, 6 by public transport, and 4 by bike. With regard to their occupation, the women identified as policymakers, teachers, university lecturers or researchers, students, environmental managers, business professionals, architects, service and sales workers, and retirees.

All subjects had some form of connection to place with regards to GM, either in the form of academics doing relevant research in the area, environmental professionals (or policymakers) in charge of place management across the region, or simply users and inhabitants. They also experienced the city differently based on their main forms of mobility and commitment to childcare and unpaid work, as this changed the amount of time spent outdoors when commuting by public transport, foot, or bike (as opposed to the car), or in parks and public spaces through childcare.

The first section of the interview worked as an icebreaker and allowed data to be gathered about the background of the subjects. The second section involved asking what measures they would put in place to improve air quality, welcoming discussion around transportation, greenspace, and the public realm. Interviewees were asked to make these considerations assuming that they possessed total authority, as if there were no time or money constraints, and were encouraged to be as creative as they wished.

Social constructionism also argues that the aim of (qualitative) research is to tell a story from the data, acknowledging the active role of the researcher in analysing and describing the data; in other words, offering an interpretation of how participants

interpret reality. As such, in analysing the responses to the interviews a conventional content analysis was employed, in which preconceived categories were avoided and the generation of codes was guided by the data using an inductive approach (Hsieh and Shannon, 2005). The interview transcripts were coded using the NVIVO software (Version: 10.2.2) for qualitative data analysis. The coding approach that was adopted used descriptive coding to highlight the meaning of a passage, followed by pattern coding to group codes that belonged together into groups or themes (Saldana, 2009). The final data corpus consisted of approximately thirty hours of interviews, and through an ongoing data analysis process, it was ascertained that at this point theoretical saturation had been achieved, as no new codes, themes, or concepts, were emergent (Rowlands, et al. 2016).

In order to guide the coding process and make it more transparent a codebook was developed, providing a formalized operationalization of the codes (DeCuir-Gunby et al., 2011). This codebook can be found in Table 1, which present the codes, a description of what these codes represent, and the groups into which these codes were collected. These groups will be discussed more fully in Section 4, but they are chronologically cumulative in nature, i.e. some of the categories within Group 1 are then further grouped in Group 2, which in turn are then further grouped into Group 3, which categorises all previous groupings into either 'direct' or 'indirect' factors.

Table 1: The codebook that was used for the analysis of the interview transcripts. Numbers indicate the frequency of occurrence.

Code	Description	Group 1	Group 2	Group 3
Fewer cars **30**	References to fewer cars in the road and parked in the city, to reducing space allocated to cars, and to no car zones.	Car **41**	Transport **113**	Direct factors **175**
Hire / share **7**	References to unnecessary car ownership in favour of renting or sharing a car, and to better organized sharing and renting schemes.			
Electric / Low emission cars **4**	References to electric cars, hybrid cars, or to caps on emissions.			
Improved walking infrastructure **12**	References to improving walking infrastructure and making streets wider, pedestrianization, and securing space for walking with prams or wheelchairs.	Active transport **34**		
Safe cycling infrastructure **11**	References to improving cycling infrastructure and to make it safer, to bike lanes, no tricky junctions, physical boundaries, showers in workplaces.			
Chris Boardman **6**	References to Chris Boardman and his project for improving cycling and walking infrastructure (Beelines).			
Cycling proficiency **5**	References to making people more competent in cycling as a form of transport, helping find secure routes.			
Network **14**	References to improvements in public transport networks including, frequency, capacity, and coverage.	Public transport **33**		
Price **9**	References to making public transport cheaper or totally free.			
Easiness **6**	References to making public transport easier to use, being able to tap in an out in every transport system, or screens with information about services.			

Electric / Low emissions **4**	References to making public transport electric in some routes or hybrid in others, having solar panels in roofs of vehicles.			
Flexible work hours or place **5**	References to being able to work from home or to come and go at different times to avoid daily commutes and rush hour.	Flexible work hours or place **5**		
More green and blue **29**	References to the need for more parks or green elements in the city such as roofs, wall, trees, grass, flowers, rivers, or canals.	Green and blue areas **51**		
Management **10**	References to maintaining green and blue areas and not letting them overgrow, attract antisocial behaviour and become unusable.			
Environmental benefits **9**	References to environmental benefits of green spaces such as reducing air pollution and flooding, or cooling effects.			
Back gardens **3**	References to using back gardens for planting trees and flowers to create a network of green spaces, and to not block pave these for car parking.			
More information **6**	References to the need for more real-time air pollution information, and more information in relation to actions and available alternatives.	Engagement **16**		
Responsibility **5**	References to citizens claiming ownership and responsibility, and to bottom-up approaches.			
Change in mindset **3**	References to changing the way people think about convenience and material wealth.			
Hubs **2**	References to the power of workplaces, universities, or schools in encouraging change.			
Litter **16**	References to cleaning the streets from litter and waste, and to creating pleasant environments for walking.	Pleasant spaces **25**	Indirect factors **62**	
Homelessness **9**	References to sorting homelessness and drug use, and to creating pleasant environments for walking.			
Community **16**	References to creating strong communities to benefits for citizens and the environment.	Community **16**		
Health **14**	References to how green spaces and active forms of transport improve fitness, wellbeing, and have therapeutic effects; and how healthy people are more likely to appreciate and care about the environment.	Health **14**		
Safety **7**	References to the need to create a city where everybody feels safe, and to spaces that feel unsafe.	Safety **7**		

4. Discussion

As can be seen from the third column of Table 1, two major groups (or themes) emerged from the analysis of the interviews: direct and indirect factors. During the analysis, it became clear that several of the emergent codes were directly linked to air quality (i.e. direct factors), such as tackling a reduction in cars. Other codes were indirectly linked to air quality (i.e. indirect factors), such as reducing the amount of litter on the streets in order to create a more pleasant place that invites walking instead of driving. We now discuss each of these two emergent groups in turn, both in relation to our RQ ("what does a gender approach to placemaking reveal about the relationship between air quality and placemaking?"), as well as findings from other literature in the associated fields. When direct quotes from the interviews are presented, they appear alongside a pseudonym, which was chosen by the interviewees to preserve anonymity.

4.1 Direct Factors

In relation to the direct factors, the women discussed three areas of action. Firstly, an improved transport system that involved fewer cars, more car renting and sharing schemes, more electric vehicles, improved walking infrastructure with wider streets, safer cycling infrastructure, and the need to improve cycling proficiency. This improved transport system also included better public transport as well as flexible work schedules to avoid rush hours and unnecessary trips:

> Space to move around… because at the moment I feel like my experience of the urban environment is like shuffling along the pavement like this [gestures squeezing past in a narrow space] … squeezing between like a wall and a car that someone has parked two wheels or four wheels on the pavement… (Blue)

> And the bike lanes you can't rely on them… they just sometimes lead to nowhere… and the number of potholes… (Violet)

Secondly, participants discussed the improvement of green and blue spaces. It was acknowledged that creating parks is difficult and so they also suggested a network of green spaces composed of trees, vertical gardens, green roofs, or back gardens. They also talked about an even distribution of green areas, and how more attention should be paid to greening those more rundown areas in GM. Responses also related to the management of green and blue spaces, i.e. that the management of these spaces needs to be improved, as many green and blue areas are rundown, attracting antisocial behaviour and becoming unsafe places:

> Make the canal network more inviting… assets that already exist but aren't being utilized as they could be… the canals aren't maintained properly… a bit overlooked… a bit of anti-social behaviour… (Ruth)

These findings demonstrate a desire for improved walking and cycling infrastructure and public transport, as well as more and better managed green spaces, to the detriment of road space and cars. The fact that this group of women appear positive about car restrictions and making space for green areas is aligned with findings reported by Li & Tilt, (2019), as well as the work of Gärling & Schuitema (2007), which demonstrated that car reduction initiatives can have public acceptability, providing that viable and attractive alternatives are in place.

