Invisible Bricks: urban places for social wellbeing

– A lived experience of place in the London borough of Tower Hamlets, UK

Hannah Arnett

Invisible Bricks: urban places for social wellbeing

Hannah Arnett

Abstract

Social sustainability in urban places is undervalued in urban planning due to the intangible nature of the concept. By valuing lived experiences of place, this research connects social and environmental sustainability pillars to support planning for socio-environmental justice from a citizen's perspective. The quality of the urban outdoor environment is explored in relation to safety and individual and collective efficacy for social wellbeing which contextualises the role of urban green space.

This study suggests socio-environmental sustainability is related at an individual and collective level. Safe social environments can support place attachment processes and safe green spaces can support self-regulation of emotions that influences behaviours. The urban outdoors can be viewed as a social learning environment. An inductive interpretative phenomenological analysis (IPA) led enquiry has been conducted which suggests urban places for social wellbeing can be explained by a framework that integrates social and environmental psychology and spatial politics theories. This study suggests that place attachment is at the heart of dynamic social environments and influences social learning behaviours through vicarious learning and the manifestation of social spaces as framed by *Scannell and Gifford's Tripartite Framework of Place Attachment*, *Bandura's Social Cognitive Theory* and *Lefebvre's Theory of Produced Social Space*.

Designing for socio-environmental justice is associated with understanding human irrationality due to poor social and environmental quality. This research suggests the right to feeling safe and the quality of the urban environment, including safe green spaces, becomes an issue for the operation of democracy and facilitating self and collective efficacy, by recognising the invisible bricks that form urban places for social wellbeing.

Foreword

In September 2015, whilst sat feeling disillusioned in a meeting at a medical conference with a pharmaceutical company and academics, I looked at my phone and saw I had been offered a place on Outdoor Environments for Health and Wellbeing MSc at SLU. I made an application earlier in the year whilst on a search to find an area of study related to preventative health and care and also developing an area of interest for my own wellbeing as a person. I was observing an imbalance in the medical world with an emphasis on pharmaceutical treatment for many lifestyle related diseases and I was also becoming increasingly dissatisfied with the way I was living my own life in London. It didn't take me long to make the decision to confirm the place.

Over the last four years, the learning journey has been an incredible one; for academic development, practical knowledge, cultural insight, friendships, a greater insight into my place attachments and collaborating with many wonderful people in London and Sweden. In 2016 I was lucky enough to sit next to someone who worked at the Greater London Authority's Environment Policy department whilst volunteering for a homeless charity. In an effort to find a live project to link a thesis with, I was extremely grateful to be connected with Urban Mind research collaboration and immerse in action based research with Phytology nature reserve. By growing and offering free medicines and care in the community, Phytology is the exact opposite of the medical environment I started the course in.

I consider it a privilege to listen and learn from people's experiences in Bethnal Green as part of the research. The insight gained is a contract of trust and I hope I have been able to represent their views in a suitable way to meet their motivations for why they wanted to share their views about their life.

The time in which we live feels apocalyptic. With the knowledge that there is only 12 years to halt the irreversible changes of climate change, history and the state of the environment will be the harshest judge of humanity that delayed fully embracing our interdependence with the planet. Although I may not end the course with the same EU citizenship I started with that has enabled access to studying in Europe, I am extremely grateful to have found topics I find interesting and worthwhile. I hope to contribute positively with others in the areas of social and environmental sustainability which this MSc has facilitated the path to find and continue the learning journey.

Table of contents

List of figures

List of publications

A commentary was published in relation to the Urban Mind project:

Arnett, H. (2018). The challenges in quantifying social sustainability at a neighbourhood level. Cities and Health, 1 (2), pp. 139-140.

1 The role of place for socio-environmental justice in cities

1.1 Background

Politicians have commentated that if the nineteenth century was the age of empires, the twentieth century the age of nation states, then the twenty-first century is the age of cities (HuffPost, 2019). As concentrated power and population centres in cities rather than large geographic land areas, how does this change how citizenship operates? Although complex to evidence, citizenship as part of democracy and health are inextricably linked. Academics have suggested that global health cannot only exist in the scientific realm because population health outcomes are fundamentally associated with political structures and democratic mechanisms (Bollyky et al., 2019). Places offer a localised truth about our surroundings and society, which is arguably becoming increasingly important to value for social wellbeing. As a citizen living in London, it seems that in the twenty-first century humans strive to live in an environment with a newly layered past and an ageless future. The invisibility of human emotion is glimpsed in the visibility of our evolving places. The narrative of a city is spun by voices with many motivations, which are often monetary, so perhaps the truth of the city experience lies in the multiplicity of interpretations, void of a power that tries to narrate it.

Neighbourhoods are a demonstration of our democracy tied with the notion of citizenship. One definition of citizenship exists which includes an obligation to participate 'in community life' and to 'look after the area in which you live and the environment' (Esol.britishcouncil.org, 2019). Therefore, participation in our local environment form invisible bricks that enable citizenship to exist beyond institutionalised freedom. Bandura (2001) recognised that globally, uniting citizens by a national vision is becoming more challenging. Constitutional challenges such as Brexit is demonstrating a lack of unity in the values and beliefs of one country. Therefore the challenges suggest that it is becoming less relevant to define a social code or set of beliefs that influences a social environment based on a national identity. This presents challenges for democracies because social norms are key principles that inform 'acceptable policies, procedures and behaviour' for two additional principles

of democracy: 'upward control' and 'political equality' (Kimber, 1989 p. 199). Therefore social environments are an enabler as well as a barrier for citizens' ability to individually and collectively act for one-self but also for societal issues. Therefore it can be argued that the invisible mechanisms of social sustainability are key for our wellbeing because the processes allow democracy to flourish. A collective aim that values cultivating and maintaining healthy social environments could be referred to as working towards a 'wellbeing-focussed society'.

The outdoor environment in place can be considered the *third space* in between home and the workplace. Urban planners describe the relational dynamics that exist in this space as 'everyday life and unending history' (Iaconesi and Persico, 2017, p.17 and Dempsey et al, 2011). The third space provides opportunities for the *third landscape* where 'the genetic reservoir of our planet' lies, especially in green spaces (p.19). Perceptions that form in the outdoor environment are influenced by emotional processes related to the land *(environmental psychology),* of ourselves and others *(social psychology)* and urban societal structures *(urban sociology and history).* The research is also part of a place based Urban Mind project, whilst being a researcher in residence at Phytology nature reserve, which has framed context and development of research.

Urban Mind is a research collaboration established by Kings College London, Nomad Art Foundation and J&L Gibbons landscape architects, which aim to influence urban design and policy to design cities for wellbeing through an interdisciplinary approach. The global research initiative aims to understand the impact of urban living on wellbeing with the development of smartphone based technology enabling a citizen science approach. The research area and transformative goals of the initiative has framed the context for this master's project and the parallel research project in Tower Hamlets. Data is collected on environmental aesthetics including deprivation, exposure to nature, the social environment and momentary mental wellbeing (Urban Mind 2017). The United Nations (UN) encourages a *'city that plans'* approach rather than a top down approach therefore evidence based design approaches such as Urban Mind app enables active citizen participation that support mechanisms of democracy through urban planning (UN Habitat World Cities Report: Urbanization and development Emerging Futures, 2016).

Urban places are important structures for wellbeing as they form a basis for where emotions form, exist and attach and therefore influence social behaviours forming the urban fabric. Research suggests that emotional engagement in human-environment interactions creates cultural meaning that provides the foundations of pro-social and pro-environmental behavioural (Brown et al., 2019).

Emotions in place have always been necessary to human survival. In the Africa Savannah, food was scarce so co-operation became critical to survive by forming strong social bonds (Wilkinson and Pickett, 2018). Wilkinson and Pickett state that neurochemical responses in the brain is where human sociability originates, however

urban environments that support self-regulation of emotions and sociability have not been valued in urban planning. In 1739, the public intellectual David Hume proposed a 'tabula rasa' perspective of the human experience, stating:

'We are nothing but a bundle or collection of different perceptions which succeed each other with an inconceivable rapidity and are in perceptual flux and movement' (Hume, 1739, The University of Adelaide, 2019).

Hume believed it was our affective state – our emotions, that motivated human behaviour. Although many complex theories of human behaviour have been developed, perhaps understanding emotions in relation to urban planning could be important to gain an understanding of how social behaviours form in a localised space which influences social wellbeing. However, social wellbeing is a complex concept due to its subjective and intangible nature and has many angles of interpretation (Arnett, 2018). Recent definitions of social sustainability ask social science to have a greater prominence alongside environmental science to involve the subjective experience of place so abstract global concerns are relevant and understood at a local level (Vallance, Perkins and Dixon, 2011). This research explores how social and environmental sustainability pillars are related in understanding lived experiences in urban places.

Enric Pol has conducted research with environmental psychologists which has evidenced that a decrease in attachments to place weakens a sense of community and humans adopt a 'fatalistic' attitude in their day to day lives (Pol et al, 2017). They have argued that a sense of 'learned helplessness' is evident in social environments when there are less social networks in place as this removes the ability for citizens to regulate their own environments. Pol's research suggests that today's societies are closer to a state of learned helplessness than a state of empowerment. A belief in one's own ability and collective ability to act in place contributes to the invisible mechanisms for wellbeing in place. Research shows that environments for social wellbeing are influenced by a collective goal that all citizens have a desire to live in safe environments free of crime, which therefore directs collective action (Cusson, 2015). However, the ability for safe social environments to form is related to equality; unequal societies have been evidenced as being less socially cohesive, high crime rates and populations are disconnected from public life (Wilkinson and Pickett, 2018). This supports the argument for wellbeing and democracy as related concepts, which requires a commitment to reducing inequalities for individual and societal benefit.

The legacy of urban planning presents challenges for social wellbeing in cities and it is useful to understand the historical context of *conceived* spaces in cities, which we still populate today. The historian Eric Hobsbawm labelled the years 1848-1875 as the 'age of capital' as humans cut their traditional ties to rural land and the social fabric of communities changed as urban societies formed in the 'great urban experiment' (Hobsbawm, 1997). Cities provided a new form of labour and habitat for human survival. This new landscape formed the basis of new *place attachments*, shaping

emotional bonds with concrete lands and therefore forming a different social environment.

Social sustainability has always been a challenge in cities, partly due to the early ideological conflict between human needs of freedom and care, which was the context for early urban planning. The urban sociologist Richard Sennett recognised an ongoing tension between the economy and needs for individual liberty and religion (Sennett, 1994). Ideology, health and urban planning have always been interlinked through understandings of political control, human behaviour and medical concepts, however historically this has not been with the aim of encouraging human connection. Designers of the eighteenth century aimed to create a healthy city based on bodily movement, mirroring the breathing process. Therefore physical freedom was encouraged through flowing movement through streets (Sennett, 1994). During the surge of capitalism in the nineteenth century, urban individualism rather than sociability became favoured urban policy. A crowd of freely moving individuals in place discouraged the movement of organised groups and people gradually became detached from the space (Sennett, 1994). Sennett notes that anonymity became a valued concept rather than community as a city functioned through a lack of social connection to reduce ability for collective political resistance. Therefore anonymity has been designed into our cities from conception during early modernisation, which arguably produced physical barriers for human connection and formation of emotional bonds.

Places where people live are an important aspect of human wellbeing as it forms a home for our physiological and psychosocial needs to be met, including safety and a sense of belonging (Maslow, 1943). Currently, over 54% of the world's population resides in cities, which means the predominant places we inhabit are urban places (Who.int, 2019). Yet, current urbanised social and economic systems are presenting multi-faceted challenges for social sustainability. Social wellbeing is difficult to cultivate if basic human needs (as Abraham Maslow outlines in his theory of hierarchy of needs), are not being fairly attained across populations (Wilkinson and Pickett, 2018).

Unplanned urbanisation is a key challenge, which contributes to the prevalence of non-communicable diseases. The World Health Organisation (WHO) has recognised a comprehensive approach is needed for wellbeing, requiring all sectors to collaborate to promote interventions that tackle lifestyle diseases *(welfare diseases)* which involves social and environmental factors (WHO.int, 2019). World Health Organisation describes health as: 'A state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity' (WHO.int, 2019). In a technologically connected world systemic social problems are medicalised focusing on the management of non-communicable diseases such as cardiovascular diseases, cancers, diabetes and chronic diseases, rather than address the deficiencies in social, economic and environmental structures and conditions (Pol et al, 2017).

The surroundings in which we live are recognised as part of a biopsychosocial model of health as Michael Marmot states: 'Most of us cherish the notion of free choice, but our choices are constrained by the conditions in which we are born, grow, live, work and age' (The Health Foundation, 2018, Morrison and Bennett, 2012). Neighbourhood and place are concepts used interchangeably, however in this context I will use neighbourhood to describe a specific geographic area and place to describe a location within a locality that is formed through emotional bonds in a spatial area. Academics have suggested that public health needs to rediscover the importance of place in the context of wellbeing and care, particularly to be able to effectively manage the social determinants of health (Frumkin, 2003; The Health Foundation, 2018).

This study aims to contribute to the discussion on how planning can support socio-environmental justice in place through an understanding of what forms sustainable communities. In the age of cities, and a need to develop just and sustainable cities for wellbeing, how can we understand the development of a neighbourhood through a multidimensional conceptualisation of *place*?

1.2   Social sustainability in a London borough

This research project explores social sustainability and the role of place in a neighbourhood in the London borough of Tower Hamlets. Local authorities such as Tower Hamlets commonly use the term neighbourhood when referring to community and local social policy. Neighbourhoods have been referred to as places for *social contagion* as visible social behaviours influence others in the local surrounding (Social capital across the United Kingdom, 2016). This section explores background information on how social cohesion is understood in the United Kingdom (UK) and London, which provides context for the research in Tower Hamlets.

First, starting from a national perspective, two UK government reports regarding social capital and community perceptions in the country provide mixed evidence regarding social sustainability. The Community Life Survey (CLS) shows that levels of community cohesion have remained consistent over the past four years, with 81% of respondents agreeing that their local area is a place where people from different backgrounds get on well together (Community Life Survey London, 2017). However, the report recognises that there has been an overall drop in the proportion of adults reporting how trustful they are of others in their neighbourhood, which has decreased from 48% in 2013-14 to 42% in 2016-17 (Community Life Survey London, 2017). Evidence suggests that trust is lower in urban areas than rural areas with lower levels of safety and belonging experienced (Social capital across the UK, 2016). The fall in perceptions of trust is also mirrored by the fall in perceived neighbourhood quality. Across the UK, there has been a decline in the belief that the quality of neighbourhoods is improving. Over the last two years, 22% of citizens think their

local area has got worse (Social capital across the UK, 2016). A recent research paper suggests that those living in more scenic environments report better health across urban, sub-urban and rural areas, even in consideration of socio-economic deprivation indicators (Social capital across the UK, 2016). Therefore quality of an environment in a neighbourhood has a role to play in social sustainability.

Over the last two years, there has been a 6% decrease in the extent to which people believed their 'neighbourhood pulled together to improve the quality of the area'. Despite 58% of people stating it was important to be able to influence decisions that impact their neighbourhood, only 27% believed they could personally do this (Social capital across the UK, 2016). Research highlights that individual difference such as age, ethnicity and socio-economic status all have a role in explaining differences in how people feel about their neighbourhood across the UK (Social capital across the UK, 2016). Differences in neighbourhood perceptions varies by UK regions, with London, and the East Midlands area having the lowest proportion of citizens feeling a sense of 'belongingness' in their neighbourhood, and that others around their local area are willing to help each other (Office for National Statistics, 2016).