Finally, with regards to these direct effects, interviewees discussed the importance of more abundant and effective information and communication. They explained that real-time information about air quality or alternative commuting routes would be

helpful, as well as highlighting how communication in relation to specific behaviours and actions for citizens to adopt can contribute to a change in mindset:

> Those electronic boards that give you information too… you know how you got like speed limit values… so it could be vehicle emissions… (Cleanairbex)

These observations are similar to the work of Tomitsch et al. (2015) and Braem et al. (2016), both of which also highlight the need for more effective information and communication with relation to air quality, e.g. through vehicle emission and smart city data.

4.2 Indirect Factors

Alongside the perhaps expected observations that emerged from the interviews with regards to the direct factors, a novel finding of this study was how invested participants became when discussing indirect factors, i.e. those that at a first glance might not appear to be linked to clean air.

One of these indirect factors was the importance of pleasant spaces in shaping behaviour. Participants observed how litter creates unpleasant streets and neighbourhoods that do not encourage walking or for spending time outdoors. They also explained how they saw homelessness as an issue in GM, how it degrades the image of a city, and how it contributes to unpleasant streets. They discussed how society should, as a whole, be better at tackling this problem:

> But it's so filthy… so obviously that puts people off… If you start to think about like you know a clean environment and then that could potentially make people be keener to walk and you know maybe cycle… (Dailyrunner)

> So we don't have people on the street, homeless people… Because it's a visual thing… Piccadilly Gardens… a lot of people with alcohol, drugs, hanging out even during the day… (Suki)

In this particular geographical context, the idea of beautification ties with notions of litter and cleanliness (also somewhat problematic in the GM context; see e.g. Rosa, 2015), which are so important in creating pleasant spaces that invite walking, spending time outdoors, and bonding. Similarly, in the particular context of GM, values of solidarity and caring for each other are manifested when referring to homelessness, which at present constitutes an important problem for this conurbation (see Broady, 2020). According to the responses in this study, homelessness not only needs to be addressed for the wellbeing of homeless people, but also because it creates unpleasant and distressing environments that can deter life outdoors and walking in and around the city. This means that although broader

concepts of safety, solidarity, community, and appearance can be global, there is a need to explore what these entail across local contexts. These findings are also a reminder of the importance of the exploration of different socio-demographic groups, as well as different local contexts.

The role of communities and trust in placemaking is highlighted by Hudson and Rönnblom, (2020), who also emphasise the need for cities to be pleasant for women so that they might want to spend time outdoors and bond. Similarly in analysing the responses to the interviews in this study, we also found a need for spaces that facilitate creating bonds with community members across GM. A feeling of belonging or a community feeling, in their views, could be translated into caring about others, and in turn, caring about the place where they live, the environment, and air pollution. According to the interviewees, when people care about the place where they live and the people who live in it, they are more likely to treat it nicely and to not let it deteriorate. Participants explained how caring about other people can also be translated into a greater sharing culture, which links to the previously mentioned aspect of increased shared car journeys. Similarly, according to contributors, communities have knock-on impacts so that the pressure that a community places on an individual can make them change their behaviours, such as cycling or walking more:

> If you have a strong community… they have a place to go… and they will automatically start taking care of that place. So the green space that you create initially becomes self-sufficient because there are people enjoying the green space, they don't want to lose it, and they will automatically take care… (Asta)

Hudson and Rönnblom, (2020) also discuss values of solidarity and caring for each other. Similarly, Bardzell (2018) observes a similar focus, concluding that 'beautifying' the city (e.g. through greening and street art) is important in a feminist conceptualization of place

Health was also found to be an emergent indirect factor in relation to air quality, with green and blue spaces highlighted as not only have environmental benefits but also social and welfare ones. The women in this study explained how green and blue areas improve the mood, wellbeing, and mental health of their users, and invite citizens to play and to practice sports. They also believed that improved cycling and walking infrastructure would make people more active and foster a fitter society, reducing health issues, such as obesity. Furthermore, they reiterated how healthy people who enjoy the outdoors are more likely to care about the environment and air pollution:

> Not only does it help clearing or cleaning the environment, it also makes a positive impact on people you know… you feel better when you see some flowers and… when you feel better you can be more… you can be kinder… and

> you are more open to the ideas of actually taking care of your environment… (Asta)

A final topic to emerge from the consideration of indirect effects was one of safety. Participants discussed the importance of feeling safe when walking and cycling. Not only in terms of road accidents, but also in terms of the fear of being physically and sexually assaulted, or of crime more generally. In their views, well-maintained green and blue areas, as well as cities that are designed for people can help eliminating or reducing feelings of insecurity:

> That's because of my perception that it's not safe because there's not a lot of people there … it's like if you can create more people walking then it makes a more vibrant place and it makes it safer for everybody else… (Billy)

This finding resonates with that of other studies. For example, Hudson and Rönnblom, (2020) engage with how women envision future cities and conclude that safety (e.g. in underpasses, greenspaces, at night, etc.) is a key component that needs to be addressed for women to walk the city freely.

These interviews and their analysis present a novel exploration of the question of air quality and placemaking from a gender perspective, highlighting both a willingness to change and to support structural changes. This is true even for those proposed changes that are often met with scepticism, such as reducing the number of cars on the roads (e.g. de Groot and Schuitema, 2012; Gärling and Schuitema, 2007) in order to make space for improved walking and cycling infrastructure and green elements. These findings too have important implications for designing relevant policies and framing them effectively. In particular this has highlighted the need for policymakers and place managers to consider a gender perspective when working towards clean air. These considerations should go beyond the traditional discourse around direct factors such as emissions and car usage reductions, and instead also place a much greater emphasis on people, their wellbeing, and the pleasantness and beauty of the places they care about

5. Conclusions

This study aimed to answer the following research question:

RQ: what does a gender approach to placemaking reveal about the relationship between air quality and placemaking?

Our interviews and subsequent analysis revealed that when asked about placemaking efforts to create a city with clean air, women in GM showed a desire for improved walking and cycling infrastructure and public transport, as well as more

and better managed green spaces, to the detriment of road space and cars. They envisioned a city designed for people where communities and neighbourhoods have spaces to gather. These findings show that a gender approach to placemaking reveals several indirect factors for policymakers and place managers to consider when thinking about air quality. For example, economic inequality, the economy of care, and physical vulnerability are important disadvantages in the case of women and shape their experience of place (giving rise to notions of trust, security, and improved and cost-effective public transport, etc.). Other studies also concur on the wider societal benefits of placemaking with women as these bring about improved transportation systems, better aging strategies, safer streets and public spaces, and an improved work-life balance (Damyanovic, 2016; Irschik et al., 2016; Ruiz-Sanchez, 2016; Ullmann, 2016; Wankiewicz, 2016; Wotha, 2016). However, this is not limited to women, with such disadvantages also experienced by other demographics, such as students (Fincher et al., 2009), ethnic minorities (Kaplan, 2017), or LGBTQ communities (Doan, 2015).

Indeed, the major limitation of this study is that whilst it gives voice to women with different backgrounds (e.g. age, ethnicity, or professional background) and experiences (e.g. number of children or preferred form of transport), it is not an encompassing voice of *all* women. For example, although the professional backgrounds of these women are diverse, they all hold a position of relative economic privilege, and as such it is important to acknowledge that these findings do not fully incorporate the voices of other, less privileged, women. Similarly, this study subscribes to the current need for an all-encompassing gender perspective and as such it doesn't explore how gender intersects with social identities such as race, income, education, age, marital status, or job situation, and how these might give rise to differences in how the environment is perceived.

This paper has demonstrated how a gendered approach to placemaking has revealed how a city with cleaner air is influenced by a range of both direct and indirect factors including: safety, pleasantness, greenspace, litter, and homelessness. Consequently, we hope that place managers, policymakers, and other researchers further consider how listening to these voices can be powerful elements in designing effective air quality policies for women, and the benefits that this might have for society at large.

6. References

Bardzell, S. (2018). 'Utopias of Participation: Feminism, Design, and the Futures', *ACM Trans. Comput.-Hum. Interact*, 25, pp. 1–24.

Bauer, U. (2009). 'Gender Mainstreaming in Vienna. How the Gender Perspective Can Raise the Quality of Life in a Big City', *Kvinder, Køn &Amp; Forskning.* 1 (3).

Beebeejaun, Y. and Grimshaw, L. (2011). 'Is the 'New Deal for Communities' a New Deal for Equality? Getting Women on Board in Neighbourhood Governance' *Urban Studies*, 48, pp. 1997–2011.

Beebeejaun, Y. (2017). 'Gender, urban space, and the right to everyday life' *Journal of Urban Affairs*, 39, pp. 323–334.

Bradley, K. (2009). 'Planning for eco-friendly living in diverse societies' *Local Environment,* 14, pp. 347–363.

Braem, B., Latré, S., Leroux, P., Demeester, P., Coenen, T. and Ballon, P. (2016). 'Designing a smart city playground: Real-time air quality measurements and visualization in the City of Things testbed', *2016 IEEE International Smart Cities Conference*. Trento, Italy, 12-15 September 2016. IEEE.

Broady, R. (2020). 'Unearthing the political unconscious in the reporting of homelessness in Manchester', *International Journal of Media & Cultural Politics*., *16*(1), pp.91-99.

Bryman, A. (2012). *Social Research Methods*, 4th Edition. Oxford: Oxford University Press.

Buckingham, S. (2016). 'Gender, Sustainability, and the Urban Environment', in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 21-32.

Burr, V. (2003). *Social Constructionism* 2nd edition. London: Routledge.

Bush, J., Moffatt, S. and Dunn, C (2001). 'Even the birds round here cough: stigma, air pollution and health in Teesside' *Health & place*, 7(1), pp.47-56.

Chalifour, N.J. (2011). A Feminist Perspective on Carbon Taxes. *Canadian Journal of Women and the Law*, 22(1). https://doi.org/10.3138/cjwl.22.1.169

Damyanovic, D. (2016). 'Gender Mainstreaming as a Strategy for Sustainable Urban Planning', in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 177-192.

de Groot, J.I.M., Schuitema, G. (2012). 'How to make the unpopular popular? Policy characteristics, social norms and the acceptability of environmental policies' *Environmental Science & Policy,* 19–20, pp. 100–107.

DeCuir-Gunby, J.T., Marshall, P.L., McCulloch, A.W. (2011). 'Developing and Using a Codebook for the Analysis of Interview Data: An Example from a Professional Development Research Project' *Field Methods,* 23, pp. 136–155.

Doan, P.L. (ed) (2015). *Planning and LGBTQ communities: The Need for Inclusive Queer Spaces*. London : Routledge.

Fincher, R., Carter, P., Tombesi, P. and Shaw, K. (2009). *Transnational and temporary: Students, community and place-making in central Melbourne*. Melbourne: Faculty of Architecture, Building and Planning (UniMelb)

Garcia-Ramon, M.D., Ortiz, A. and Prats, M. (2004). 'Urban planning, gender and the use of public space in a peripherial neighbourhood of Barcelona' *Cities,* 21, pp. 215–223.

Gardner, N., Cui, J. and Coiacetto, E. (2017). 'Harassment on public transport and its impacts on women's travel behaviour' *Australian Planner*, 54, pp. 8–15.

Gärling, T. and Schuitema, G. (2007). 'Travel Demand Management Targeting Reduced Private Car Use: Effectiveness, Public Acceptability and Political Feasibility' *Journal of Social Issues*, 63, pp. 139–153.

Gay-Antaki, M. and Liverman, D. (2018). 'Climate for women in climate science: Women scientists and the Intergovernmental Panel on Climate Change' *PNAS*, 115, pp. 2060–2065.

Gill, S.L. (2020). 'Qualitative Sampling Methods', *Journal of Human Lactation*, 36, pp. 579–581.

Guba, E. G. and Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, California: SAGE Publications

Hemmati, M. and Röhr, U. (2009). 'Engendering the climate-change negotiations: experiences, challenges, and steps forward', *Gender & Development*, 17, pp. 19–32.

Hsieh, H.-F. and Shannon, S.E. (2005). 'Three Approaches to Qualitative Content Analysis', *Qualitative Health Research* ,15, pp. 1277–1288.

Hudson, C. and Rönnblom, M. (2020). 'Is an 'other' city possible? Using feminist utopias in creating a more inclusive vision of the future city', *Futures*, 121, pp. 102583.

Irschik, E. and Kail, E. (2016). 'Vienna: Progress Towards a Fair Shared City' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 193-230.

Kaijser, A. and Kronsell, A. (2014). 'Climate change through the lens of intersectionality', *Environmental Politics*, 23, pp. 417–433.

Kalandides, A. (2018). 'Citizen participation: Towards a framework for policy assessment', *Journal of Place Management and Development*, 11(2), pp. 152-164.

King, N., Horrocks, C. and Brooks, J. (2018). *Interviews in Qualitative Research*. Thousand Oaks, California: SAGE Publications

Kaplan, D.H. (2017). *Navigating ethnicity: Segregation, placemaking, and difference*. Lanham, Maryland: Rowman & Littlefield.

Koman, P.D., Hogan, K.A., Sampson, N., Mandell, R., Coombe, C.M., Tetteh, M.M., Hill-Ashford, Y.R., Wilkins, D., Zlatnik, M.G., Loch-Caruso, R. and Schulz, A.J. (2018). 'Examining Joint Effects of Air Pollution Exposure and Social Determinants of Health in Defining "At-Risk" Populations Under the Clean Air Act: Susceptibility of Pregnant Women to Hypertensive Disorders of Pregnancy', *World medical & health policy*, *10*(1), pp.7-54.

Li, X. and Tilt, B. (2019). 'Public engagements with smog in urban China: Knowledge, trust, and action', *Environmental Science & Policy*, 92, pp. 220–227.

Longhurst, R. (2003). 'Semi-structured interviews and focus groups', *Key methods in geography*, 3(2), pp.143-156.

Madariaga, I.S. de. (2016a). 'Mobility of Care: Introducing New Concepts in Urban Transport' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 325-334.

Madariaga, I.S. de. (2016b). 'Looking Forward, Moving Beyond Trade-offs' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 33-48.

Magnusdottir, G.L. and Kronsell, A. (2015). 'The (In)Visibility of Gender in Scandinavian Climate Policy-Making', *International Feminist Journal of Politics,* 17, pp. 308-326.

Polk, M. (2009). 'Gendering climate change through the transport sector', *Kvinder, Køn & Forskning*, 3-4, pp 73-78.

Roberts, M. (2016a). 'Gender, Fear and the Night-time City' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 49-64.

Roberts, M. (2016b). 'Introduction: Concepts, Themes and Issues in a Gendered Approach to Planning' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 1-20.

Root, A., Schintler, L. and Button, K. (2000). 'Women, travel and the idea of "sustainable transport"', *Transport Reviews*, 20, pp. 369–383.