The Mayor of London has developed strategies that aim to cultivate a sustainable city, which includes addressing social dimensions. A city infrastructure strategy aims to improve quality of life as London grows to create 'a greener, and more productive city that is environmentally, financially, socially and economically sustainable' (London Infrastructure Plan 2050, 2015). A further strategy aims to promote social integration via community-led regeneration methods, to improve relationships, equality and participation and build a social evidence base (All of us, The Mayor's Strategy for Social Integration, 2018). Green spaces are a recognised as a component of healthy environments in cities and having social benefits, however it is unknown at this stage to what extent they are considered as being central to social sustainability strategies. London's green infrastructure strategy aims to enhance living spaces across all London boroughs (Natural Capital: Investing in a Green Infrastructure for a Future London, 2015). However a recent review by The London Green Spaces Commission highlighted that funding concerns prevent long term strategies from forming that support a more strategic approach to green space management that recognises it's multifunctional benefits (Parks for London, 2019). This is particularly due to a to a lack of recognition and evidence of the value green spaces provides to influence financial decisions (Parks for London, 2019). Explaining the benefits of green space for social wellbeing are part of this challenge, particularly due to the intangible and multi-dimensional nature of the concept which makes it difficult to quantify to influence strategic planning and budget allocation.

1.3 Social sustainability in the London borough of Tower Hamlets

The London Borough of Tower Hamlets has responded to the London wide strategy that encourages the value of green spaces by recognising that safe green spaces can increase communal activity across different social groups and increase residential satisfaction (London Borough of Tower Hamlets, 2017). Tower Hamlets has one of the fastest growing populations in London, and the growth is expected to continue over the next ten years as the result of international migration, which is an important challenge to consider for a suitable long-term green space strategy (Tower Hamlets council, 2017). The borough represents many of the city wide social challenges as a highly dense and diverse borough with the worst poverty and child poverty rate in the city (Trust for London, 2019). The area is one of the five lowest boroughs for registered voters (77%), therefore this may have associations for poorer social wellbeing as people are less engaged in exercising citizenship through voting (Atlas of Democratic Variation, 2019).

Tower Hamlets local authority has outlined a definition of community cohesion as follows:

'A common vision and sense of belonging by all communities; the diversity of people's backgrounds and circumstances is appreciated and valued; similar life opportunities are available to all; and a society in which strong and positive relationships exist and continue to be developed in the workplace, in schools and in the wider community' (Tower Hamlets Council, 2017).

Although the local authority attempts to understand and measure community cohesion, this is arguably not representative of the perceived reality that is experienced day to day. In consideration of a will to cultivate community cohesion, the council have identified the following key issues (Tower Hamlets Council, 2017):

- The current statistics on social cohesion are not an accurate reflection of residents experience in daily life
- Socio-economic groups are living 'parallel and segregated' lives in the borough
- There is a lack of integration between social and private housing residents representing segregation and class division and increasing gentrification
- Black Minority Ethnic (BME) women are economically excluded in the area

Therefore from the information available to the public, it is clear there is a consensus that the current ways of gaining an understanding of social cohesion is not accurately reflecting the reality for many citizens. This sets the context for the need for research to explore social wellbeing in place using alternative methods.

1.4 Bethnal Green

This master's project fits within the wider context of a parallel Urban Mind project, which aims to address some of the issues outlined above. Tower Hamlets started as the administrative area for the focus of the study, however, the data collection through the Urban Mind app and co-researcher engagement with Phytology nature reserve located in Bethnal Green has led there to be a focus on this area as a smaller spatial locality.

One of the complexities of conducting a project regarding social sustainability in an urban locality has been how to narrow the area of focus in the context of a geographic area to understand a neighbourhood experience. Over the next ten years the population of the Bethnal Green ward is projected to grow between 12% and 19%. The area is ethnically diverse, as currently, 49.4% of residents are from black and minority ethnic backgrounds and has high levels of deprivation as 50% of children are living in income-deprived families (Bethnal Green Ward Profile, 2014). Phytology nature reserve is a place that exists in Bethnal Green. Despite Phytology being a community valued project with health, environmental and social benefits, the project has been at risk from losing continued funding. This was a motivating factor for Phytology to explore ways to quantify the value of green space to aid protection of land for societal and environmental use and generate evidence from a community driven perspective. Two people involved in the development and community management of Phytology, Michael Smythe and Neil Davidson, became founding members of Urban Mind. As part of the parallel project, data was analysed from the administrative area of Tower Hamlets to explore associations with social wellbeing outcomes and environment variables. See appendix 10.1 for details of the variables selected for analysis and full results that are unpublished data.

The Urban Mind data analysed at a collective level-showed positive associations with the quality of the environment and social wellbeing outcomes. The data showed that the likelihood that positive perceptions occur in the social environment are statistically significantly associated with seeing plants, trees, being with familiar social networks, feeling safe in the day and at night and when the environment is viewed as being clean. The likelihood of feeling connected with others in the neighbourhood is positively associated with being in a public space, although the definition of types of public space is difficult to granulise with this population sample data. Negative perceptions of the social environment were more likely when being on public transport and when in the outdoors. It is interesting to note negative association of the social environment when outdoors and suggests this an important challenge in the maintenance of a healthy social environment in place. The maps in appendix 10.1 show that most of the assessments were recorded in the Bethnal Green area in a highly deprived area from multiple perspectives including crime and quality of outdoor environment measures. However the data suggests that positive perceptions

of the social environment is associated with the quality of the environment, including feeling safe and exposure to nature therefore certain mechanisms could change this perception. However, this sample is arguably based on an unrepresentative population in the borough and a predominantly female population sample. It is also important to note that this is a spatial rather than a local citizen experience, as the data points represent the momentary experience rather than specifically those who live or work in the area. However a spatial rather than localised viewpoint is a more accurate reflection of those who occupy city space. The implications of this data will be included in the discussion with the qualitative data.

2 Research objectives

2.1 Problem statement

Planning for socio-environmental justice in cities is a complex challenge for the twenty-first century. Kevin Murphy (2012) recognises that the social pillar of sustainable development has always been 'conceptually elusive' and integration in policy has been related to political rather than scientific thought (p.15). However globally, a need has been recognised for greater linkage between social and environmental pillars of sustainability to impact policy (Murphy, 2012). The UK's Forest Research Council defines socio-environmental justice as providing fairly distributed access to social and environmental advantages of green space and nature where needs of each perspective are balanced in decision-making processes (Forest Research, 2019). In the context of this research project the need is focussed on socio-environmental justice in urban places in context of lived experiences in the urban outdoor environment. .

In the case specific to London and Tower Hamlets, the current challenge is proving green spaces multifunctional value in order to impact strategic and financial decision-making (Parks for London, 2019). In recognition of social sustainability being complex to evidence, current measures are not effective at reflecting the reality of citizen experiences as Tower Hamlets council have identified (Tower Hamlets council, 2017). Therefore defining needs-based or preventative approach to planning to enhance social wellbeing outcomes through urban landscapes becomes challenging without a substantial evidence base. Ultimately policy to support socio-environmental measures in place impacts citizens' access to safe and quality green spaces that form part of everyday wellbeing infrastructure. Places such as Phytology face challenges to evidence its multifunctional value in order to secure long- term funding. Therefore, efforts to unite social and environmental dimensions of sustainability are important in the efforts to plan for a just and sustainable city to encourage decision-making for citizen wellbeing.

Recent research has highlighted the importance of emotions for socio-environmental justice in the sustainability discourse. Brown et al (2019) advocate that the relationship between 'empathy and sustainability represents a key advance in underpinning human-environment relations' which has been undervalued in sustainability research (p.11). Therefore, placing value on citizen social insights in urban places by understanding lived experiences could support planning for socio-

environmental justice by understanding the relevance of societal and environmental issues at a local level.

2.2 Research aim

In this study, I aim to explore how individual lived experiences in day-to-day urban outdoor environments relate to social sustainability in place. Whilst the research is rooted in environmental psychology, I aim to demonstrate that to gain an understanding of the dynamic nature of urban places, an interdisciplinary approach is required involving social psychology and urban sociology. Bramley et al's (2009) definition of *sustainable communities* as a key pillar of social sustainability is applied to frame the focus of the study using the dimensions of *safety*, *quality of the environment* and the potential for individual and collective *participation* in place. The study contributes to enhancing our understanding of affective, cognitive and behavioural aspects in the cultivation of urban places for social wellbeing. The research aims to contribute to the wider debate for socio-environmental justice in urban planning and how place can foster supportive relationships between urban landscapes and human wellbeing.

2.3 Research questions

- What role do perceptions of safety have in the lived experience of place?

- How do urban outdoor environments support social wellbeing in place?

- How do perceptions of the outdoor environment relate to individual and collective efficacy?

3 Invisible bricks in urban places for social wellbeing

3.1 Introduction

Social sustainability is an area that is under-researched (Mazumder et al, 2018). The concept is multidimensional which Bramley et al describe as having two pillars, *social equity* and sustainable communities. The latter pillar encompasses *neighbourhood attachment*, *residential stability*, *safety*, *security, social interaction* and *participation*, as well as *perceived quality* of the local environment, which informs the framework of this research project (Bramley et al., 2009). Social sustainability is concerned with the 'functioning of society itself as a collective entity, encompassed in the term community, a conceptual difference with social equity which focusses on social justice at a policy level' (Dempsey et al., 2009).

Recent research suggests social sustainability must be understood in the context of broader sustainability issues and embrace a context-sensitive approach to planning as social outcomes in highly populated urban areas are complex and contradictory (Kyttä et al., 2015). Kyttä et al stressed that when planning for social sustainability, universal patterns should not be expected. They build on the concept by proposing three dimensions: *development, maintenance* and *bridge sustainability*. Development sustainability considers that human basic needs should be prioritised before pro-environmental behaviours can be embraced and bridge sustainability explores ways to encourage pro-environmental behaviours (Kyttä et al., 2015). Maintenance sustainability is Kyttä's key area of research which re-defines Bramley's definition with the terms *accessibility* (formally social equity) and *experiential* (formally sustainable communities). The focus of their research becomes on inhabitants' experiences of their living environment and everyday life practices. This supports advocating for a context-sensitive approach to planning. Crucially, they evidenced a positive association with urban density and preference for green environments suggesting urban populations were identifying a need for green spaces (Kyttä et al., 2015). They stated future research should to be specific about health outcomes related to environmental perception and experiences. This could help evidence the need for green spaces further.

Murphy explores the interconnectedness between social and environmental outcomes. He frames social sustainability in the context of environmental sustainability with a framework that encompasses equity, awareness, participation, and social cohesion (Murphy, 2012).

Understanding social sustainability in context of the environment requires a related understanding of individual and collective perspectives. It has been recognised that social disorder in urban settings can have a negative impact at both an individual and collective level (Semenza and March, 2008). Therefore, an integrated understanding of the social environment requires both individual (micro) and collective (meso) perspectives. Place operates as a centre of meaning for collective neighbourhood experiences and the focus for individual perspectives in this research project. There is a need to bridge the literature on quality of place and social sustainability.

At a micro level, social support and social networks have been linked to coping with stress and illness at an individual level (Uchino, Cacioppo and Kiecolt-Glaser, 1996). The importance of the perceptions of individual social connections has also been evidenced as a predictor of residential satisfaction and place attachment (Lewicka, 2010). Community level social capital and cohesion is associated with a range of health outcomes and evidence has grown over the last ten years that connects collective concepts such as social trust, reciprocity, and civic participation with individual levels of subjective wellbeing (Poortinga, 2012). Therefore, the growing evidence base suggests that individual wellbeing is inextricably linked to social wellbeing at a collective level.

Concepts that form definitions of social sustainability are difficult to define, especially because individual social ties relate to what is perceived at a collective level, therefore it is difficult to evidence measurable outcomes that are subjective and perceptual (Putman, 2001). See *appendix 10.2* for the PICOT criteria that defined navigation of core literature to review.

3.2 The experience of place

Various psychological processes for people-place interactions are conceptualised at an individual and neighbourhood level, which contribute to the formation of social sustainability and the importance of emotions. At an individual level, place identity supports behavioural explanations of place and a sense of self. At a neighbourhood level a theory of place attachment describes how emotional bonds at an individual level contribute to the formation of place outlined by a *Tripartite Model of Place Attachment, Person, Process and Place (PPP)*. A behavioural theory that bridges micro and meso explanations of place is the *Social Cognitive Theory (SCT)*. This theory explains how social learning environments form which set a precedent for others. The role of green space from an environmental psychology perspective can also support explanation of psychological processes that influence behaviour. The following section describes place based and social psychology theories, which connect individual and collective social wellbeing and how the quality of an environment can be understood.

3.2.1 Place identity and place attachment

Place identity is a theory, which aids understanding of individual relationships at a micro level. Place identity is the extent to which place becomes a part of the self; the process is argued to be of greater importance than the features of a place (Proshansky, Fabian and Kaminoff, 1983; Twigger Ross et al, 2003). Fundamentally, an understanding of place attachment involves an emotional bond between a person and location from an individual perspective. Researchers suggest that a sense of place is a combination of place attachment and meaning which helps to understand place related behaviours (Brehm, Eisenhauer and Stedman, 2013). Research has demonstrated empirical relationships between place attachment and pro-environmental behaviour demonstrating that socially cohesive communities have a stronger identity and therefore can support environmentally sustainable attitudes (Brehm, Eisenhauer and Stedman, 2013), (Uzzell, Pol and Badenas, 2002).

A shared emotional connection rooted by shared memories is key in the development of place attachment as it involves psychological processes (Scannell and Gifford, 2010). Emotional bonds in place are grounded in procedural memory, which is unconscious and influenced by habits (Lewicka et al, 2013). Declarative (conscious) memory has also been identified to play a role in place attachment, related or unrelated to the self (Lewicka et al, 2013). Evidence has shown that information accompanied with emotions enhances the strength of a memory, which supports the emphasis on the psychological processes of place attachment for a sense of place (Lengen and Kistemann, 2012, Ward Thompson et al., 2016).

Scannell and Gifford (2010) frame the concept of place attachment using the PPP framework. The person dimension frames individual or culturally determined meanings, the psychological dimension includes the affective, cognitive and behavioural components and place characteristics relate to social or physical nature. They state that:

'According to our person–process–place (PPP) framework, place attachment is a bond between an individual or group and a place that can vary in terms of spatial level, degree of specificity, and social or physical features of the place, and is manifested through affective, cognitive, and behavioural psychological processes' (Scannell and Gifford, 2010).

Understanding why psychological bonds exist with places is multi-factorial, but literature evidences an innate need for survival and security, a sense of belongingness, goal support and self-regulation as well a need for stability (Scannell and Gifford, 2010). A study has shown that neighbourhood social ties are the greatest predictor of place attachment and recognises length of residence as a predictor (Lewicka, 2010).

3.2.2 Social Cognitive Theory (SCT)

SCT recognises micro and macro-level dimensions of social behaviour from a human perspective. The theory aims to understand the normative social behaviours at a collective level and how this relates to individual behaviour (Bandura, 2000, 2001). The theory adopts a view of individuals with 'agentic' capability, as they are 'producers of experiences and shapers of events' (Bandura, 2000, 2001). Bandura identifies the mechanisms of human agency by three levels of efficacy (*personal, proxy and collective*) evidencing that collective agency requires a high level of *self-efficacy* amongst individuals and shared values. The incorporation of the *Triadic Reciprocal Causation model (TRC)* recognises that behaviour, personal factors and the environment influence each other bi-directionally, therefore others can learn social behaviours vicariously. Bandura theorised and evidenced that observing social cohesion of a group has an independent effect on individual attachment. This is because viewing residential stability acts as a positive perceptual mechanism for an individual to form emotional bonds to place. Therefore an individual forming attachments influenced by social cohesion is likely to result in these behaviours becoming a social norm, creating the social context for how a collective operates. Bandura also states that a high level of efficacy supports the promotion of social behaviours such as cooperativeness, helpfulness, and sharing.