Rosa, B. (2015). 'Waste and value in urban transformation: Reflections on a post-industrial 'wasteland' in Manchester' in Linder, C. and Meissner, M. (eds) *Global Garbage.* London: Routledge, pp. 193-218.

Rowlands, T., Waddell, N. and McKenna, B. (2016). iAre we there yet? A technique to determine theoretical saturation', *Journal of Computer Information Systems*, 56(1), pp.40-47.

Ruiz-Sanchez, J. (2016). 'Planning Urban Complexity at the Scale of Everyday Life: Móstoles Sur, a New Quarter in Metropolitan Madrid' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 279-296.

Saldana, J. (ed) (2009). *The Coding Manual for Qualitative Researchers*, Los Angeles: SAGE Publications.

Sorensen, A. and Sagaris, L. (2010). 'From participation to the right to the city: Democratic place management at the neighbourhood scale in comparative perspective', *Planning Practice & Research*, 25(3), pp. 297-316.

Strydom, W., Puren, K. and Drewes, E. (2018). 'Exploring theoretical trends in placemaking: towards new perspectives in spatial planning', *Journal of Place Management and Development*, 11(2), pp. 165-180.

TfGM (2018). Beelines. Greater Manchester's cycling and walking infrastructure proposal. Manchester: Transport for Greater Manchester.

Toolis, E.E. (2017). 'Theorizing critical placemaking as a tool for reclaiming public space', *American Journal of Community Psychology*, *59*(1-2), pp.184-199.

Tomitsch, M., McArthur, I., Haeusler, H.M. and Foth, M. (2015). 'The role of digital screens in urban life: New opportunities for placemaking' in Foth, M., Brynskov, M. and Ojala, T. (eds.) *Citizen's Right to the Digital City*. Singapore, Springer, pp. 37-54.

Ullmann, F. (2016). 'Choreography of Life: Two Pilot Projects of Social Housing in Vienna' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 297-324

Wankiewicz, H. (2016). 'European Regional Development Programmes for Cities and Regions: Driving Forces for Gender Planning?' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 131-154.

Webb, D. (2021). 'Placemaking and Social Equity: Expanding the Framework of Creative Placemaking', *Artivate: A Journal of Entrepreneurship in the Arts, 3(1), pp. 35-48.*

Wotha, B. (2016). 'Urban Governance and Gender-aware Planning' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 91-106.

Zibell, B., Damyanovic, D. and Sturm, U. (eds.) (2019). *Gendered approaches to spatial development in Europe: perspectives, similarities, differences*. London: Routledge.

Gender and Placemaking: talking to women about clean air and sustainable urban environments in changing cities

1. Introduction

Placemaking can be defined as creating suitable living spaces through the involvement of all interested parties, including community members (Strydom et al. 2018). A; as a democratic process, those engaged with placemaking must thus consider the extent to which there is diversity in any decision-making processes. In understanding this diversity, placemaking also acknowledges that characteristics such as job situation, income, gender, ethnicity, and age give rise to knowledge, expertise, and unique experiences that are central to building environmentally friendly, healthy, and just places (Bradley, 2009; Kaijser and Kronsell, 2014). Consequently, the responsibility of policymakers and place managers to engender effective placemaking, such as improving access to pedestrianised areas and greenspace and reducing air pollution, requires a careful exploration of different societal groups (Hemmati and Röhr, 2009; Webb, 2021).

A growing body of interdisciplinary research agrees that gender is central to placemaking (Beebeejaun and Grimshaw, 2011; Hudson and Rönnblom, 2020; Webb, 2021), especially in dealing with sustainable mobility and access to the city (Beebeejaun, 2017; Buckingham, 2016; Root et al., 2000). This focus on women is necessary because a greater responsibility for unpaid work (Garcia-Ramon et al., 2004; Madariaga, 2016a; Root et al., 2000), economic inequality (Buckingham, 2016; Chalifour, 2011; Johnsson-Latham, 2007; Polk, 2009), longer life expectancy (Madariaga, 2016b), and greater fear of crime (Gardner et al., 2017; Roberts, 2016a; Root et al., 2000) shape the mobility of women, their experiences of the city and public spaces, and consequently their contribution and exposure to clean air.; Ffor example, via the health consequences of air quality on pregnant women (Koman et al., 2018) or even the influence that perceptions of air quality may have on their sense of place (Galina et al., 2014)

It is within this context of access to clean air that this study presents data from thirty qualitative interviews with women in Greater Manchester (GM), a metropolitan county and combined authority area in Northwest England, in which their conceptualizations of a city with clean air are explored.

Two important factors make GM a significant context to investigate gender within placemaking. Firstly, the GM region is currently undergoing a devolution process through which certain powers and responsibilities are transferred from the central government to this region. This devolution process has enabled GM to have more control over transport, planning, housing, and health, all of which are essential in the design of sustainable and just cities. Secondly, GM is committed to several social

consultation initiatives and engagement efforts aimed at involving citizens' experiential knowledge in the early stages of the place management process. The 'Beelines' project (TfGM, 2018) is a good example of this, being an initiative aimed at ~~creating~~ developing an extensive joined-up cycling and walking network, created as a response to social consultations that suggested walking and cycling do~~es~~ not currently feel safe, attractive, or easy in the region.

By focussing on air quality in GM, and in particular the ways in which women participate in placemaking, this study thus aims to answer the following research question:

RQ: what does a gender approach to placemaking reveal about the relationship between air quality and placemaking?~~.~~

2. Placemaking and Gender

Placemaking has multiple benefits for places. For example, integrating local and experiential knowledge can contribute to environmental improvements that cannot be tackled by one-size-fits-all and top-down strategies alone (see e.g. Toolis, 2017). Since the 1990s, the focus of placemaking has shifted from being outcome-oriented (i.e. concerned with what living spaces look like), to process-oriented (i.e. concerned with how these living spaces are designed), paying special attention to what voices are being integrated in decision-making processes (Strydom et al., 2018), as well as who actually participates and who is excluded (Kalandides, 2018). This participation can build stronger communities and foster support among residents, with this social cohesion having the potential to then be translated into a greater capacity for action.

Placemaking has been described as a gathering of joint efforts by communities in a place to rethink and improve lived spaces, so that these become more liveable and functional for its members, while maintaining and accentuating place-based characteristics (Strydom et al., 2018). Similarly, given that place management decisions about greenspace, public spaces, pedestrianization, mobility, urban structure, and urban density all have an impact on the quality of air, air quality itself should be seen as a placemaking problem. Poor air quality (i.e. air pollution) can also lead to the stigmatization of communities, contributing to a lack of cohesion and negative place identity, beyond the social and economic problems caused by breathing polluted air alone (Bush et al. 2001). Placemaking also has the capacity to strengthen place identity through participation (Sorensen and Sagaris, 2010), especially via the consideration of power relationships, who it is that initiates participation, and who actually participates (Sorensen and Sagaris, 2010). This study is concerned with the latter of these, i.e. who participates in such processes, in

particular focussing on the ways in which a gender perspective should be considered.

One key factor with regards to this gender perspective is fear of crime. Fear of crime as documented in the literature is not about the likelihood of being attacked, rather it is concerned with perceptions or feelings of insecurity (Roberts, 2016a). For example, when it comes to choosing a form of transport, safety is sometimes valued over cost or travel duration (Root et al., 2000). Fear of crime also translates into women having to avoid poorly lit areas or underground passages within a city (Gardner et al., 2017).

Biological differences can also be important in mobility. As the life expectancy of women is longer than that of men, in older age reduced mobility creates specific needs linked to both transport and urban design requiring the need for benches, wide pavements, etc. (Madariaga, 2016a).