3.2.3 Social capital

Social capital is a concept that relates to the meso neighbourhood level and micro individual level and is an established term in the scientific literature. At the meso level the concept refers to shared norms and values that are beneficial for a community and at a micro level, social relationships that are beneficial for the individual (Bruinsma et al., 2013) Putman describes social capital as connections among individuals that facilitate coordination and cooperation for mutual benefit (Putman, 2001). The theory rejects that cohesion is characterised only by strong networks as it is acknowledged that weak social ties may have greater meaning at a community level regardless of geography (Poortinga, 2012). Strong social ties can lead to social exclusion and when social disorganisation is visible, it can indicate fragile social norms and feeling less safe (Browning, 2009, Sampson and Graif, 2009). A loss of opportunities for people to interact with each other lessens the likelihood that trust, reciprocity and formal networks can form that support a positive social environment (Lederman, Loayza and Menéndez, 2002). Positive evaluations of trust have been strongly associated with higher wellbeing scores, alongside neighbourhood quality and social cohesion (Araya et al., 2006). The social context is likely to shape actions and to what extent individuals trust others (Coleman, 1988).

The types of social relationships, which describe social capital, are bonding, bridging and linking mechanisms (Poortinga, 2012). Bonding and bridging types of

relationships along with civic participation, different socio-economic relationships, trust and political efficacy is key to community health when neighbourhood deprivation is controlled for (Mazumder, 2018). However, a study in Baltimore suggested that higher levels of community social capital do not contribute to individual levels of life satisfaction; income, education and home ownership had greater meaning for life satisfaction (Vemuri et al., 2009). Forrest and Kearns (2001), outline eight core domains of social capital, that enable practical application in a policy context at a community level: *Empowerment* (collective voice and efficacy), *Participation* (involvement in community and residential planning), *Common purpose* (individual activity in groups), *Supporting networks* (perceptions of neighbours willingness to help), *Collective norms and values* (individual values and perceptions of shared values in neighbourhood), *Trust, Safety* and *Belonging* (how welcome they feel in the neighbourhood and attachment).

The above theories show that to explore social sustainability, the multi-dimensional nature of the concept must be embraced in research and measuring outcomes. Social capital is a well-evidenced term, but it suggests a transactional element to social interactions, which does not reflect a value driven social environment.

3.2.4 Other social sustainability terms

Recent literature has referred to *'social quality'* in formal and informal spheres of human interaction (Holman and Walker, 2018). Holman and Walker (2018) recognise there are four key conditions for social quality to occur within societal structures: socio-economic security, social cohesion, social inclusion and social empowerment.

Social networks can have a positive and negative impact in communities, as networks can be related to crime and therefore become resources used by offenders to protect their presence within urban communities (Browning, 2009). However, in a positive context, extensive social networks and interaction help build collective efficacy in urban neighbourhoods, (Browning, 2009). Even if residents are apathetic towards civic life in disadvantaged communities, community leaders become more intensely involved in seeking resources and therefore deprivation in a community is not a barrier to social networks forming (Sampson and Graif, 2009).

Social cohesion relates to trust, solidarity, and overall connection among neighbours which research has shown influences a range of factors linked to physical and psychological wellbeing (Jennings, Larson and Yun, 2016). When there is a lack of social cohesion this can be evident in spatial division, which reflects social difference (Wilton, 1998). Hartig et al prefer to use the term social cohesion due to its associations with neighbourhood rather than a focus on the individual, which is important when using the term in context of the 'availability and quality of green space' (Hartig et al., 2014).

Pro-social behaviour is referenced in a study in the United States where the research recognised the challenge to evidence social networks empirically because they are formed of dynamic and fluid interactions (Arbesman and Christakis, 2011).

Community wellbeing has been considered an important indicator in community studies focusing on the impact of local place of residence for wellbeing. Community services, community attachment and physical and social environment have been measurable terms explored in studies (Forjaz et al., 2010).

Social outcomes are intangible and there seems to be a lack of consensus on what primary terms should be measured. When understanding what a quality environment means in an urban context, this too is complex and unclear.

3.3 Green outdoor environments

There are many environmental psychology theories that provide explanations of the role of green environments in the context of outdoor environments that enhance public health and wellbeing (Hartig et al., 2011). Evolutionary, cognitive psychology and psychological restoration theories have been applied to evidence the role of green spaces and nature for mental wellbeing, however they could also have relevance in a social wellbeing context. The Supportive Environment Theory (SET) explains that humans are still in need of these types of environments to develop, recognising individual differences depending on physical and psychological ability and context (Pálsdóttir, 2014; Grahn et al, 2010). The theory includes eight Perceived Sensory Dimensions (PSDs) which can be applied to different well-being requirements related to inward or outward directed involvement which are: Serene, (Wild) nature, Species-richness, Space, Prospect, Refuge, Social and Culture (Grahn and Stigsdotter, 2010). Kaplan and Kaplan also have developed theories that support environmental preference for nature settings and restoration qualities.

Kaplan's *preference matrix* explains informational qualities of the environment and suggests that; '(1) an immediate need for understanding is supported by the coherence of the perceived environmental elements; (2) the potential for understanding in the future is in the legibility of what lies ahead; a legible view suggests that one can continue moving and not get lost; (3) exploration of what lies in front of one is encouraged by the complexity within the given set of elements; (4) further exploration is stimulated by the promise of additional information with a change in vantage point, or mystery' (Kaplan and Kaplan, 1989). Therefore this theory suggests that innately preferred environments shape social behaviours for survival.

Kaplan and Kaplan's Attention Restoration Theory (ART) relates stages of restoration to social wellbeing as the processes support the ability for self-control of emotions

and behaviour. The theory proposes that humans have two types of attention: an involuntary spontaneous attention and a voluntary directed attention. The directed attention is a limited resource that can get over used from over stimulation and tasks that are mentally fatiguing (Steg, 2013 and Sonntag-Öström 2014). Depleted directed attention can, be restored through experiences that moderately trigger our involuntary attention (Steg, 2013 and Sonntag-Öström 2014). The theory argues that natural environments support this process of directed attention restoration, as they support the five processes: *being away, soft fascination*, *coherence*, *scope and compatibility* (Steg, 2013 and Sonntag-Öström 2014). The theory proposes there are four progressive stages to restoration, starting with clearing the head, then moving to recharging directed attention capacity followed by the ability to being able to listen unclouded to one's own mind. Finally the fourth stage is deep reflection on one's life (Hartig et al., 2011). Therefore the individual, self-reflective processes restoration in green spaces enables arguably cultivates social wellbeing.

Green outdoor environments are associated with the concept of high quality physical environments (Lakes et al 2014). The perception of environmental quality is subjective, yet exposure to green spaces is strongly associated with health outcomes. The debate is unclear regarding whether the benefits of green space are perceptual or more related to types of interactions.

A UK longitudinal study by Mitchell and Popham (2008) evidenced that health inequalities related to income deprivation in all-cause mortality and mortality from circulatory diseases was lower in populations living in the greenest areas. It was recognised that the quality of green space could be a factor in use and perception of access but there was no data to support the hypothesis (Mitchell and Popham, 2008). In a study conducted in UK deprived communities, social isolation was found to be a strong predictor related to the perception of stress, yet factors could be mediated by the role of local green space (Ward Thompson et al., 2016). The use of parks has been associated with greater social cohesion and social networks (Frumkin et al., 2017). Therefore, the utilisation of green spaces is important to encourage through free community events in public spaces to help establish feelings of inclusion and amongst marginalised populations (Plane and Klodawsky, 2013). While urban parks and large green areas have been investigated in various studies regarding their impact on health, small patches of green such as single trees or green backyards have only recently been highlighted (Lakes, Brückner and Krämer, 2013). The type of green space is likely to have an impact on social outcomes as a study in Scotland found that 'natural' space in a neighbourhood may reduce social, emotional and behavioural difficulties for young children however private gardens may have a greater impact (Richardson et al., 2017). Place-based social processes found in community gardens support collective efficacy, a key mechanism for enhancing the role of gardens in promoting health. Further research was initiated to understand whether garden-based social processes lead to better health (Teig et al., 2009). Research has shown that community involvement can act as a mediator and a moderator of socio-economic disadvantage and health

problems that accompany this status (Collins, Neal and Neal, 2014). In Hong Kong urban green space was viewed as a metaphor for open-space provision as well as the meaning of neighbourhood (Lo and Jim, 2010). However, some evidence suggests that positive social outcomes are more likely to be based on perceptual processes and proximity to green space rather than interactions.

 A study in the Netherlands showed that residents who had greater levels of green space in their living environment of a one km radius, had higher levels of self-perceived health, were less lonely which was not dependent on having more contact with neighbours or receiving greater levels of social support (Maas et al., 2009). A study by Kent et al (2017) showed that subjective wellbeing was associated with the perception of the built environment, when viewed to be aesthetically pleasing and socially cohesive, (promoted through the 'walkability' of a place) (Kent, Ma and Mulley, 2017). Evidence has shown a positive relationship between accessibility and walkability of a destination, which suggests the importance of the physical layout of a place, but researchers were surprised that there was a negative relationship with density of a place and social capital (Mazumdar et al., 2017). Evidence has also shown residents are more satisfied with their social relationships in dense neighbourhood than suburban environments as they could maintain larger networks of close relationships and acquaintances (Mouratidis, 2018). Mazumdar et al hypothesised that perhaps there is a threshold where design that improves accessibility to destinations and green space mitigates the complexities of large populations who have less social connections (Mazumdar et al., 2017). However, conflicting evidence has shown that high density of places can negatively impact residential satisfaction, stability, neighbourhood environment and safety (Bramley et al., 2009).

Safety is also an important factor that is related to deprivation in the urban environment. Greater feelings of safety enhance trust and reciprocity between residents and contribute to the sense of community and sense of place in a neighbourhood (Dempsey, Brown and Bramley, 2012). A study in an Australian neighbourhood showed that safety was a significant predictor of social capital (Wood and Giles-Corti, 2008). Some evidence suggests that the perception of disorder is associated with objective measures of neighbourhood problems, particularly deprivation, independent of individual differences (Polling et al., 2014). Therefore the multi-faceted concept of deprivation matters for the perception of the quality of the environment and wellbeing. But how deprivation is considered in environmental psychology research is open to debate.

It has been evidenced that there is a high positive correlation between access to green spaces and socio-economic status (Lakes et al 2014). One of the challenges in exploring the effect of physical environments on health is that access to good physical environments is strongly associated with the socio-economic status of individuals (Mitchell and Popham, 2008). However, as an independent variable it can be difficult

to judge the impact of social status on health outcomes. A study conducted by Stafford et al highlighted this difficult because although there was a difference in quality of environment amongst different populations, deprivation did not explain why more deprived participants had poorer health (Stafford et al., 2001). Living in neighbourhoods with poor physical environments has been associated with worse health outcomes, but only some characteristics mediated the association between socio-economic deprivation and health (Chaparro et al., 2018). Whilst there is inconclusive evidence to support a deprivation hypothesis and quality of environments related to health outcomes, some evidence shows that more affluent areas may contain features that are conducive to better mental health (Astell-Burt and Feng, 2014). Therefore, in the context of built environments, viewing deprivation in the context of the quality of an environment in addition to socio-economic measures could present a more accurate experience of a spatial urban experience.

The literature shows a growing, context-sensitive knowledge base of urban form and social sustainability, which could support the design of smarter and healthier cities (Bramley et al., 2009).

3.4   Research gaps and methodological challenges

The nature of understanding the role of the environment in the context of place and social sustainability is complex. The literature highlights the intangible nature and evolving definitions of social sustainability. Methodological research gaps exist related to the challenges in establishing causality. Challenges also exist due to individual differences, context specific environments and the difficulty in quantifying types of social interactions in green space. Studies have highlighted the impossibility of establishing causality between visits to parks and social ties; noting that it is possible that participants social ties encourage individuals to visit parks (Kaźmierczak, 2013). Mass et al (2009) also note it is not possible to make a statement about the direction of causation. In their study exploring proximity to green spaces and social wellbeing, they recognised many people with existing social ties may choose to live in green spaces (Maas et al., 2009). Therefore, it is more useful to understand the role of the environment and social wellbeing from a correlational perspective that values individual and collective perspectives. For a qualitative study, lived experiences enable a context-sensitive exploration of social wellbeing.

Individual differences such as gender and age are confounding factors in relation to social and environmental perception studies. Research has suggested that women's use of green space is influenced by views regarding the quality of the environment. This is because the health benefits women experience may be more related to subjective indicators such as personal safety (Richardson and Mitchell, 2010). Age influences individual perceptions of neighbourhood attachment regardless of length of residence as some research shows elderly residents experience feelings of insecurity

and social exclusion as they notice their environment changing (Burns, Lavoie and Rose, 2012). Qualitative research shows that benches act as a 'microfeature' to contribute to social cohesion and social capital (Ottoni et al., 2016).

Different populations have different social needs as not all green spaces are suitable for social interaction therefore specific indicators are required (Markevycha et al, 2017). Varied needs suggest an inclusive approach is required for planning of green spaces. Haase et al recognises individual and neighbourhood differences and states that to understand the needs and demands for urban green areas, contrasting views should be sought (Haase et al., 2017). Academics have noted that 'one size does not fit all' in order to reshape cities for specified outcomes and emphasise the importance of context-led research approaches (Bramley et al, 2012; Kyttä et al., 2015). It is challenging to narrow the focus for citizen engagement in an urban neighbourhood study, as those that contribute to the spatial experience of the environment are not necessarily residents in that location.

There is much debate on how to define the neighbourhood in environmental research as neighbourhood experiences represent socio-cultural experiences (Ward Thompson et al., 2016; Mouratidis, 2018). Environmental inequalities expand beyond socio-economic divides such as wealthy areas of London that have greater air pollution levels (Ward Thompson et al., 2016). A study showed social interactions and social ties occur in well maintained inner city parks (Lo and Jim, 2010). Therefore, deprivation within an environmental context is experienced beyond socio-economic divisions and neighbourhood boundaries.

There are limitations to accurately measure the impact of green space on individual health at a spatial neighbourhood level. Plane et al examined ward level experiences of exposure to green space. They noted that individuals spend different amounts of time outside of their ward and therefore were exposed to different levels of green space (Plane and Klodawsky, 2013). Similar challenges exist for defining social interactions in green spaces.

It is recognised that further research is required regarding social outcomes and types of green spaces, such as whether interactions occur in private or shared gardens (Ward Thompson et al, 2016). The literature is weighted towards efforts for quantitative methods to understand the value of green space and outcomes. There is also a need to understand the context specific needs and contrasting viewpoints to understand the value of green space. Using qualitative research methods provides opportunities to explore subjective and context sensitive needs, especially in relation to quality and safety that values individual differences.

4 Methodology

4.1 Research design

4.1.1 Positioning of research

I have been a researcher in residence at Phytology nature reserve in Bethnal Green with Urban Mind, which has been the platform for a place based Urban Mind project. The master's project has been developed as a qualitative study in parallel to a broader research project in Tower Hamlets.