Unpaid work also brings about a specific form of mobility, termed by Madariaga (2016a) the 'mobility of care'. Unpaid work disproportionately falls on women; 60% of it in the case of the UK (UK Census 2011). This type of mobility is slower as it happens in the company of children, elderly, or disabled people (Bauer, 2009); it often involves walking as a form of transport (Madariaga, 2016a), relies on public transport that is suitable for strollers or wheelchairs (Beebeejaun, 2017), and occurs in the form of chained trips requiring multiple stops (Madariaga, 2016a; Root et al., 2000). Significantly, responsibility for unpaid work translates into longer periods of time spent in public spaces and in the local environment (Buckingham, 2016; Garcia-Ramon et al., 2004).

Statistically women also suffer from economic inequality and lower salaries (Buckingham, 2016; Chalifour, 2011), and studies show that economic inequality is translated into a greater reliance on public transport (Polk, 2009) and lesser overall mobility (Johnsson-Latham, 2007), making women more tied to their local environment and public realm.

Although women have unique mobility experiences and different perspectives of the city and public spaces, their voices have mostly been unheard at all levels of placemaking, not only as citizens but also as scientist or policymakers (Gay-Antaki and Liverman, 2018; Hudson and Rönnblom, 2020). Key sectors within placemaking, like transportation, have also traditionally been male dominated. Even in Scandinavian countries where women are well represented (e.g. in national parliaments), the transport sector is still dominated by men (Magnusdottir and Kronsell, 2015).

Although it is important to consider women in their diversity and to acknowledge that there are different social identities intersecting with gender, talking about women as a group in society is still important, or as Madariaga puts it:

> In male-dominated institutional settings, where gender is still a new concept, frequently imperfectly understood and often resisted, simplification, at least at the present time, is a must' (Madariaga, 2016b:330).

A gender approach is not just beneficial to women. There are various examples in the literature of how women-centred urban development approaches have brought benefits for societies at large in different European countries, such as Austria, Spain, or the Netherlands (see e.g. Zibell et al., 2019). Some of these benefits 'for all' that arise from incorporating the perspectives of women in architecture, urban planning, or transport design include: an improved work-life-balance, improved ageing strategies, shorter commutes, improved transportation systems that allow commuting without a car, improved liveability, quality of green and open spaces, safer streets and neighbourhoods, and spaces for events and community life that bring about social sustainability (Damyanovic, 2016; Irschik et al., 2016; Ruiz-Sanchez, 2016; Ullmann, 2016; Wankiewicz, 2016; Wotha, 2016). The aim of exploring the voices of women in placemaking is not only to encourage structural changes so that women can find it easier to combine paid and unpaid work, but ultimately, so that ~~the~~ conditions that encourage a sharing of responsibilities and gender equality are created (Hemmati and Röhr, 2009; Damyanovic, 2016; Roberts, 2016b).

3. Methodology

Given the research question for this study, as well as the importance of diverse perspectives in considering placemaking that have been discussed in Section 2, social constructionism has been used as a theoretical framework to both guide the research method and subsequent analysis. If knowledge is subject to where one lives (Burr, 2003), as well as to social, economic, political, or gender factors (Guba and Lincoln, 1994), then social constructionism in this regard might be considered to be a question of whose views are to be heard and acted upon.

Following on from this interpretation and adoption of social constructionism, it was decided that any research method used in this study should be primarily qualitative in nature, viewing knowledge and truth as created by the interactions of individuals within a society. As such, it was determined that a semi-structured interview technique should be adopted. These types of interviews are widely used in both qualitative and placemaking studies, as they are conversational and informal in tone, feeling natural to both the researcher and the interviewee (King et al., 2018), and

allowing them to open up and respond using their own words (Longhurst, 2003), i.e. they attempt to balance any power relationship in the context of the investigation. The interviews used in this study were conducted following a predesigned list of questions to orient discussion, but participants were allowed and encouraged to take the interview in the direction they wished.

In this study, contributors were invited for interviews following a purposive sampling strategy (Bryman, 2012; Gill, 2020), assuring there was diversity in terms of age, ethnicity, nationality, occupation, co-habitation, responsibility for unpaid work, and number of children. This sampling strategy was complemented with a snowball sampling technique (Bryman, 2012; Gill, 2020) to expand the sample size of relevant interviewees, which was controlled by an ongoing analysis of sample characteristics. All interviews took place during the spring and summer of 2019 and were conducted in public spaces between the lead author and the interviewee.

With regards to the 30 women that took part in this study, they had the following demographics: 14 of the participants were younger than 40 years old, 17 of them had children, and 19 of them were mainly or totally in charge of unpaid work (i.e. taking care of children, older relatives, grocery shopping, etc.). In terms of transport choices, 11 of the women interviewed travelled mainly by car, 9 mainly by foot, 6 by public transport, and 4 by bike. With regard to their occupation, the women identified as policymakers, teachers, university lecturers or researchers, students, environmental managers, business professionals, architects, service and sales workers, and retirees.

All subjects had some form of connection to place with regards to GM, either in the form of academics doing relevant research in the area, environmental professionals (or policymakers) in charge of place management across the region, or simply users and inhabitants. They also experienced the city differently based on their main forms of mobility and commitment to childcare and unpaid work, as this changed the amount of time spent outdoors when commuting by public transport, foot, or bike (as opposed to the car), or in parks and public spaces through childcare.

The first section of the interview worked as an icebreaker and allowed data to be gathered about the background of the subjects. The second section involved asking what measures they would put in place to improve air quality, welcoming discussion around transportation, greenspace, and the public realm. Interviewees were asked to make these considerations assuming that they possessed total authority, as if there were no time or money constraints, and were encouraged to be as creative as they wished.

Social constructionism also argues that the aim of (qualitative) research is to tell a story from the data, acknowledging the active role of the researcher in analysing and describing the data; in other words, offering an interpretation of how participants

interpret reality. As such, in analysing the responses to the interviews a conventional content analysis was employed, in which preconceived categories were avoided and the generation of codes was guided by the data using an inductive approach (Hsieh and Shannon, 2005). The interview transcripts were coded using the NVIVO software (Version: 10.2.2) for qualitative data analysis. ~~This coding process was implemented based on this~~The coding approach that was adopted ~~inductive and interpretative approach to data analysis, followin~~used~~g~~ descriptive coding to highlight the meaning of a passage, followed by~~; and~~ pattern coding to group codes that belonged together into groups or themes (Saldana, 2009). The final data corpus consisted of approximately thirty hours of interviews, and through an ongoing data analysis process, it was ascertained that at this point theoretical saturation had been achieved, as no new codes, themes, or concepts, were emergent (Rowlands, et al. 2016).

In order to guide the coding process and make it more transparent a codebook was developed, providing a formalized operationalization of the codes (DeCuir-Gunby et al., 2011). This codebook can be found in Table 1, which present the codes, a description of what these codes represent, and the groups into which these codes were collected. These groups will be discussed more fully in Section 4, but they are chronologically cumulative in nature, i.e. some of the categories within Group 1 are then further grouped in Group 2, which in turn are then further grouped into Group 3, which categorise~~s~~~~es~~ all previous groupings into either 'direct' or 'indirect' factors.

Table 1: The codebook that was used for the analysis of the interview transcripts. Numbers indicate the frequency of occurrence.

Code	Description	Group 1	Group 2	Group 3
Fewer cars **30**	References to fewer cars in the road and parked in the city, to reducing space allocated to cars, and to no car zones.	Car **41**	Transport **113**	Direct factors **175**
Hire / share **7**	References to unnecessary car ownership in favour of renting or sharing a car, and to better organized sharing and renting schemes.			
Electric / Low emission cars **4**	References to electric cars, hybrid cars, or to caps on emissions.			
Improved walking infrastructure **12**	References to improving walking infrastructure and making streets wider, pedestrianization, and securing space for walking with prams or wheelchairs.	Active transport **34**		
Safe cycling infrastructure **11**	References to improving cycling infrastructure and to make it safer, to bike lanes, no tricky junctions, physical boundaries, showers in workplaces.			
Chris Boardman **6**	References to Chris Boardman and his project for improving cycling and walking infrastructure (Beelines).			
Cycling proficiency **5**	References to making people more competent in cycling as a form of transport, helping find secure routes.			
Network **14**	References to improvements in public transport networks including, frequency, capacity, and coverage.	Public transport **33**		
Price **9**	References to making public transport cheaper or totally free.			

Easiness **6**	References to making public transport easier to use, being able to tap in an out in every transport system, or screens with information about services.			
Electric / Low emissions **4**	References to making public transport electric in some routes or hybrid in others, having solar panels in roofs of vehicles.			
Flexible work hours or place **5**	References to being able to work from home or to come and go at different times to avoid daily commutes and rush hour.	Flexible work hours or place **5**		
More green and blue **29**	References to the need for more parks or green elements in the city such as roofs, wall, trees, grass, flowers, rivers, or canals.	Green and blue areas **51**		
~~Management **10**~~Management **10**	References to maintaining green and blue areas and not letting them overgrow, attract antisocial behaviour and become unusable.			
Environmental benefits **9**	References to environmental benefits of green spaces such as reducing air pollution and flooding, or cooling effects.			
Back gardens **3**	References to using back gardens for planting trees and flowers to create a network of green spaces, and to not block pave these for car parking.			
More information **6**	References to the need for more real-time air pollution information, and more information in relation to actions and available alternatives.	Engagement **16**		
Responsibility **5**	References to citizens claiming ownership and responsibility, and to bottom-up approaches.			
Change in mindset **3**	References to changing the way people think about convenience and material wealth.			
Hubs **2**	References to the power of workplaces, ~~universities~~universities, or schools in encouraging change.			
Litter **16**	References to cleaning the streets from litter and waste, and to creating pleasant environments for walking.	Pleasant spaces **25**		Indirect factors **62**
Homelessness **9**	References to sorting homelessness and drug use, and to creating pleasant environments for walking.			
Community **16**	References to creating strong communities to benefits for citizens and the environment.	Community **16**		
Health **14**	References to how green spaces and active forms of transport improve fitness, wellbeing, and have therapeutic effects; and how healthy people are more likely to appreciate and care about the environment.	Health **14**		
Safety **7**	References to the need to create a city where everybody feels safe, and to spaces that feel unsafe.	Safety **7**		

4. Discussion

As can be seen from the third column of Table 1, two major groups (or themes) emerged from the analysis of the interviews: direct and indirect factors. ~~In analysing the interviews~~During the analysis, it became clear that several of the emergent codes were directly linked to air quality (i.e. direct factors), such as tackling a reduction in cars. Other codes were indirectly linked to air quality (i.e. indirect factors), such as reducing the amount of litter on the streets in order to create a more pleasant place that invites walking instead of driving. We now discuss each of these two emergent groups in turn, both in relation to our RQ ("what does a gender approach to placemaking reveal about the relationship between air quality and placemaking?"), as well as findings from other literature in the associated fields.

When direct quotes from the interviews are presented, they appear alongside a pseudonym, which was chosen by the interviewees to preserve anonymity.

4.1 Direct Factors

In relation to the direct factors, the women discussed three areas of action. Firstly, an improved transport system that involved fewer cars, more car renting and sharing schemes, more electric vehicles, improved walking infrastructure with wider streets, safer cycling infrastructure, and the need to improve cycling proficiency. This improved transport system also included better public transport as well as flexible work schedules to avoid rush hours and unnecessary trips:

> Space to move around… because at the moment I feel like my experience of the urban environment is like shuffling along the pavement like this [gestures squeezing past in a narrow space] … squeezing between like a wall and a car that someone has parked two wheels or four wheels on the pavement… (Blue)

> And the bike lanes you can't rely on them… they just sometimes lead to nowhere… and the number of potholes… (Violet)

Secondly, participants discussed the improvement of green and blue spaces. It was acknowledged that creating parks is difficult and so they also suggested a network of green spaces composed of trees, vertical gardens, green roofs, or back gardens. They also talked about an even distribution of green areas, and how more attention should be paid to greening those more rundown areas in GM. Responses also related to the management of green and blue spaces, i.e. that the management of these spaces needs to be improved, as many green and blue areas are rundown, attracting antisocial behaviour and becoming unsafe places:

> Make the canal network more inviting… assets that already exist but aren't being utilized as they could be… the canals aren't maintained properly… a bit overlooked… a bit of anti-social behaviour… (Ruth)

These findings demonstrate a desire for improved walking and cycling infrastructure and public transport, as well as more and better managed green spaces, to the detriment of road space and cars. The fact that this group of women appear positive about car restrictions and making space for green areas is aligned with findings reported by Li & Tilt, (2019), as well as the work of Gärling & Schuitema (2007), which demonstrated that car reduction initiatives can have public acceptability, providing that viable and attractive alternatives are in place.

Finally, with regards to these direct effects, interviewees discussed the importance of more abundant and effective information and communication. They explained that real-time information about air quality or alternative commuting routes would be helpful, as well as highlighting how communication in relation to specific behaviours and actions for citizens to adopt can contribute to a change in mindset:

> Those electronic boards that give you information too… you know how you got like speed limit values… so it could be vehicle emissions… (Cleanairbex)

These observations are similar to the work of Tomitsch et al. (2015) and Braem et al. (2016), both of which also highlight the need for more effective information and communication with relation to air quality, e.g. through vehicle emission and smart city data.

4.2 Indirect Factors

Alongside the perhaps expected observations that emerged from the interviews with regards to the direct factors, a novel finding of this study was how invested participants ~~become~~ became when discussing indirect factors, i.e. those that at a first glance might not appear to be linked to clean air.

One of these indirect factors was the importance of pleasant spaces in shaping behaviour. Participants observed how litter creates unpleasant streets and neighbourhoods that do not encourage~~invite for~~ walking or for spending time outdoors. They also explained how they saw homelessness as an issue in GM, how it degrades the image of a city, and how it contributes to unpleasant streets. They discussed how society should, as a whole, be better at tackling this problem:

> But it's so filthy… so obviously that puts people off… If you start to think about like you know a clean environment and then that could potentially make people be keener to walk and you know maybe cycle… (Dailyrunner)

> So we don't have people on the street, homeless people… Because it's a visual thing… Piccadilly Gardens… a lot of people with alcohol, drugs, hanging out even during the day… (Suki)

In this particular geographical context, the idea of beautification ties with notions of litter and cleanliness (also somewhat problematic in the GM context; see e.g. Rosa, 2015), which are so important in creating pleasant spaces that invite walking, spending time outdoors, and bonding. Similarly, in the particular context of GM, values of solidarity and caring for each other are manifested when referring to homelessness, which at present constitutes an important problem for this conurbation (see Broady, 2020). According to the responses in this study,

homelessness not only needs to be addressed for the wellbeing of homeless people, but also because it creates unpleasant and distressing environments that can deter life outdoors and walking in and around the city. This means that although broader concepts of safety, solidarity, community, and appearance can be global, there is a need to explore what these entail across local contexts. These findings are also a reminder of the importance of the exploration of different socio-demographic groups, as well as different local contexts.