A mixed methods study was initially planned to addresses the multi-dimensional nature of social and behavioural phenomena that social sustainability represents (Tashakkori and Teddlie, 2010; Lopez-Fernandez and Molina-Azorin, 2011; Tashakkori and Teddlie, 2003). The research paradigm in social research is relatively new, informed by John Dewey's 'advocation for freedom of inquiry' encouraging individuals and social communities to define the issues of importance to them and pursue in meaningful ways, recognising that 'experiences create meaning by bringing beliefs and actions in contact with each other' (Morgan, 2014). The use of the quantitative and qualitative methods informed each other in the set-up of the study structured by Forrest and Kearns (2001) domains of social capital as part of a pragmatist methodology and defining the topic perimeters with local citizens. See appendix 10.3 for the full research design and 10.1 for the quantitative research results as summarised in section 1.4. This approach seemed fitting for a large spatial area of Tower Hamlets. In supervision it was agreed to focus on the qualitative data collected to narrow the scope to be manageable for this project. The main issue when changing the design to a qualitative study was re-considering the overall research questions to ensure they captured a focus on green space and exposure to nature, which the quantitative method was designed to do specifically. The semi-structured interviews included some questions on green space but there was more freedom for the co-researcher to guide topics for discussion based on places important to them in their everyday life.

The qualitative research in this master's project is guided by a social constructivist ontology, which has led to an inductive enquiry. Crotty identifies the constructivist worldview to be underpinned by beliefs that humans construct meanings of a lived

experience through their own personal engagement and interpretation, within a historical, social and cultural context, providing social meaning (Cresswell, 2014).

I have aimed to understand individuals lived experience of place and social sustainability through a *phenomenological* approach, guiding an inductive approach for theory generation involving philosophy and psychology perspectives to identify the essence of human experiences of place (Cresswell, 2014). The qualitative analysis is completed using *Interpretative Phenomenological Analysis* (IPA) (Smith, Flowers and Larkin, 2013) but incorporated some steps from Giorgi's descriptive phenomenological method. Originally, a thematic analysis was planned, however following evaluation of the diverse background and circumstances of people involved in the semi-structured interviews, it was decided that a method that aims to

4.1.2 Qualitative sampling strategy

The qualitative research was conducted through a snowballing approach, involving convenience and purposive sampling whilst based in Bethnal Green. The aim was to engage with citizens that are less likely to engage with typical democratic participatory mechanisms for urban planning. As part of the overall aim in the context of socio-environmental justice in place, the sampling approach was to enable alternative views to be accounted for in efforts to rebalance institutional narratives in urban planning. Therefore there was a preference in the sampling strategy to engage with third sector organisations, or non-government voices to support fair design and planning for socially innovative insights. The platform as an Urban Mind researcher in residence at Phytology laid the foundations and purpose for citizen engagement.

Part of the challenge was how to communicate with local citizens about the research and engage with them to get involved. There was a balance to convey a socio-environmental aim without making people feel it was removed from their every-day life by over intellectualising the purpose, which could exclude people from wanting to get involved. At the beginning I trialled the phrase 'Help shape a healthy and inclusive Tower Hamlets' however the word 'inclusive' felt like it was off-putting for some local residents who reacted defensively to the term. Some interpreted it negatively as though an assumption had been made that social inclusion was not evident in the area. I also had to be aware of how people perceived me, and at times this could be viewed negatively as a white, middle class university student that does not live in the area.

The nature reserve formed the basis of an engaged group of people to participate, particularly for the quantitative data collection to encourage use of the Urban Mind app. Phytology has an established network of community partnerships which through a snowballing approach I was able to develop relationships with and explore who was interested in taking part in the qualitative research. The sampling strategy aimed to support social sustainability through the process by recognising different individual

roles for social wellbeing and support collective agency. Semenza and March (2008) demonstrated an effective engagement strategy based on aspects of social capital and I have used this model to help frame the approach in Bethnal Green.

'Structural social capital' (social organisation of social networks) refers to all the community networks engaged with who were third sector organisations with the following remits:

- o St Margaret's House *(a wellbeing charity for arts and the community in Bethnal Green)*
- o Volunteering Matters *(supports volunteering in the local community, especially amongst young people)*
- o You Make It *(supports young unemployed women)*
- o London Traveller and Gypsy Community *(supports the local traveller and gypsy community to gain more influence over their lives)*
- o A local business forum at Oxford House *(established charity that supports the local community)*

In terms of *'cognitive social capital'* (norms and values that emerge through discussions), there were opportunities to explore shared understandings with people outside of formal community groups, such as at Phytology Saturday open days, which I attended, from July to September. I also attended two community events; one hosted by Serious (a music production organisation) at a local music venue called RichMix and Social Saturday hosted by Oxford House to promote local organisations work on Bethnal Green Road.

The figure below illustrates how the sampling strategy supports social sustainability through recognising local social networks and building the research with these networks and local citizens.

1-1 safety mapping at Phytology

(Informal discussions to encourage participation and focus for analysis)

Community network discussions

(Meetings with interested community groups)

Community events

(Informal discussions to engage youth demographic in project)

Oxford House Local business forum

(Forum *attendance and website communication)*

Communication of research with engaged community groups and members i.e. Wellbeing Walk

(Action based research - next steps not part of thesis)

Linking social capital

Figure 1: Building social sustainability through community engagement

The sampling and engagement strategy enabled voices that do not typically partake in planning of space, which required time; it took over two months to engage with citizens and complete the interviews. Not having a set timeframe to complete the interviews in was important as it allowed a snowballing sampling approach to take its own course and engage with citizens who had a genuine interest in the project. This was made possible through working with social networks who agreed with the broader aims of planning for socio-environmental justice related to Phytology partnership work and finding people who wanted to share their voice.

4.1.4 Research participants

The qualitative sampling strategy resulted in seven interviews being conducted and their experiences have reflected a role in social wellbeing*. The seven co-researchers are listed in *Table 1*. They will be referred to by false names as part of General Data Protection Regulation (GDPR) and adhering to legislation regarding personal sensitive data.

Co-researcher ID	Description	Role in social wellbeing
Kate	Female, under 30, short-term resident and works in Bethnal Green	Social wellbeing architect
Alina	Female, under 30, former resident in the area, works in Bethnal Green	Social wellbeing architect
Nadine	Female, under 25, short-term resident of Bethnal Green and works in the Tower Hamlets borough	Place-based musician and events architect
Finn	Male, over 30, works in Bethnal Green	Community-led business leader
Azma	Female, under 18, lives and studies in Tower Hamlets, part of a volunteering charity organisation	Youth political and social activist
Margaret	Female, over 50, long term resident in Tower Hamlets on gypsy and traveller sites	Community activist and environmentalist
John	Male, over 50, long term resident in Bethnal Green and Tower Hamlets	Local social and environmental historian

Table 1: A table to show co-researchers role in social wellbeing
* Roles identified following qualitative analysis

4.2 Qualitative data collection

From July to September 2018, I engaged with different community groups and citizens to explore who would like to take part in the in-depth interviews. There was no set time for the interview length; they ranged from one hour to two and a half hours in length. Some of that time was to discuss the project context. I compiled a pack with key information, which included the privacy policy to go through with each person before the interviews commenced. It was important in the context of this research that the co-researchers felt committed and interested in sharing their perspective on a voluntary basis, but with the understanding that efforts would be made to incorporate perspectives for community benefit and understanding the experience of wellbeing in the area. To engage co-researchers in the qualitative interviews the following steps were taken:

- Engage with relevant community members in Bethnal Green and surrounding area as part of an Urban Mind project with Phytology
- Through face to face meetings at community events and meetings, gauge who was interested in taking part in the interviews

- It was not essential that co-researchers used the Urban Mind app – not all those that took part in the interviews used the app or could access it therefore from an inclusive perspective it was important to have a range of methods
- An email was sent to co-researchers or text to arrange a time to meet in a place that they would like to discuss that is part of their everyday city experience. For some of the interviews, the liaison began with the community group that represented them e.g. London Gypsy Traveller policy lead
- Some interviews were conducted on one day and others were split over different dates due to availability. Co-researchers could choose to take part in all or some of the interview elements. Some completed the cognitive mapping and walking exercises as part of a semi-structured interview and others chose to do the cognitive mapping exercise only. It was important that co-researchers chose the place to meet so that it was consistent with the research being led by the community themselves and the issues and areas they wanted to discuss. Where possible, I also sat next to them as we started the initial discussions about the project to help convey I was helping to share their viewpoint through discussion about their individual perspective rather than formally interview them. As the focus was on the outdoor environment, most co-researchers chose public green spaces and in the summer months this was conducive with the weather, but three of the interviews were conducted in their place of work or in their home, and one started at the public library before the walk.

See appendix 10.4 for the privacy policy co-researchers signed.

4.2.1 Interviews

The interview structure consisted of two semi-structured interviews:
- part one) cognitive mapping
- part two) transect tour

See appendix 10.5 for the qualitative discussion guide.

Cognitive mapping

A place is formed through social and psychological processes that form lived experiences (Ujang and Zakariya, 2015). As part of the methodology, co-researchers were asked to define their neighbourhood. Although the quantitative data is collected at a Tower Hamlets London borough level, an administrative border is less relevant from a qualitative perspective as place is a social construct and social boundaries that define a *'neighbourhood'* are individually defined. Therefore, although the focus is on Bethnal Green, some of the experiences discussed are outside of or in another area of Tower Hamlets. Inconsistent notions of a neighbourhood in place amongst co-researchers has implications for data analysis as the themes can not necessarily be

identified with specific locations, but rather in a broader context of place which has individual meanings.

The experience of this study showed that residence in the administrative area is not necessarily important in understanding emotional bonds in a large city. Therefore if the study was planned as a qualitative study from the outset, it would be important to isolate a place and focus on its use as a starting point.

Tolman founded the term *'cognitive maps'* in 1948 as a way to illustrate spatial mental representations (García, Mira and Eulogio Real, 2005). A common way to understand the perception of space from an individual perspective is using cognitive maps based on the belief that cognitive maps influence spatial behaviour (Greenberg Raanan and Shoval, 2014). Cognitive space can be understood as our mental environment rather than the physical geography, which determines behaviours in public spaces (Lloyd, Golledge and Stimson, 1998). The everyday space used by an individual is known as an *'activity space'* which a mental map, or cognitive map helps to convey, with the most important spaces to the individual known as *'anchor points'*. (Raanan and Shoval, 2014). It has been considered that free drawing sketch maps will vary because of their cognitive perception but also their drawing ability may be a barrier (Imani and Tabaeian, 2012). Therefore, the cognitive maps have been used to aid conversation about the social environment through free and structured drawing techniques with coloured pens.

In this research project, cognitive maps were used with the aim of:
1) Exploring the individual's perception regarding their activity space and what they consider to be their neighbourhood
2) Understanding the individual's anchor points within the neighbourhood outdoor space to guide discussion
3) Exploring social capital domains, concepts of trust, safety and a sense of belonging

The cognitive maps were placed first in the interview process to help ease the co-researcher into the research activities and explore from the individual perspective how they relate to the outdoor environment. They also helped to frame the choice of walk and semi-structured interviews. In a larger research project, deeper analysis could be conducted of the cognitive maps themselves.

Transect tour

Co-researchers were asked to choose a walk, which is part of their everyday life in Tower Hamlets as a method to capture everyday perceptions from their perspective. In line with Forrest and Kearns social capital domains framework, the semi-structured interview aimed to probe further on social outcomes used in the Urban Mind app, as well as domains that are not captured by the app such as common purpose.

The two techniques combined were effective because the first stage helped to frame a perspective for the walk and personal points of interest that could be explored further in discussion. The drawing aspect in cognitive mapping enabled thinking and discussion in an informal way and helped get a flow in the interview. The transect tour was useful in context of the Urban mind app as it helped to make environmental perception a more conscious perspective on why certain questions are asked. It also highlighted the subjectivity of the responses and need for qualitative approaches to explore complex emotions, viewpoints and individual differences.

4.3 Qualitative data analysis

Interpretative phenomenological analysis (IPA) was selected as a suitable method as part of a phenomenological approach to understand the individual lived experience of place and social sustainability. Smith, Flowers and Larkin outline an approach for IPA, which guided the process for analysis enabling the examination of the human lived experience in its own terms. The approach follows Heidegger's approach, which is interpretative in nature, and requires analysis of the *'part'* with the *'whole'* in line with hermeneutics (Smith, Flowers and Larkin, 2013). The approach is also ideographic as it offers detailed instances of the lived experience (Smith, Flowers and Larkin, 2013). Giorgi's descriptive phenomenological research method informed initial steps to identify meaning units and converting the discussions into a phenomenological perspective from the natural attitude (Giorgi, 2009). The two phases of analysis are outlined below.

Phase one analysis

I listened to the interviews two to three times and completed the transcript in a table. I then followed Smith's method of writing descriptive notes to get an understanding of the whole text. Following this step, I followed Giorgi's approach to identify meaning units to understand the essence of the text. I then set up a new table with selected meaning units. At this stage some sections of text were omitted and the issues regarding this will be discussed in validity. Using a different approach from either Smith or Giorgi, I then grouped similar meaning units together before conducting further analysis to support managing large amounts of data and interpretation. I loosely sorted the meaning units where the independent meaning was the same to support analysis (such as locations they visited) but I did not categorise the units. Smith's approach advises you can be creative with the process where as Giorgi advises identifying meaning units as part of the flow of the text rather than grouping bits of texts with similar meaning. The issues combining two methods will be explored further in the validity section.

Following Smith's method I then conducted exploratory analysis using linguistic and interpretative methods. At this point, Smith recommends moving straight to emergent

themes, however I felt that further analysis was needed to ensure depth and removal of any researcher bias to make certain the essence of the text and meanings had been captured. I then used Giorgi's step by expanding the text to focus the phenomenological attitude from the natural attitude to provide the third person perspective. Following this step, I reverted back to Smith's method and listed emergent themes in the final column of the table with the exploratory analysis. I also examined themes with the individual visual cognitive maps for supporting or contrasting findings. For each individual, I started a new document to list all the emergent themes in chronological order as Smith advises, then sorted the themes into groups through abstraction and subordinate processes, condensing the themes into overarching grouped themes. Once I reviewed the themes for the individual, I placed the themes into a numbered order the presents a narrative from the individual perspective (ideographic) in line with Smith's method.

This process was completed for each of the seven interviews. Following completion of all the interviews, a second phase of analysis was conducted with the themes from all the lived experiences.

Phase two analysis

For the second phase, I grouped themes across all cases, repeating abstraction and subordinate processes as advised by Smith. This was an iterative process. Through this process, a higher order framework emerged that united the themes, which was Scannell and Gifford's Tripartite Theory of Place Attachment. I then compiled a table that summarised how the framework and themes relate to the seven cases (and where themes didn't relate) to prepare for the structure of a written phenomenological analysis narrative relating the part back to the whole for deeper interpretation. The writing process was an iterative process and theme names changed to reflect the lived experiences throughout the process.

See appendix 10.6 for an example of a table as part of the phase one analysis and a table that summarised the grouped themes that prepared data for the writing phase as part of phase two analysis.

Using two phenomenological methods (Smith, Flowers, Larkin and Giorgi)

The two phenomenological methods were used due the large amount of data recorded from seven lived experiences based on two types of semi-structured interviews, and due to need for further analytical depth to support development of the independent meaning before emergent themes were analysed. Although Smith, Flowers and Larkin IPA approach was the overarching analysis guide, merging Giorgi's method was completed in the early stages of the analysis. This method was introduced for two reasons. Firstly Giorgi's method was integrated to obtain the overall view of the text through identifying meaning units and to support capturing the meaning before

themes were explored. I also used the method to help manage the large amounts of text for analysis by identifying meaning units.

Giorgi's method was integrated by identifying the meaning units and converting the natural attitude to the phenomenological attitude to support identification of the independent meaning by expanding the text before data was reduced to emergent themes, as Smith suggests.

Where possible, the co-researchers words were used in theme names as part of an iterative process. However, when there was a common meaning but lack of common phrase that missed the essence of a theme, an umbrella term was used to capture the similarity of the essence of the experiences as guided by the inductive theory generation.

The method was thorough, but on reflection it may not be necessary to translate the whole interview when presented with such large amounts of data as identification of meaning units could focus the transcription if adopting more of a deductive approach to analysis. I omitted some elements of the transcript, which means some nuances of the individual lived experience could have been missed in analysis and unconsciously introducing a bias on what text was selected. Although Smith advises a creative approach to analysis can be adopted, this differs to Giorgi's approach and therefore this suggests that IPA is the main analysis method I adopted and was my starting point. By assigning and then selecting meaning units I acknowledge that as a researcher, my engagement with the text has introduced an interpretative element at an earlier stage in the analysis. The influence of Giorgi's method was important for the analysis as it added depth to analysis before emergent themes were identified. In future IPA analysis I would consider completing the third person perspective after the descriptive analysis and once meaning units were identified before any further analysis took place to help support greater limitation of varying interpretation. The transect tours involved a constant change of environments with varied noise levels and this can be reflected in emotions experienced and conversations had. In future analysis I would also add a column of analysis to specifically capture environmental perception observations as well as my own notes during the interview but being careful to bracket any assumptions from the lived experience of the co-researcher. The method facilitated an inductive approach to theory generation.

4.4 Qualitative validity

In reflecting on the validity for the study, I need to consider it from both an IPA and descriptive phenomenological psychological research perspective. However I have been guided by Smith et al recommendations as an overarching approach to evaluating validity as this has been the dominant method used in analysis from start to finish.

Smith et al note that IPA is a creative process; therefore there is not one rulebook. Therefore criteria for validity and reliability should be flexibly applied (Smith, Flowers and Larkin, 2013). They recommend following Lucy Yardley's four broad based principled approach for assessing the quality for IPA research which are listed below and how this research has considered each principle:

Sensitivity to context: Societal issues can be sensitive topics to discuss that can be personal or others can perceive different opinions negatively. I accounted for this through ethical considerations, and ensuring the co-researcher was aware how their data would be treated, and building a rapport to show the value of their lived experience through listening and empathy. In the analysis, the narrative was first constructed by picking out the key verbatim texts which aligned with themes from the IPA process to ensure it was the co-researchers voice that was at the core of the narrative before further analysis was conducted.

Commitment and rigour: Before each interview commenced it was important that the co-researcher felt they could trust me as a person and intentions that their experiences are contributing to a broader project to understand the social environment in the area. I also aimed to ensure the analysis method was rigorous by following the same steps for each interview once I felt comfortable with a suitable approach. I also made reflections on how the interviewing approach could be improved.

Transparency and coherence: I have aimed to be clear on the methodology and how I combined two methods for the analysis and develop a coherent interpretation in written form.

Impact and importance: In line with a context-sensitive approach to planning, the lived experiences provide a unique, inclusive and empowered citizen perspective regarding the social environment in Bethnal Green and Tower Hamlets.

Giorgi recognises that in phenomenological qualitative research, the validity analysis should not be comparable to a 'test construction situation' and that in qualitative research the role of subjectivity must be clarified and not eliminated as the focus is on understanding the phenomenon (Giorgi, 2012) In this study I have combined two methods, which some researchers have stated risks 'bricolage' or 'blurred genres' therefore the description of the internal process is important to explain and the rationale (Sousa, 2014). I have aimed to be transparent in the description of how this was conducted and the reasons why due to the amount of data and need for further depth of analysis before emergent themes were identified. However in combining two methods presents a challenge on how to evaluate the validity of the study as each method has different criteria. For example, for the descriptive phenomenological method it is recommended to consider validation from the following perspective: intentionality, psychological phenomenological reduction, eidetic analysis, syntheses

of identification, phenomenon versus individual and invariant structures (Sousa, 2014). Therefore from Giorgi's perspective the view could be taken that the validity is challenged from an eidetic analysis and synthesis of identification perspective. From this perspective, the psychological essence is weakened and the character of 'edios' because I arranged some of the meaning units and omitted some text before exploratory analysis was conducted. However, in the analysis process I aimed to relate the 'part' to the 'whole' of the text and refer back to the transcript and descriptive comments throughout the process following the 'hermeneutic circle' influenced by Heidegger 's theory incorporated into IPA. However, because this step was taken, the synthesis of identification is challenged in terms of 'congruence and conformity' because meanings can present in many contexts.

It is challenging to use two methods, especially as a novice researcher. However, if repeating this study, I would consider these challenges earlier in the methodology development. Combining Smith and Giorgi's methods presents challenges because Smith guides for a more creative approach as a researcher to develop one's own method however Giorgi suggests a more stringent process. Therefore from a validity perspective this presents greater challenges for how the role of a researcher's interpretation is introduced and ensuring phenomenological essence. On reflection, I would be guided by Smith's approach, but still recognise the need for introducing the phenomenological attitude before emergent themes however I would aim to introduce this step earlier, after the descriptive analysis and identify meaning units but keep the flow of the text, and not group meaning units to support validity from both perspectives.

4.5 Ethical considerations

As this is a master's project, ethical approval was not required in Sweden however; the following considerations were taken into account and discussed with the SLU legal team and in relation to recent GDPR legislation:
- To be mindful of any social tensions within the community when meeting community groups and potentially sensitive topics i.e. informal social-economic or ethnic segregation
- Commitment to anonymisation of personal sensitive data
- Issues of social inclusion such as belonging, trust, and shared values will be discussed with the community informally and through the interviews and this must be carried out in a sensitive way with careful listening
- Use of cognitive maps to explore issues of social capital such as belonging and trust could be emotionally sensitive for individuals taking part, therefore allow for people to choose how they wish to share their views

5   Results

5.1 Overview

The analysis shows the importance of emotional attachments in place from a citizen perspective. The findings are context-specific to place attachment in Bethnal Green and the surrounding areas in the London borough of Tower Hamlets. A popular science summary can be found in appendix 10.7.

Co-researchers reflect on how places are formed through their social relationships and what urban landscapes are deemed supportive for wellbeing that forms a place for them to spend time in. A lived experience of place is explored in relation to the perceptions of safety, urban green landscapes for social wellbeing and how perceptions of the outdoor environment relate to individual and collective agency.

The following results have been grouped by person, process and place themes in accordance with Scannell and Gifford's tripartite framework of place attachment. The results demonstrate how the role of the urban outdoor environment shapes the cognitive and affective experience of place, which is related to the dynamic nature of the self and individual efficacy as a producer in a social environment. The results explore a collective citizen experience in an urban area, which is underpinned by psychological processes influenced by a lack of coherence in the perception of safety and the sense of impermanence and loss. The experience of safety (cognitive and affective) influences how the social environment is perceived and experienced. At a collective level, visible behaviours can be seen which influences social neighbourhood structures and frames use of urban spaces for wellbeing.

5.2 Formation of social networks in daily life

5.2.1 No judgements

A social environment in place can be formed by a desire to be with people that share similar values, which can be considered 'bonding' social capital, manifesting in

physical spaces and places formed through likeness. Zama observes places being formed through ethnicity and in her area:

 'There's a lot of Muslims, Bengali's a lot of Arabs so I think I can stick with them because I feel comfortable around them like I know they won't judge me'.

Azma is conscious of her cultural identity and visibility of this, finding comfort being with people that are like her, even though she would like to be a part of forming a more diverse social environment, which requires social and cultural integration. The fact she has observed spaces of similar ethnic groups to be prevalent in her area of London suggests it is how humans in urban places have innately formed safe spaces which is also supported by Alina's feeling that: 'Social interactions that are with the same people which give you a bit of ease.' Her cognitive map identified safe places as 'relatable', *which* mirrors her recognition of staying with people she considers to be like her. Azma does not think social groups should form in that way and wants to see greater diversity in the visible societal fabric.

The gypsy and traveller community exert their cultural identity as a social boundary in an effort to protect their way of life and therefore require and assert a clear sense of social identity as Margaret represents a collective group: 'We believe in looking after our own community and our community is built on family'. The gypsies and travellers have an allegiance to their 'own' family and social obligations as part of a nuclear family, which advocate for social values of care. Abiding by cultural values also protects their cultural identity that is defined proudly on self-reliance as an independent cultural community.

5.2.2. Showing care with strangers

Co-researchers are also active in bridging social capital as Alina has reflected on the weak ties she individually forms:

 'Well, we kind of wave at each other every day, to each other when I pass by *[laughter]* and have a quick chat here and there, anything else in particular we need to talk about'.

She recalled the social interactions with lightness, which suggests she feels the social interactions, were effortless on her part. Adopted the social etiquette is related to her first impressions of arriving in the area and feeling welcomed by others and therefore she now consciously aims to contribute to the social environment by helping to build a sense of belonging for herself and for others through place interactions. Volunteering can also help extend social boundaries of place by showing care with strangers, which is considered a form of bridging social capital. Kate recognised she has an active role in forming a social environment as part of a volunteering scheme by

sharing food which for her is a political gesture defined by her values and interests. The use of food removes the burden of 'transaction' from social interactions. Kate reflected on how she can change how society operates by challenging the capitalist system to reduce food waste. This political and social action is consistent with her identity and has facilitated different forms of social interactions with strangers in her day-to-day life.

The bridging forms of social capital are demonstrated inter-generationally through informal and formal social interactions. Nadine has received recommendations from an older neighbour about local restaurants and John takes part in annual charity events for the local 'old peoples' home with work which represents 'one of the little joys' that is community related in the area. Both co-researchers show that they value local businesses as they represent a purpose beyond monetary transactions in the public sphere, contributing to the formation of place. As John reflected on his own aging process, it became a source of comfort that he observed care for the older generations as he may also require care in the future.

5.2.3 Individual barriers

The difference in social values across social generations is deemed to be something that is relatable in many communities as Azma reflects generationally they (as a young generation) have experienced: 'Having different values from their fathers than their classmates'. She identifies difference in values as a cross-societal issue. She has experienced differences at a personal level in discussions with her father, which is influencing the formation of her identity such as the clothes she chooses to wear which is in disagreement with her father's expectations and beliefs as a Muslim woman.

The pessimistic view of others in the public space may act as a barrier to how the individual then chooses to interact with other such as John who thinks: 'The majority of people are selfish'. Kate thinks the majority of interactions lack 'care'. Therefore, individual beliefs can inform social boundaries, which influence the perpetual experience of others and the formation of physical spaces.

5.3 Urban landscapes as supportive wellbeing infrastructure

5.3.1 Green spaces and the canal: to dwell, explore and feel safe

Natural features in the urban landscape aid exploration of the outdoor environment for learning and wellbeing and form self-directed knowledge-scapes such as 'mud larkin' along the Thames. John takes on the role of an archaeologist as he found 'clay pipes'

and 'musket balls' from previous generations of workers in a local park. Finding old artefacts is consistent with John's use of collective land and discovery of past lives, which he can relate to from a class perspective. The sense of unfairness he experiences is translated to a historical and existing inequality of the working classes that can be viewed in the urban environment. However, the need for a sense of belonging that is not dictated by monetary wealth drives his pursuit of adventure through *complexity* and *mystery* that the River Thames guides. Natural landscape features like the river expand his concept of a neighbourhood, which goes beyond his place of residence. By reclaiming lost artefacts from past generations that he identifies with, he builds belonging through knowledge and connection to place and through the process values working class histories.

Nature also conveys mystery through cultural knowledge and emotions as Margaret reflects on the name of their site due to a tree that had to be removed to build it: 'Not a lot of travellers like willow tree cos they think it brings tears – it's an old superstition'. Their traveller site was named after the willow tree despite its association with bad luck. However a connection with nature helps to affirm a cultural narrative that describes place through an emotional bond and interconnectedness with humans and nature, which the gypsies have historically valued through their nomadic lifestyle.

The canal is viewed as a collective asset for leisure for both *inward* and *outward involvement* as Nadine states: 'we love the canal is because it is great for evening walks'. She is conscious of her use of the canal for her wellbeing, however for John, the canal supports his wellbeing through cultural and adventure activities. The canal also provides a feeling of home and sense of belonging for individuals, in particular for Alina who moved to London from Eastern Europe. Her use of water for wellbeing is a restorative experience, addressing the dimensions of *being away*, *extent*, *soft fascination* and *compatibility* due to the familiarity with landscapes she experienced in her childhood:

'I mean, I was born in a city that had a huge river, and then I moved to another city that had a huge river, so I was always very close to it'.

She is able to experience restoration in Victoria Park as she feels safe as she hasn't seen 'anything dodgy happen in Victoria Park' or been given the impression by others that 'something is unsafe'. A sense of safety aids the enjoyment and relaxation in a green space and choice of interaction for either 'privacy' or 'human interaction' which is important to Alina for her own social wellbeing. Alina experiences high depletion of directed attention in the urban environment and has become aware of her 'sensitivity' to stress in the city, therefore it suggests she is actively balancing negative cognitive and affective experiences by choosing to spend time in green spaces. However, issues of safety and hostility from others in the environment can affect the impact of natural restoration as:

'There's a lot of, a lot of *[long pause]* wrong people sometimes, and I don't feel most at ease, but not that I don't feel welcome, I do go there and just lay on the grass and read a book but I am also just aware of my surroundings'.

Margaret experiences receiving the perceptual hostility of suspicion in the reverse to Alina as: 'People are weary of us you know sometimes'. She notices when sharing the park with some people from the Asian community they initially think that:

'We might be taking the swings off the children but we overcome that you know we haven't got no a lot of prejudice around Tower Hamlets it only wid the council really'.

Therefore, the wellbeing experiences in green space are limited by the affective experience of safety, which can cause defensive behaviours to be adopted based on the perception of others that is formed.

The need for refuge in the outdoor environment is prevalent, as co-researchers recalled how they sought reflection and privacy as Azma actively seeks a space to 'dwell' on her own thoughts in a small pocket of green space when she walks home. Kate also identifies the need for privacy, which she finds in Phytology:

'Just having that outdoors space to yourself is really special – it's quite a secret spot – people are aware, it's visible and not visible – it's the sort of thing that people don't look at when walking past'.

Both individuals have a conscious need to find privacy in the public space, and they both identified times that they actively sought suitable green spaces for this purpose in their neighbourhood.

For exploration that provides greater levels of *mystery*, cemeteries provide an environment that is *rich in species*, which John chooses for: 'Flora you know the fauna and all the rest of it'. John used green spaces for *directed inward engagement*, and the choice of graveyards reflect an existential connection with nature and his need to contemplate death and family nostalgia. Graveyards are a place of comfort and wonder for John's which facilitates an existentialism which he finds difficult to find a connection to in other urban environments As he feels disconnected from young populations in the area, these environments provide a supportive setting for him as part of his chosen routine and reflects an extensive knowledge of place he has developed by being a long term resident, embedding his sense of belonging.

The cognitive and affective experience of place is influenced by social and physical constructs. The social networks in daily life are shaped by interactions with people that feel relatable led by cultural and generational values. Although from a

psychological process the experience of communities is seen to be changing fast, weak ties are formed that enable 'bridging' interactions, showing care between strangers through social etiquette. Place from a physical perspective is formed through self-directed knowledge-scapes guided innately by perceptions of *mystery* and *complexity* in the local environment, however crucially the process builds a sense of belonging and the use supports individual and collective wellbeing. The canal, pocket green spaces and Victoria Park provide places that are supportive environments, but this is dependent on the experience of safety. Place creation is evolving through emotional attachments within the context of how safe people feel. The subsequent themes explore the psychological processes that impact the experience of safety.

5.4 Learning to look after yourself

5.4.1 People are unpredictable

All of the co-researchers experience safety inconsistently throughout their experiences in the urban outdoor environment. The lack of predictability of others weakens the sense of safety experienced, which manifests in the lack of trust of people in the social environment. Despite Kate feeling *'self-possessed'* in public space, the constant self-awareness of perceived danger in the outdoor environment results in defensive and protective behaviours being adopted:

 'If I am going down a certain street, or like if it's not light, then probably get my keys out and put them between my fingers, that is not the behaviour of somebody who feels safe'.