The role of communities and trust in placemaking is highlighted by Hudson and Rönnblom, (2020), who also emphasise the need for cities to be pleasant for women ~~to~~ so that they might want to spend time outdoors and bond. Similarly in analysing the responses to the interviews in this study, we also found a need for spaces that facilitate creating bonds with community members across GM. A feeling of belonging or a community feeling, in their views, could be translated into caring about others, and in turn, caring about the place where they live, the environment, and air pollution. According to the interviewees, when people care about the place where they live and the people who live in it, they are more likely to treat it nicely and to not let it deteriorate. Participants explained how caring about other people can also be translated into a greater sharing culture, which links to the previously mentioned aspect of increased shared car journeys. Similarly, according to contributors, communities have knock-on impacts so that the pressure that a community places on an individual can make them change their behaviours, such as cycling or walking more:

> If you have a strong community… they have a place to go… and they will automatically start taking care of that place. So the green space that you create initially becomes self-sufficient because there are people enjoying the green space, they don't want to lose it, and they will automatically take care… (Asta)

Hudson and Rönnblom, (2020) also discuss values of solidarity and caring for each other. Similarly, Bardzell (2018) observes a similar focus, concluding that 'beautifying' the city (e.g. through greening and street art) is important in a feminist conceptualization of place

Health was also found to be an emergent indirect factor in relation to air quality, with green and blue spaces highlighted as not only have environmental benefits but also social and welfare ones. The women in this study explained how green and blue areas improve the mood, wellbeing, and mental health of their users, and invite citizens to play and to practice sports. They also believed that improved cycling and walking infrastructure would make people more active and foster a ~~more fit~~fitter society, reducing health issues, such as obesity. Furthermore, they reiterated how healthy people who enjoy the outdoors are more likely to care about the environment and air pollution:

> Not only does it help clearing or cleaning the environment, it also makes a positive impact on people you know… you feel better when you see some flowers and… when you feel better you can be more… you can be kinder… and you are more open to the ideas of actually taking care of your environment… (Asta)

A final topic to emerge from the consideration of indirect effects was one of safety. Participants discussed the importance of feeling safe when walking and cycling. Not only in terms of road accidents, but also in terms of the fear of being physically and sexually assaulted, or of crime more generally. In their views, well-maintained green and blue areas, as well as cities that are designed for people can help eliminating or reducing feelings of insecurity:

> That's because of my perception that it's not safe because there's not a lot of people there … it's like if you can create more people walking then it makes a more vibrant place and it makes it safer for everybody else… (Billy)

This finding resonates with that of other studies. For example, Hudson and Rönnblom, (2020) engage with how women envision ~~the future city~~future cities and conclude that safety (e.g. in ~~under passages~~underpasses, greenspaces, at night, etc.) is a key component that needs to be addressed for women to walk the city freely.

These interviews and their analysis present a novel exploration of the question of air quality and placemaking from a gender perspective, highlighting both a willingness to change and to support structural changes. This is true even for those proposed changes that are often met with scepticism, such as reducing the number of cars on the roads (e.g. de Groot and Schuitema, 2012; Gärling and Schuitema, 2007) in order to make space for improved walking and cycling infrastructure and green elements. These findings too have important implications for designing relevant policies and framing them effectively. In particular this has highlighted the need for policymakers and place managers to consider a gender perspective when working towards clean air. These considerations should go beyond the traditional discourse around direct factors such as emissions and car usage reductions, and instead also place a much greater emphasis on people, their wellbeing, and the pleasantness and beauty of the places they care about

5. Conclusions

This study aimed to answer the following research question:

RQ: what does a gender approach to placemaking reveal about the relationship between air quality and placemaking?~~.~~

Our interviews and subsequent analysis revealed that when asked about placemaking efforts to create a city with clean air, women in GM showed a desire for improved walking and cycling infrastructure and public transport, as well as more and better managed green spaces, to the detriment of road space and cars. They envisioned a city designed for people where communities and neighbourhoods have spaces to gather. These findings show that a gender approach to placemaking reveals several indirect factors for policymakers and place managers to consider when thinking about air quality. For example, economic inequality, the economy of care, and physical vulnerability are important disadvantages in the case of women and shape their experience of place (giving rise to notions of trust, security, and improved and cost-effective public transport, etc.). Other studies also concur on the wider societal benefits of placemaking with women as these bring about improved transportation systems, better aging strategies, safer streets and public spaces, ~~or~~ and an improved work-life balance (Damyanovic, 2016; Irschik et al., 2016; Ruiz-Sanchez, 2016; Ullmann, 2016; Wankiewicz, 2016; Wotha, 2016). However, this is not limited to women, with such disadvantages also experienced by other demographics, such as students (Fincher et al., 2009), ethnic minorities (Kaplan, 2017), or LGBTQ communities (Doan, 2015).

Indeed, the major limitation of this study is that whilst it gives voice to women with different backgrounds (e.g. age, ethnicity, or professional background) and experiences (e.g. number of children or preferred form of transport), it is not an encompassing voice of *all* women. For example, although the professional backgrounds of these women are diverse, they all hold a position of relative economic privilege, and as such it is important to acknowledge that these findings do not fully incorporate the voices of other, less privileged, women. Similarly, this study subscribes to the current need for an all-encompassing gender perspective and as such it doesn't explore how gender intersects with social identities such as race, income, education, age, marital status, or job situation, and how these might give rise to differences in how the environment is perceived.

This paper has demonstrated how a gendered approach to placemaking has revealed how a city with cleaner air is influenced by a range of both direct and indirect factors including: safety, pleasantness, greenspace, litter, and homelessness. Consequently, we hope that place managers, policymakers, and other researchers further consider how listening to these voices can be powerful elements in designing effective air quality policies for women, and the benefits that this might have for society at large.

6. References

Bardzell, S. (2018). 'Utopias of Participation: Feminism, Design, and the Futures', *ACM Trans. Comput.-Hum. Interact*, 25, pp. 1–24.

Bauer, U. (2009). 'Gender Mainstreaming in Vienna. How the Gender Perspective Can Raise the Quality of Life in a Big City', *Kvinder, Køn &Amp; Forskning.* 1 (3).

Beebeejaun, Y. and Grimshaw, L. (2011). 'Is the 'New Deal for Communities' a New Deal for Equality? Getting Women on Board in Neighbourhood Governance' *Urban Studies*, 48, pp. 1997–2011.

Beebeejaun, Y. (2017). 'Gender, urban space, and the right to everyday life' *Journal of Urban Affairs*, 39, pp. 323–334.

Bradley, K. (2009). 'Planning for eco-friendly living in diverse societies' *Local Environment,* 14, pp. 347–363.

Braem, B., Latré, S., Leroux, P., Demeester, P., Coenen, T. and Ballon, P. (2016). 'Designing a smart city playground: Real-time air quality measurements and visualization in the City of Things testbed', *2016 IEEE International Smart Cities Conference*. Trento, Italy, 12-15 September 2016. IEEE.

Broady, R. (2020). 'Unearthing the political unconscious in the reporting of homelessness in Manchester', *International Journal of Media & Cultural Politics*., *16*(1), pp.91-99.

Bryman, A. (2012). *Social Research Methods*, 4th Edition. Oxford: Oxford University Press.

Buckingham, S. (2016). 'Gender, Sustainability, and the Urban Environment', in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 21-32.

Burr, V. (2003). *Social Constructionism* 2nd edition. London: Routledge.

Bush, J., Moffatt, S. and Dunn, C (2001). 'Even the birds round here cough: stigma, air pollution and health in Teesside' *Health & place*, 7(1), pp.47-56.

Chalifour, N.J. (2011). A Feminist Perspective on Carbon Taxes. *Canadian Journal of Women and the Law*, 22(1). https://doi.org/10.3138/cjwl.22.1.169

Damyanovic, D. (2016). 'Gender Mainstreaming as a Strategy for Sustainable Urban Planning', in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 177-192.

de Groot, J.I.M., Schuitema, G. (2012). 'How to make the unpopular popular? Policy characteristics, social norms and the acceptability of environmental policies' *Environmental Science & Policy,* 19–20, pp. 100–107.