She defines herself through her female gendered identity, which influences feelings of vulnerability exacerbated at night but she has recognised the expectation and need to protect herself as a social norm. The difficulty she experiences to predict behaviours shows a lacks coherence from an environmental behavioural context as it reduces her trust in others: 'There is not that kind of centralised culture or way of acting like there is in other places'. Therefore, the *'legibility'* of the urban environment for wellbeing is challenged due to the lack of coherence experienced, which arguably pre-empts prediction of unsafe environments and a mode of self-protection. This is something that is experienced broader than at a borough level as part of an acceptance living in urban environments as Margaret states you must: 'Learn to look after yourself'. The lack of trust is a common feeling experienced due to lack of safety due to negative social behaviours which impacts freedom of movement in public space and therefore draws perceptual boundaries. As Azma experienced:

'There's also another area, another pathway I don't feel safe there because a lot of people take drugs there, and it's also like my Dad told me not to go there in the night time, he always tells me to go to crowded places'.

Although being with a lot of people can impact mental fatigue, in this context, it is a method that provides safety in the public environment. Azma's experience of a lack of safety is also related to being female, however she experiences a lack of safety and *safe haven* in the place that she labels as home. The poor social conditions experienced are related to a lack of daylight being 'very dark' and lack of care shown in the environment, which reflects the unsafe social behaviours present in those areas, particularly in the staircases. Paradoxically, the places she labels as 'scary' are littered by 'cannisters for laughing gas' suggesting that in an urban environment, emotions of humour and fun have become darkened by the artificial creation of an emotion, representing a need to escape from the reality the exists in the immediate proximity. However, a lack of safety is not primarily related to gender, as heightened awareness is also related to public outdoor areas where there is the visibility of money on the high street.

Despite being an active social architect, Finn notes he feels more intimidated at cash machines: 'I dunno something about isn't, wandering who is looking over your shoulder'. The visibility of money in the public sphere triggers negative evaluations of others in the social environment and perceptions of trust. However, the perception of trust that translates to a macro level is related to individual definitions and experiences, which is projected in the public sphere.

John particularly conveys his lack of trust in others which suggests this is due to personal experiences throughout his life:

'Naaa I don't trust nobody I mean, people don't generally mean what they say I was going to say speaking of which here's one here, they don't mean what they say it's all fucking bullshit'.

His negative personal experiences translate to lack of trust at a societal level. He feels let down, which is linked to his self-narrative in place informed by his view of unfairness related to history and the struggles of the working class in the UK. The importance of positive social relationships in his workplace is key to influencing his wellbeing in place, which is different to the generalised societal norm that he experiences in his lived world. Therefore local attachments to trusted people through work are helping his perception be less generalised. The personal definitions of trust are also based on an expectation of others. Alina translates feelings of trust to expectations of 'help' and 'guidance' but this is a perception that is very context dependent:

'It depends on the type of people that are around you in a typical moment, imagine on Bethnal Green Road needing help with something and people ignoring me, but at the same time I could imagine being next to some people that would be really, really helpful – especially in this area it's quite mixed'.

As her experiences of trust are related to willingness of others to help her, visible displays of help aid the formation of trust in the urban outdoor environment.

5.4.2 Seeking connection and reflection

Despite the negative experiences of trust in the environment, co-researchers showed a need to find both connection and reflection in the public space, which require different needs of the social environment. Kate observes that the visible social norm is not one of real connection, and that in the routines observed on the high street area 'people are less comfortable interacting in a really meaningful way'. The visible day to day interactions in place are viewed negatively by some co-researchers, as Finn notes the 'kerfuffle's' although he does not perceive these to be serious, more part of the social norm. A sense of community is observed in the public sphere through social routines as Kate reflects that despite the perceived chaos and lack of *coherence* and from her perspective as a short term resident, she got the sense people know each other.

The need for privacy and reflection in the public space is evident, which arguably relates to the wellbeing needs of the individual, particularly as reflecting on identity and aging transitions into adulthood. Azma purposefully seeks outs hidden spaces that feel safe (perhaps in rebellion to her Dad's instructions to avoid enclosed spaces) where urban sounds are muted such as the 'rumblings' of the railway and she is able to connect with urban nature by viewing such a things as pigeon poo. The desire to find hidden spaces reflects a need for contemplation and connecting with the urban environment for solitude and seeking a sense of belonging. Azma's sense of belonging is linked to the graffiti she observes which links to mystery dimension observed in the urban environment as she has 'been there to witness it all', viewing it as invisibly forming political reflections: 'Like Free Palestine, Stop EDL and stuff like that'. The need for anti-fascist display of political statements in the public environment illustrates fragile social tensions, and also by exhibiting these publically is politically sensitive because it is placed in a hidden area of the city. Azma has formed an emotional attachment to the place creating a safe space where personal and societal expression is exhibited, conveying values that match her own.

5.4.3 We are all humans: power in public space

Crucially Azma's awareness of her identity defined by liberal political views and understanding her own ethnic identity is able to develop through place interaction.

She identifies with a public mural that remembers the fascists marches in 1930s Britain which has links to today's politics following the Brexit uncertainty which she is conscious of when reflecting on the urban outdoor environment and unwelcome attitudes towards people deemed as immigrants:

'I think all history will lead back to us and this part of this towns history whether we like it or not and it led to where we are today and we can't ignore it I guess that's why it's so big, for people to remember it, especially like the man on the horse, his head was chopped off.'

'It's like there's something you can notice different or focus on each time. I also like, maybe this is just my interpretation of it, is that even though it is like a battle between the fascists you can't really see a distinct skin tone difference, I guess.' 'Maybe that's their way of showing we are all humans that's the way I interpret it, I really like this painting I look at it whenever I walk past'.

The focus on noticing there being no skin tone difference suggests this is a difference she has become aware of as she approaches adulthood but fundamentally, she views the futility in this being recognised as a difference between humans. This observation suggests that some younger generations that define themselves as liberal, are redefining their collective identity beyond ethnicity. The visibility of diversity is appreciated as a comfort in the social environment as Nadine appreciates that: 'it's the truth'. As a young person in the area, she actively has chosen a place as home and community where diversity is celebrated through human visibility of this in the public space. The experience of safety is also formed through the perceptions of power perceived in the urban outdoor environment from both negative and positive perspectives.

There is a historical and lived perception of how power in the public spaces has been constructed by the male gender through money and role in community. Historically, John narrates his knowledge of the neighbourhood beyond the geographic area of Tower Hamlets, and relates his sense of rootedness in London to the city centre where power exists in London and the mason lines. His knowledge of the mason lines acts as the foundation for his explanation to why unfairness exists in the city environment. His understanding of how history lives in the present links power structures to historic battles over energy and land that marked ownership and assertion of power as he states:

'These energy lines that were being coverted were actually for real at some stage. If you read Watkins, they say yeah this ours now so you have to come to us, that's why the put the churches where they did because they were holy spots so you like coming here because you want to get in touch with your gods and do what you want to do but now we are going to call them this and call them that so you have to come to us so they take over there's job to take over the old village and the pagan village.'

Anger is experienced which reflects the ongoing need to address redistribution of power as he views collective assets being stolen from a community level once marked by the 'holy spots'. This suggests his view of a historic connection to collective power being linked to areas that had an existential connection to nature.

Kate's conscious gendered identity influences her perception of viewing cities that men move in because they: 'have been built for them', which builds a sense of entitlement, belonging and ownership. The perception of feeling more entitled to move in spaces is suggested by the visibility of structures of power in public space.

The experience of safety is also impacted by remote intervention, which reflects a lack of responsibility by proxy powers in the housing domain to intervene through social support. Zama recalls the experience of social disorder in her home environment that was dealt with through faceless interactions by the housing authority, including letters security cameras and threat of punishment through surveillance methods, which has little impact on improving the experience of safety long term. The on-going violence that is experienced in the home outdoor environment due to teenage male gangs are intervened by family relationships:

 'Once one of their mothers came out and shouted at them, that was funny. They were arguing, I don't know what they were arguing about because it wasn't very coherent, but they were arguing, but the mother, her son, they live in the first floor so she was easily able to come out so if it was anyone else I don't think they would have stopped it'.

The fact it is recalled as a 'funny' memory suggests this is her coping mechanism at experiencing a lack of control and acceptance of the violence she witnesses on a day-to-day basis in her neighbourhood. Humour as a coping mechanism again links to the paradox of 'laughter' experienced in the urban environment which becomes a twisted emotion, usually rooted in joy, but in an urban world that is unsafe, becomes an emotion that is rooted in fear and insecurity.

The visibility of public institutions to manage safety is still deemed to be respected in the social environment as Kate notes near the Police Station: 'People are always well behaved' re-affirming the expectation for proxy bodies to guide social behaviours. However, the consistency of how proxy institutions are experienced throughout the borough is unknown and whether all co-researchers respect the institutions in a similar way, therefore perceptions may be related to positive experience of place and safety in childhood.

5.5 Sense of impermanence and loss

5.5.1 Homelessness and helplessness

The cognitive and affective experience of safety in the urban outdoor environment is influenced by visibility of housing insecurity experience, particularly on the high street area as Nadine reflects how homelessness is 'very apparent'. The presence of homelessness triggers negative emotions as it is a social problem and the repeating of the word 'very' suggests it is overwhelming unavoidable. The social issue requires conscious navigation in the public sphere, presenting a personal dilemma about judgements regarding willingness to help and levels of trust. Others show an awareness of the needs of vulnerable population being discounted by public bodies as Kate feels frustration at the neglect public bodies have shown for homeless community and less able bodied people by closing down public toilets.

Her lens on society is able to identify those whose needs are not valued through the design of places, which is related to macro level politics, which she relates causally at a local level. She felt anger, as basic needs are not being met equally for all citizens. The anger felt caused her frustration related to a sense of helplessness as the actions are happening without consultation and therefore she experiences a lack of control.

5.5.2 Days of big families have gone

Communities are dynamic in nature as the sense of community experienced differs by generations. Nadine is representative of a young demographic moving to the area, as 'trendsetters' amongst younger age groups. New communities form based on the social and cultural life as an area 'has the events they want to go to'. This can be labelled as gentrification and visibly can be an indicator to the older generations with long term attachments to place that their home does not belong to them. John expressed a sense of loss:

'Days of big families have gone days *(cough)* days of big families have gone, social attitudes have changed divorce becomes more acceptable all these other things along with women's rights and stuff like that, I mean the changes I've seen since the 60's there's been a lot of fucking change since then you just roll with it'.

The changing visibility of families in the public sphere is a marker of his age, however his accepting attitude to 'roll with it' enables him to find new ways of relating to place. His awareness of society is also similar to Kate where he sees the macro-level societal shifts reflected in his local communities, but he reserves judgement on whether this is positive or negative through acceptance. However, he experiences a sense of loss:

'Community wise there's not a lot here, I mean all the old, when I was a kid you had community centres you had things like that you know, and erm you'd be out with the old man you right you and your brothers we're goin over there and our community centre, we'd go over to East community hall, but you had families in London'.

Therefore, witnessing changes in the community differs to the younger person's experience that form safe spaces and suggests he feels removed from how community has evolved. From those that consider they have a role to help develop community such as Kate in the area, she feels it is imperative that older people are visibly part of day-to-day life, reflecting that that may sound 'weird'. The use of the word 'weird' suggests that intergenerational integration is becoming less of a social norm, relating to her view that there is a lack of care shown in the public sphere due to the performance that is being enacted bound by an 'implicit social contract' which is to 'keep yourself to yourself'.

5.5.3 Reduced visibility of acts of care

Kate suggests a social contract is not enforced, but society has unconsciously enforced rules that reduce the visibility of acts of care for others, which implicitly impacts people's sense of belonging. Gentrification is an acknowledged concept, and some reflect on the need for more mixed integration. Social groups have become less visible as Margaret states the disappearance of: '…'dere the salt of the earth' people: 'because there is people coming in and buying up half of London'. Financial investment rather than emotional investment has arguably been valued as the driving force of change in London which has caused the decline of social groups with less money, a group who used to have greater visible presence in day to day social routines in the area.

The psychological processes in the context of safety, which impacts behaviours adopted, influence the cognitive and affective experience of place. Due to the visibility of threatening behaviours and knowledge of crime, a lack of trust exists amongst strangers; therefore the social neighbourhood construct lacks coherence and legibility in predicting safe behaviours. The constant state of alertness in crowded spaces that is experienced by some of the co-researchers reflects a state of *depleted attention* and therefore is mediated by attempts to seek reflection and privacy in the public space (Kaplan and Kaplan, 1989, Kaplan, 1995). The perception of power in the urban outdoor environment also influences the cognitive and affective experience for an individual and a class led identity, which has historical and individual roots. A sense of belonging from a community perspective is observed negatively in the urban outdoor environment due to perceived invisibility of acts of care as a rare social norm in the urban outdoor environment.

5.6 Identification with place over time

Many of the co-researchers involved informed how their lived experience in the neighbourhood related to the aging process and how this changed how they related to the same physical space over time. For some of the co-researchers, the visibility of memories in the outdoor urban environment triggered self-reflection of psychological life stage transitions with positive and negative emotions.

5.6.1 Nostalgia of childhood imagination

Long-term residents such as Azma and John demonstrate feelings of nostalgia, which informs their attachment to place and behaviour in the outdoor environment. For Azma, a life stage transition is associated with a growing acceptance of an adult reality that is starkly different from the nostalgia childhood imagination depicts, marking a transition into a world that is functional and defined by adult constructed truths. She expresses disappointment when realising that the 'electric tower' from her window view was not the Eiffel Tower when she became older. Her childhood self demonstrates a desire to connect to the wider global world, which in youth, didn't feel a significant distance from her London neighbourhood and represented limitless possibilities. Through adult awareness, the perception of geographic distance becomes a perceived boundary, symbolising an awareness of societal limitations for freedom of movement which childhood blinded. For Azma, the disappearance of the 'Eiffel Tower' represents a realism she feels unhappy to accept. Adults can also misrepresent fears in the urban environment as a method of keeping order to manage children's behaviour.

For Azma, fear becomes a distorted concept from the reality of safety from a young age in the urban outdoor environment, as she was told by her Dad that: 'Those weird little barricaded areas' used to be prisons with people in them. Enclosed spaces became an emotional symbol for fear that influenced her behaviour through movement in the city and determining spaces she believed to be safe or unsafe. She informally identified spaces as places for certain age groups such as parks and suggested that community perceptions consider that these areas are not for adults. She labelled one particular park being: 'just for kids' where she would: 'feel embarrassed to go' although this emotion changed as she got older. In her teenage years she gained a new sense of individuality by how she moved in green space which is less related to concerns about perceptions of her peers stating: 'I'm old, I'm not embarrassed anymore'. However, as she transitions to adulthood, she felt that there is an acceptance that leisure in public spaces is not a priority, as she reflected on why she doesn't use certain parks as often as she'd like which is due to: 'Real life - just not enough time'. Time becomes a concept that is less related to enjoyment but one that must fit adult obligations which suggests why she enjoys reflecting on childhood memories.

5.6.2 Gathering time

Self-reflection during the aging process marked a positive transformation in John's life as his keen historical interest is an active way of exploring nostalgia, which is positively regulating his attachments to place by stating his identity as: 'a gatherer of time'. A shift in his self-identity and self-efficacy for learning provides him with a meaningful attachment to place, as he: 'Got involved with history and stuff like that, and learning and *[pause]* what have ya' and: 'Put same amount of effort into me learning as I used to into boozing and sticking gag up my nose *[laughter]*'.

Despite feeling a lack of belonging due to lack of financial ownership in place, he makes an ongoing effort to change this unfairness he experienced by relating to place through his accumulation of historical knowledge. As he considers his identity to be class-based as part of the: 'Downwards people', it aids his motivation to develop historical knowledge from this perspective. He experiences a sense of entitlement in the public space, which has always been for 'people like him', which also, provides a sense of collective belonging identifying Victoria Park as: 'Our park'.

When reflecting in old childhood spaces, Azma sees the visibility of her aging process in a pocket public green space near a Catholic church noticing the writing on gravestones that: 'Erodes overtime'. Her memories are foundations for her sense of belonging and identification with place as a *secure base* due to the familiarity she experienced which assists to regulate emotions despite the uncertainty she is experiencing during in the transition to adulthood. For her, nostalgia is a positive form of emotional attachment to place and she is processing the changes she is currently experiencing. For others who are considered short-term residents in comparison to Azma and John, time in the neighbourhood is less about the experience of memories over time but a gathering of experiences. Their experiences are related to their motivations of why they are looking to form an emotional attachment in the neighbourhood. For Nadine, her sense of entitlement to feel empowered to move in the space and form social connections is formed through her intention to work in the community in which she lives:

'Some of the training that I have done has been in this area so I have had different life stages even though it's been a short time'.

Her evolving self is demonstrated through her progression through work. Her time dimension in space is reflected by the strength of her social networks. Her lived experience suggests she experienced a *safe haven* in childhood, as she aimed to replicate some of these rooted attachments in her new place of home, which has directed her discovery of place. By associating her childhood experiences as a: 'Nurturing experience' it has aided the feelings of trust she has experienced to build a home away from her place of birth. Her self-described identity of being 'spiritual' relates to the need and use of green space as 'innately' important to her as a person.

She described, herself as a 'person' rather than a woman, which arguably also increases feeling of empowerment in place beyond gender.

5.6.3 Value-led identities

Amongst the co-researchers, identity is formed by political, religious and cultural identities, which influences the self-narratives in relation to place and person interactions in the outdoor environment. There is some sensitivity in defining political identities as Kate pauses to reflect whether it's acceptable to view likeness with others through a 'working class' identity but for her, work and class very much shaped how she relates to place as 'a community organiser'. Associating her identity with work also causes some negative self-evaluation as to whether this is consistent with her lived reality in place but conveys her sense of purpose. Similarly to Nadine, work has helped to strengthen emotional attachments in place despite being short-term residents.

Identity through a community aside from class is also cultural in nature, and impacts behaviours in place linked to work identities as Margaret states: 'I'm very close to nature, I'm an environmentalist but like we're recyclers'. This becomes a cultural identity as she considers pro-environmental behaviours are exhibited by younger generations through cultural jobs such as dealing in 'scrap', which as recyclers becomes innate within their culture.

Azma has an awareness of the use of words and identity being hurtful and upsetting and she demonstrated a willingness to not judge people on their past behaviours as people: 'Have time to change', which enables her to contribute a tolerant attitude and behaviours in the social environment.

5.7 Producers of social environments

A common theme across all co-researchers was the reflection of their own role in their social environment to contribute or change it with differing experiences of self, proxy and collective efficacy as outlined by Bandura as part of SCT (Bandura, 2000, 2001).

5.7.1 Societal insecurity

Some co-researchers felt their ability to act to help others in the public sphere is limited due to the extent of social issues observed in public outdoor environments. For Kate, the expectation on the individual to act in the context of politically challenging times is viewed as being unfair when there is mass societal insecurity and at an individual level there is a feeling that resources needed to survive are scarce.

Reflecting on the limitations of supporting others in the public sphere and ability to show care is accompanied with feelings of helplessness and frustration. Kate perceived showing care in public space as being 'genuinely radical' as the pressures on the individual in the current social climate make this difficult.

Kate also observed low self-efficacy and proxy efficacy in the urban environment as people designate themselves as 'not responsible' as producers in place, influencing the breakdown of community by being anonymous which large populations facilitates (Bandura, 2001). Using political language such as 'solidarity and resistance', Kate views the current climate as a fight that needs to be won by the political left wing, consistent with her self-narrative and identity.

5.7.2 Calling for societal solidarity

The need for proxy powers to intervene to support a social environment despite having a high level of self-efficacy to support the formation of weak ties in social environment is also recognised by Alina and Nadine. Alina takes an active role by engaging in polite social etiquette as part of her everyday routine but recognised limits to her individual action to foster community. The role of local organisations are needed to 'intensify' the feelings of belonging, which is a psychological need for humans as there are limitations for individual action that are 'sustainable' at a community level. Recognising an individual limited ability to help the vulnerable in society also leads to feelings of guilt, which arguably impacts the confidence from an individual's sense of *self-efficacy* to act to help others. Nadine discounted the efforts she took to give to charity by viewing it as 'not actively' helping. However, there are positive experiences felt despite it relating to a lack of self-efficacy as a producer in place.

Finn experienced a welcome environment, which is something he feels confident to contribute to as a local business manager through routine social interaction and feeling content. Margaret demonstrated high levels of *collective efficacy* by challenging proxy powers and views themselves to be engaged in an ongoing land struggle:

'We've done so much to try and get ourselves accepted by society we are all activists on our site and we haven't got the same rights as anybody else and we have to fight the council for pitches for our children which they haven't built since they built our site der has only been four small pitches added on to our new site since we've been here 39 year and they don't seem to be building anymore pitches because 'dere is money in 'dere city hall Sadiq Khan has a pot of money…but the council aren't picking up the money because they just don't want the bother'.

She feels they have changed as a community to build acceptance from others that abide by different social norms. She feels strongly that if they do not organise as a

community then their safety and security of basic needs will not be met as because they do not meet societal norms accepted by proxy powers. By identifying themselves as 'activists' indicates they have a high level of *self-efficacy* as their emotional bonds to place in the form of place identity and place interaction are under constant threat.

5.7.3 Female vulnerability and proficiency of care

The female co-researchers all reflected on their experience of being female in the city and how this related to negative experiences of safety which limited their belief in their role as a producer to the social environment. Kate was conscious of her gendered identity and felt less empowered as a female minority, which influenced her feelings of safety. Alina also associated her gendered identity with vulnerability although this has not been a barrier to her freedom of movement in the city but it has impacted her affective state, which is one of awareness. Safety at night is a negative experience for women and the perceived threat from behaviour from some men triggered them to be in an alert state, inconsistent with the confidence they may feel as individuals at other times. The unconscious experience could be interpreted in a cognitive map to represent some threatening predatory behaviour when trust and safety were reflected by an image that depicted sperm, which has been drawn subconsciously:
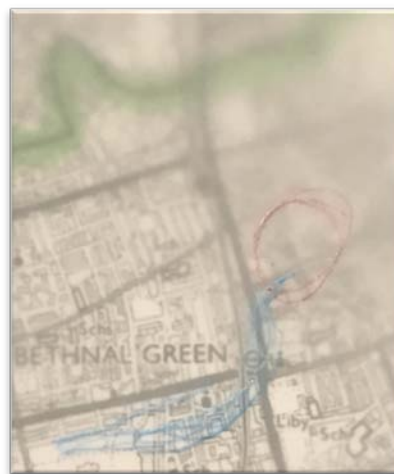
Figure 2: A cognitive map of a co-researchers representation of trust and safety in relation to their gender identity in place

Kate demonstrated a level of defiance by thinking consciously about body posture to convey a lack of fear. Kate noted that in local grocery shops women are more likely to speak to each other suggesting greater numbers of women encourages positive social interactions. She feels that showing care is related to a 'gendered heritage' of female roles in society, which contributes to the formation of place interaction and in a retail situation removes the focus of transaction to 'interaction' noting sharing knowledge creates a caring environment. This identifies women to have an important role as a producer in social environments for wellbeing. However, there are limits to the role of

females as producers in social environments with women experiencing low levels of self-efficacy to take action of public displays of sexist behaviours as Kate notes she doesn't want to be: 'a nuisance'. She stated: 'I can never be bothered to construct an email that is like letting him know I don't think it is a big deal personally but I also think it shouldn't be happening'. The fear to react to intimidating behaviours towards women impacts perceptions of safety and can create informal gender segregation in space. Alina noted that after seeing:

'A sign saying something like 'no more than two women in the shop at the same time' or something I was like "what the hell" *[angry laugh],* so I kind of avoid that place, because it makes me feel weird, like why would they say that'.

Gender segregation is also experienced through cultural norms. For Azma, being defined as a Muslim woman has meant a change in how she uses public spaces. In her experience of becoming an adult, she becomes aware that society has judged her to have a gendered sexual identity, which she may not be ready for. Although she acknowledged her options to swim have been limited: 'Because I'm older I had to go the female only ones'. Her passive acceptance suggests it's something she has accepted as a social norm and part of becoming an adult. This arguably influences her fondness for recalling memories from childhood where she was not as conscious of her gendered identity.

5.8 Summary

The psychological processes experienced in the urban outdoor environment, which impacts the emotional attachments formed, influence the cognitive and affective experience of place. Green spaces become places when people feel they can 'dwell' and the experience of wellbeing is influenced by the cultural opportunities in the space and the experience of safety. The collective experience of safety is difficult to predict, therefore the lack of *coherence* felt contributes to a state of feeling alert. Therefore, for an outdoor environment to facilitates social wellbeing, a landscape is required that supports meaningful connection as well as restoration as the co-researchers all reflect on their use of a variety of green spaces for different needs. Social wellbeing is also reflected in urban landscapes through immediate truths that are observed, and the impermanence of communities is a prevalent theme, from inequality observed, changing social structures and lack of behaviours that show care. From a person perspective, the urban outdoor environment becomes a tool as well as a prison, dependent on the life stage experienced and belief in one's ability to change their own context and their surroundings. The lack of *self-efficacy* experienced is related to observing the prevalence of homelessness and perceived lack of care and responsibility from *proxy* powers. For women, safety concerns because of their gender impacts their perception of their individual freedom of movement. Therefore inequality experienced in outdoor environments can weaken a sense of individual and

collective agency. Green outdoor environments can provide a sense of collective and individual belonging through memories and human agency that is realised through self-directed knowledge-scapes. The exploration provides a gathering of knowledge and time that is personal but rooted to place. However the ability to form emotional attachments in green spaces that facilitate social wellbeing from both a connection and restoration perspective, is influenced by the perceptions of safety.

6 Discussion

The discussion explores urban places for social wellbeing from three perspectives related to the research aims. The key areas explored are the role of safety in the lived experience of place, how green spaces are supportive for social wellbeing and how perceptions of the outdoor environment relate to individual and collective agency. This research has shown the need to attempt to unite an understanding of social and environmental sustainability disciplines and the invisible bricks that foster urban places for social wellbeing.

The discussion will also explore a theoretical understanding of urban places for social wellbeing, focussed on the relational processes that form invisible bricks from inductive analysis. All co-researchers expressed the importance of their emotional bonds to place; therefore lived experiences could support designing places for socio-environmental justice. The discussion will explore how the application of an integrated theoretical framework supports outdoor environments to be considered dynamic social learning environments, situating the role of green spaces as a mechanism that supports socio-environmental justice. This research suggests that three integrated theoretical frameworks support understanding of invisible bricks in society.

In this project, citizens shared their emotional experiences of place and their experience of the social environment, which was cognitive and affective. Therefore, in the development of just and sustainable cities the role of emotions is important to consider with regards to how people evaluate and bond with their everyday surroundings, which influenced people-environment interactions. Scannell and Gifford's Tripartite Theory of Place Attachment has emerged as a key framework that underpins the influence the experience of place. However, in context of social psychology and spatial politics, the theory is supported by further explanations to recognise that place attachments and emotions change in *lived, perceived* and *conceived* spaces through an interaction between *person*, *behaviours* and the *environment* as represented by Bandura's Social Cognitive Theory and Lefebvre's Production of space theory.

6.1 A social contract: Safe social environments can support place attachment for social wellbeing

This research explored the perceptions of safety in the lived experience of place. The research showed that feeling unsafe day-to-day can heighten emotional states of alertness. Heightened emotional states can influence how social environments are *perceived* and *conceived* which therefore can limit freedom of movement. The role of safety in the lived experience of place influences an individual's emotional state and perceptions of trust in others, which impacts what is observed at a collective level by subsequent behaviours that are adopted. In this research, it was clear that citizens like Kate, are experiencing unpredictability in the environment day to day due to lack of safety experience from past and *inferred* experiences which suggests low *legibility* (using a term from Kaplan and Kaplan's preference matrix). The qualitative analysis also shows low levels of trust result in a less favourable social environment and defensive and protective behaviours. Kate uses her keys as a protective weapon when walking home alone at night and John trusts no one, particularly noting that some beggars on the main street are not homeless. The qualitative findings are supported by Urban Mind project data in relation to psychological processes which suggests that people are more likely to have positive perceptions of their social environment if they feel safe in the day and at night (see appendix 10.1 for p values of Urban Mind project data). In the context of Tower Hamlets, the app data showed that citizens are unlikely to experience positive perceptions of shared values in the outdoor environment (rather than indoors). This suggests outdoor interventions in the *third landscape* needs to support social learning that supports a cohesive understanding of shared values in place.

The analysis also highlights that negative emotions experienced on a consistent basis show a darkened adaptation of some innate human emotions. For example by Azma's home, laughter, which innately symbolizes joy and humour, has evolved to be one of resignation and coping with fear. Therefore this research suggests the experience of safety influences emotional attachments formed in place associated with the social quality of the environment.

Simmell suggests that urban cultures have formed in response to 'violent stimuli' (Stevenson, 2003, p.24). When social dis-organisation is visible (which in this research is evident by homelessness and a lack of proxy intervention), it can suggest that there are fragile social norms, which therefore has implications for safety in an environment (Sampson, 2009). Literature supports this research and shows the social context is likely to shape actions and influence the trustworthiness of the social environment, however this is hard to predict, which is where the role of proxy powers becomes important (Coleman, 1988). Some respect the visibility of public institutions to manage safety in the social environment as Kate notes re-affirming the expectation for proxy bodies to encourage respectful social behaviours.

The collective negative emotions experienced, suggests a reduced capacity for self-regulation at in individual level, which results in 'pathic' participation or a poor quality social environment (Haase, 2016). Haase describes the concept as a perception of atmospheres 'on one's own body, but not as something of one own's body', suggesting that the accumulation of negative perceptions and emotions within the social environment can form part of the social context in which influences behaviour. Panksepp (2014) states that to an extent the reality of emotions in the brain is independent of the environment. However, emotion systems in the brain can 'create innate and learned action tendancies' meaning this viewpoint suggests emotions have an important role influencing behaviours (Panksepp, 2014). Therefore perhaps the restorative psychological processes in green space play a role influencing the decision-making processes for behaviours influenced by emotions. It would be interesting to explore further as Panksepp argued that scientific progress depends on the ability to specify how emotions impact behaviours at a neural level, which underpins further research. Paul Ekman states that scientists, who study emotions, agree there are universal basic emotions that specific moods are related to (Ekman, 2016). Therefore the complexity of the affective human experience requires further investigation in the context of lived experienced of place and how it influences collective behaviours on a larger scale.

Place attachment can play a positive role in facilitating perceptions of greater safety based on quality of neighbourhood conditions and perceptions of collective efficacy (Brown, Perkins and Brown, 2004; Dallago et al., 2009). This is demonstrated in the research by choosing green environments for social activities such as Finn who meets friends and families in the large park for leisure and Alina who observes safe behaviours in the same place and friendly social interactions. Some scholars propose to actively increase citizen safety through place attachment processes. Place attachment is evidenced as a predictor of safety, mediated by processes that form social capital, suggesting that the environments that support perception of safety through social behaviours act as a preventative measure for fewer 'incivilities' (Brown, Perkins and Brown, 2004; Dallago et al., 2009). The Urban Mind data also suggests that a positive social environment is likely to be perceived if it is clean, which is supported by the literature at a neighbourhood level with regards to positive perceptions of a built environment promoted through the 'walkability' of a place which is perceived to be aesthetically pleasing and socially cohesive (Kent, Ma and Mulley, 2017; Wood et al., 2008).