DeCuir-Gunby, J.T., Marshall, P.L., McCulloch, A.W. (2011). 'Developing and Using a Codebook for the Analysis of Interview Data: An Example from a Professional Development Research Project' *Field Methods,* 23, pp. 136–155.

Doan, P.L. (ed) (2015). *Planning and LGBTQ communities: The Need for Inclusive Queer Spaces*. London : Routledge.

Fincher, R., Carter, P., Tombesi, P. and Shaw, K. (2009). *Transnational and temporary: Students, community and place-making in central Melbourne*. Melbourne: Faculty of Architecture, Building and Planning (UniMelb)

Garcia-Ramon, M.D., Ortiz, A. and Prats, M. (2004). 'Urban planning, gender and the use of public space in a peripherial neighbourhood of Barcelona' *Cities,* 21, pp. 215–223.

Gardner, N., Cui, J. and Coiacetto, E. (2017). 'Harassment on public transport and its impacts on women's travel behaviour' *Australian Planner*, 54, pp. 8–15.

Gärling, T. and Schuitema, G. (2007). 'Travel Demand Management Targeting Reduced Private Car Use: Effectiveness, Public Acceptability and Political Feasibility' *Journal of Social Issues*, 63, pp. 139–153.

Gay-Antaki, M. and Liverman, D. (2018). 'Climate for women in climate science: Women scientists and the Intergovernmental Panel on Climate Change' *PNAS*, 115, pp. 2060–2065.

Gill, S.L. (2020). 'Qualitative Sampling Methods', *Journal of Human Lactation*, 36, pp. 579–581.

Guba, E. G. and Lincoln, Y. S. (1994). *Handbook of qualitative research*. Thousand Oaks, California: SAGE Publications

Hemmati, M. and Röhr, U. (2009). 'Engendering the climate-change negotiations: experiences, challenges, and steps forward', *Gender & Development*, 17, pp. 19–32.

Hsieh, H.-F. and Shannon, S.E. (2005). 'Three Approaches to Qualitative Content Analysis', *Qualitative Health Research* ,15, pp. 1277–1288.

Hudson, C. and Rönnblom, M. (2020). 'Is an 'other' city possible? Using feminist utopias in creating a more inclusive vision of the future city', *Futures*, 121, pp. 102583.

Irschik, E. and Kail, E. (2016). 'Vienna: Progress Towards a Fair Shared City' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 193-230.

Kaijser, A. and Kronsell, A. (2014). 'Climate change through the lens of intersectionality', *Environmental Politics*, 23, pp. 417–433.

Kalandides, A. (2018). 'Citizen participation: Towards a framework for policy assessment', *Journal of Place Management and Development*, 11(2), pp. 152-164.

King, N., Horrocks, C. and Brooks, J. (2018). *Interviews in Qualitative Research*. Thousand Oaks, California: SAGE Publications

Kaplan, D.H. (2017). *Navigating ethnicity: Segregation, placemaking, and difference*. Lanham, Maryland: Rowman & Littlefield.

Koman, P.D., Hogan, K.A., Sampson, N., Mandell, R., Coombe, C.M., Tetteh, M.M., Hill-Ashford, Y.R., Wilkins, D., Zlatnik, M.G., Loch-Caruso, R. and Schulz, A.J. (2018). 'Examining Joint Effects of Air Pollution Exposure and Social Determinants of Health in Defining "At-Risk" Populations Under the Clean Air Act: Susceptibility of Pregnant Women to Hypertensive Disorders of Pregnancy', *World medical & health policy*, *10*(1), pp.7-54.

Li, X. and Tilt, B. (2019). 'Public engagements with smog in urban China: Knowledge, trust, and action', *Environmental Science & Policy*, 92, pp. 220–227.

Longhurst, R. (2003). 'Semi-structured interviews and focus groups', *Key methods in geography*, 3(2), pp.143-156.

Madariaga, I.S. de. (2016a). 'Mobility of Care: Introducing New Concepts in Urban Transport' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 325-334.

Madariaga, I.S. de. (2016b). 'Looking Forward, Moving Beyond Trade-offs' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 33-48.

Magnusdottir, G.L. and Kronsell, A. (2015). 'The (In)Visibility of Gender in Scandinavian Climate Policy-Making', *International Feminist Journal of Politics,* 17, pp. 308-326.

Polk, M. (2009). 'Gendering climate change through the transport sector', *Kvinder, Køn & Forskning*, 3-4, pp 73-78.

Roberts, M. (2016a). 'Gender, Fear and the Night-time City' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 49-64.

Roberts, M. (2016b). 'Introduction: Concepts, Themes and Issues in a Gendered Approach to Planning' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 1-20.

Root, A., Schintler, L. and Button, K. (2000). 'Women, travel and the idea of "sustainable transport"', *Transport Reviews*, 20, pp. 369–383.

Rosa, B. (2015). 'Waste and value in urban transformation: Reflections on a post-industrial 'wasteland' in Manchester' in Linder, C. and Meissner, M. (eds) *Global Garbage.* London: Routledge, pp. 193-218.

Rowlands, T., Waddell, N. and McKenna, B. (2016). iAre we there yet? A technique to determine theoretical saturation', *Journal of Computer Information Systems*, 56(1), pp.40-47.

Ruiz-Sanchez, J. (2016). 'Planning Urban Complexity at the Scale of Everyday Life: Móstoles Sur, a New Quarter in Metropolitan Madrid' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 279-296.

Saldana, J. (ed) (2009). *The Coding Manual for Qualitative Researchers*, Los Angeles: SAGE Publications.

Sorensen, A. and Sagaris, L. (2010). 'From participation to the right to the city: Democratic place management at the neighbourhood scale in comparative perspective', *Planning Practice & Research*, 25(3), pp. 297-316.

Strydom, W., Puren, K. and Drewes, E. (2018). 'Exploring theoretical trends in placemaking: towards new perspectives in spatial planning', *Journal of Place Management and Development*, 11(2), pp. 165-180.

TfGM (2018). Beelines. Greater Manchester's cycling and walking infrastructure proposal. Manchester: Transport for Greater Manchester.

Toolis, E.E. (2017). 'Theorizing critical placemaking as a tool for reclaiming public space', *American Journal of Community Psychology*, *59*(1-2), pp.184-199.

Tomitsch, M., McArthur, I., Haeusler, H.M. and Foth, M. (2015). 'The role of digital screens in urban life: New opportunities for placemaking' in Foth, M., Brynskov, M. and Ojala, T. (eds.) *Citizen's Right to the Digital City*. Singapore, Springer, pp. 37-54.

Ullmann, F. (2016). 'Choreography of Life: Two Pilot Projects of Social Housing in Vienna' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 297-324

Wankiewicz, H. (2016). 'European Regional Development Programmes for Cities and Regions: Driving Forces for Gender Planning?' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 131-154.

Webb, D. (2021). 'Placemaking and Social Equity: Expanding the Framework of Creative Placemaking', *Artivate: A Journal of Entrepreneurship in the Arts, 3(1), pp. 35-48.*

Wotha, B. (2016). 'Urban Governance and Gender-aware Planning' in Roberts, M. and Madariaga, I.S. de (eds.) *Fair Shared Cities*. London: Routledge, pp. 91-106.

Zibell, B., Damyanovic, D. and Sturm, U. (eds.) (2019). *Gendered approaches to spatial development in Europe: perspectives, similarities, differences*. London: Routledge.