6.2 Dwell in my own thoughts: Safe green environments can facilitate self-regulation

This research explored how green outdoor environments are supportive for social wellbeing in place which are innately sought for connection with others and self-reflection. The experiences shared suggest that safe green spaces contribute to social

wellbeing by enabling self-regulation of emotions and cognitive restoration, which reduced a sense of perceived threats in the social environment and potentially contributes to supporting social engagement.

This research showed that it is challenging to find places for reflection however individuals are active in seeking them out such as Kate's experience as she notes that finding private and quiet spaces in London is challenging but helps restoration. Azma also actively finds places to dwell in small pocket green spaces on routes home. For Alina, the impact of green space is evident in the recorded interview where once in a park, the background noise becomes quieter and her emotional state becomes more relaxed. The innate seeking of environments characterised by *soft fascination* shows innate identification of environments with dimensions of *prospect, refuge* and *space related* to *inward engagement* and the need for citizens to find privacy in *serene* environments (Grahn and Stigsdotter, 2010). They also demonstrated the desire to seek proximity to water, which is supported by literature that evidences benefits of water and wellbeing and particularly evident in Nadine and Alina's experience (Sonntag-Öström et al., 2011). The constant state of alertness in crowded spaces that is experienced by co-researchers reflects a state of *depleted attention* and therefore is mediated by attempts to seek reflection and privacy in the public space which green space facilitates, enabling self-regulation of emotions that can restore executive functions and support positive social behaviours (Kaplan and Kaplan, 1989; Kaplan, 1995).

It was evident that green environments also support active and social engagement with the outdoors by building emotional bonds to place. The self-directed knowledge seeking of local environments is particularly evident in John's lived experience, observing *mystery* in the landscape as part of discovery facilitating wellbeing through *indirect attention* as natural environments facilitate *soft fascination* through use of the canal and graveyards which also builds his sense of belonging in place (Kaplan and Kaplan, 1989). Many of the co-researchers identify the dimensions of *social, nature, space* and *culture* in green spaces for leisure when the social environment is one of trust. Finn and Margaret both use parks to 'meet friends' and family where as others use the spaces for its cultural and learning value. The need to 'explore' the environment by seeking a level of *complexity* and *mystery* represents how green space can support outward facing involvement for social wellbeing in urban places (Kaplan and Kaplan, 1989; Grahn and Stigsdotter, 2010).

The restorative and social experience is associated with perceived safety demonstrated by Alina who recalled feeling alert in some green spaces because she is distrustful of people around her but feels differently about people when she is in a park that is 'safe'. Although Hartig et al (2014) found no studies that highlighted the role of perception of crime as a mediator between exposure to green space and social cohesion, the qualitative data in this study suggests safety plays a role in the lived experience of place and experiencing the benefits of green space. Therefore, this

research suggests the psychological processes supported by *soft fascination* facilitates positive social perceptions to form due to restorative emotional processes that support self-regulation of individual behaviour however this is related to perception of safety. In the limited studies published in the area, Hartig et al (2014) did find evidence of a 'positive association between presence of tree and grass on the use of common spaces and informal social contact with neighbours' (p.10). They identified specific research studies in Chicago that showed a positive association with social contact and an individual's sense of safety. Interestingly, residents who had more trees and grass in proximity of their building showed less aggressive behaviour supported by data that the building areas were associated with less crime (Kuo and Sullivan, 2001, Kuo and Sullivan, 2001 and Kuo and Sullivan, 1998). This is supported by Urban Mind app data too which showed the likelihood a more positive social environment is experienced in Tower Hamlets is associated with seeing plants and trees. However, safety experienced in green spaces is also related to design as enclosed green spaces in dense urban areas can contribute to negative feelings of safety (Maas et al, 2009). Hartig et al (2014) reviewed literature that showed 'trees in the public realm have been associated with reduced crime rates, but small trees on private lots have been associated with increased crime rates, presumably because these trees make it more difficult to observe criminal activity' (p.10). It would be interesting to explore further quantitatively and qualitatively how safety may be a mediator of social wellbeing outcomes in green spaces.

6.3 It's the truth: Place-based social learning environments for socio-environmental justice

Finally, the research explored how perceptions of the outdoor environment related to individual and collective agency (individual and group belief for desired change). The findings show how day-to-day landscapes can be regarded as outdoor social learning environments, which can foster social environments to support democracy. How emotional bonds form place fuels visible interactions in the environment, which can empower or disempower citizens' ability to contribute positively to their social environment, which is facilitated by observed social behaviours.

In this research, the lack of care seen in the environment and feelings of mistrust of others represented a failure of *proxy efficacy* (belief in others to represent you). This is evident in Kate and Nadine's experiences as the prevalence of homelessness seemed too big a problem to change individually without the support of societal structures. Pol et al refers to the lack of belief in being able to influence surroundings as endemic of *learned helplessness*. The findings in this study suggest that lack of safety experienced weakens the possibility to individually and collectively change the social environment as people have a lack of 'resources' when also trying to manage their own lives.

The research tells us that a lack of efficacy is also related from a gendered perspective. Despite often feeling 'self-possessed' and confident in safe contexts, adult women in the research reflected a 'fatalistic' attitude to environmental conditions when they experienced negative behaviour as a female such as Alina who saw the sign limiting number of women in a shop (Pol et al, 2017). Through adolescence, Azma observed restrictions on what she can do as a female in the urban environment, suggesting inequity in some women's lived experiences. These narratives are rooted in early years, which shaped individual perceptions of safety and influenced freedom of movement. The gendered experience in urban spaces has been lacking in recent research however some literature evidences that women navigate spaces through emotions of fear which reflects a 'trend towards increased urban security and attempts to control what groups use which parts of the city and how' (Stevenson, 2003, p.37). Women have shown a preference for value regulating features within the outdoor environment which means valuing relational aspects of wellbeing (as opposed to *ecosystem services*) which perhaps is reflected by more women being involved in the research through using the Urban Mind app (Fortnam et al., 2019). However all those involved in the qualitative research showed how they innately valued environmental features in the landscapes for wellbeing, regardless of gender.

This research also tells us about observed and experienced social exclusion, such as feeling isolated from activities deemed for young people and the impact of gentrification. Some reflected on the need to identify with relatable communities and this is observed particularly through age and ethnicity. The Urban Mind data in Tower Hamlets shows a positive correlation in the likelihood of experiencing a perceived positive social environment when with familiar social networks. Therefore this suggests momentary social networks influences perceptions of wider society. Luhmann's social systems theory has suggested that humans form their own environments so that society becomes an autonomous set of communication based on function, organisation and interaction systems (Bergthaller and Schinko, 2011). However, this theory neglects role of self-regulation of emotions from an individual behavioural perspective and the type of environment that can facilitate. Some academics have challenged the theory and value the role of 'habitual practices' in shaping social systems. This viewpoint challenges the notion of 'a social contract' being fixed, but a concept that is under consistent negotiation dependent on changing behaviours within environments as well as the role of the individual which this qualitative research supports.

The role of the individual as a producer of social environments is also reflected upon. Pessimistic attitudes towards the perceptions of difference present 'barriers' as Margaret identifies prejudice in the gypsy and traveller community towards people that are 'gay' or 'coloured'. Margaret considers herself a community leader in embracing social changes and places the onus on the individual to change their views to tolerate other cultures. A high level of *self-efficacy* to produce environments is

evident through value-led behaviours such as Kate and Nadine as they *self-actualise* through work in an effort to contribute to collective society where they live and work (Bandura, 2001 and Maslow, 1943). The research suggests that the concept of place is beyond a class identity but consistent with ideas of *place identity* which informs collective behaviours such as Alina recognising East London as a creative and non-judgemental society (Lammers, 2005). Place changes when there is a belief that you can be a producer in space and contribute to the social environment, as Alina purposefully does by adopting a polite social etiquette and forging weak ties with strangers and local shop owners, which she vicariously learnt when she arrived to the city.

Group based cultures and interpretations of the landscape impact self and collective efficacy, which is evident in this research. Kate and John's lived experience from the perspective of a working class identity leads to narratives of resistance and struggle due to historical unfairness but also defines a sense of belonging in space such as the public park which was designated for the 'downwards' people. The need to belong is consistent with literature that evidences that humans have an innate need for place as part of survival and security (Scannell and Gifford, 2010). Aspects of memory such as nostalgia and personal historical accounts support emotional attachment, which many of the co-researchers recall in green spaces as well as the wider landscape from an aging and work perspective (Lewicka et al, 2013). In this research, the strength of emotional attachment seems to be less influenced by length of residence but based on social ties consistent with literature that shows social relationships are the greatest direct predictor of place attachment (Lewicka, 2010).

This research has shown that an interdisciplinary perspective is required to understand social sustainability, highlighting social and environmental dimensions. The analysis shows that theories regarding emotional bonds to places and how we learn social behaviours influences spatial politics. Therefore three integrated theories form a theoretical framework to inform a social environment that can support social behaviours and enabling citizenship through safe and green, *lived, perceived* and *conceived* spaces.

6.4 A theoretical framework: designing for socio-environmental justice

The analysis shows that there are three core theories from social psychology, environmental psychology and spatial politics that provide a framework to contribute to an understanding of urban places for social wellbeing. The theories explain the following: How we emotionally bond to places *(Scannell and Gifford's Tripartite Theory of Place Attachment)*, how we learn social behaviours *(Bandura's Social Cognitive Theory and the Triadic Reciprocal Causation model)* and how we then produce social spaces (Lefebvre's *Traid Theory of Produced Social Space*). The emotional bonds at the core of urban places for social wellbeing are influenced by

psychological process that impact how emotions are experienced (the cognitive and affective processes) which this research has explored in relation to the role of safety, which impacts the ability to self-regulate emotions. The role of emotions in urban environments situates the importance of green spaces as when safety is perceived, they can facilitate restorative psychological processes through human-nature interactions as defined by environmental psychology theories *(Kaplan and Kaplan's Attention Restoration Theory and Grahn and Stigdotter's Supportive Environment Theory).* The integration of the theories arguably extends Bandura's Social Cognitive Theory in the context of social sustainability with place attachment at the heart of dynamic social environments which influences social learning behaviours through vicarious learning and the manifestation of social spaces (Bandura, 2000, 2001 and Lefebvre, 1991).
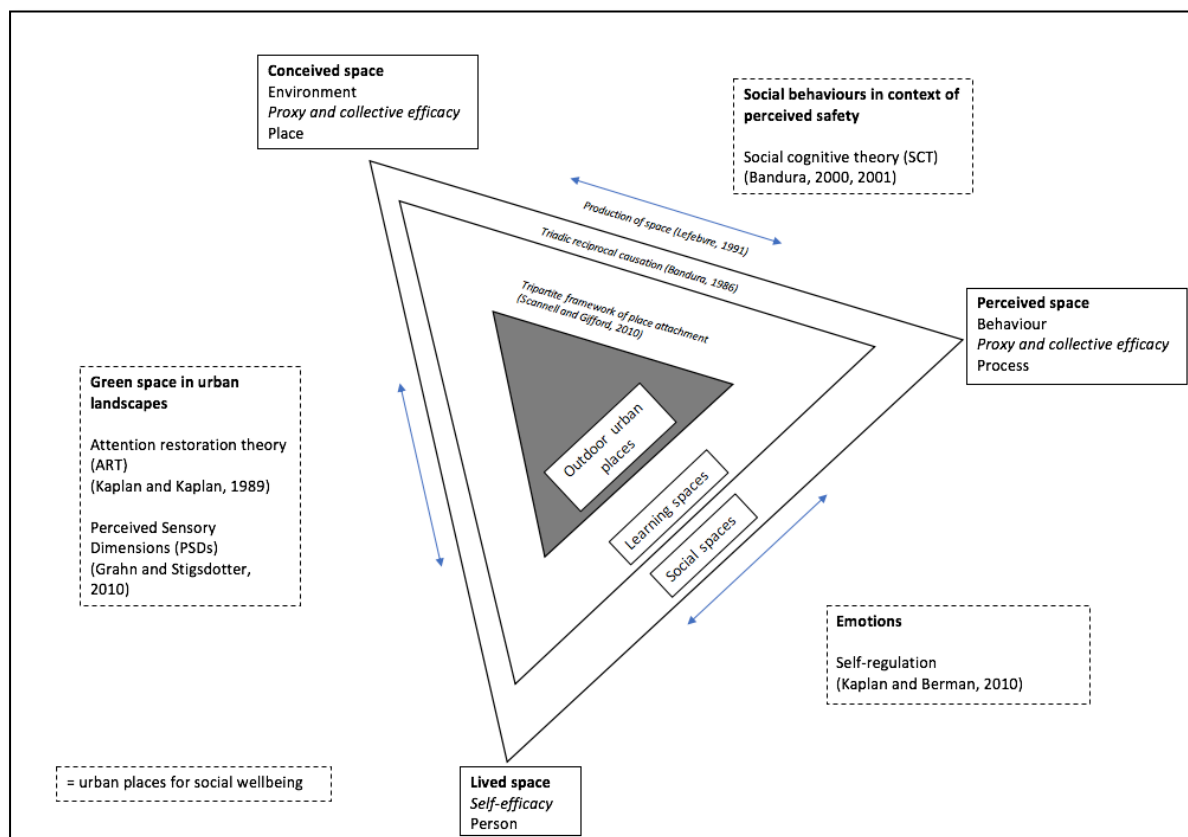
Figure 3: Urban places for social wellbeing: shaping outdoor social learning environments for socio-environmental justice

A theoretical understanding for social and environmental sustainability in urban places: place attachment, dynamic social learning behaviours and social places (Scannell and Gifford, 2010, Bandura, 2000, 2001, Lefebvre, 1991).

6.4.1 Outdoor urban places – how we emotionally bond to places

In this theoretical framework, place attachment underpins the core of how urban places support social wellbeing due to the role of emotions as part of a person's lived experience. Understanding the lived experience relates to cognitive and affective psychological processes which influences the social and physical manifestation of place. Emotional bonds to place can be understood through individual lived perspectives, which contribute to the invisible processes that influence behaviours in environments. Hasse suggests that urbanity cannot be rationalised, therefore the importance of emotions has 'spatial character' in the form of place as he recognises that: 'The city is an emotionally lived space influenced by the moods of fascination and idiosynchronancies' (Hasse, 2016).

From a person perspective, emotional attachments can form places in diverse green infrastructure, in areas conceived in the landscapes. From this research we have learnt that the experience of *refuge* is challenging, which has implications for self-regulation of emotions that contributes to social environments. A negative experience of safety in green spaces can drive a need for restoration due to mental fatigue experienced from urban environments. The benefits from perceived sensory dimensions sought in the environment are optimal when individuals feel safe. Therefore, this research suggests outdoor urban green places for social wellbeing require safety to enable social and restorative activity for optimal benefits.

As Hasse recognises, urbanity is a 'set of urban impressions' that 'reflects the characteristics of urban dwellers' in which he references Simmel's observations as this encompasses social values, or lack of values as well as physical building structures (Hasse, 2016). Therefore this supports literature that emphasises the importance of process in which a place forms part of self-identity supporting self-regulating behaviours (Proshansky, Fabian and Kaminoff, 1983; Twigger Ross et al, 2003).

An understanding of emotional attachment and embracing empathy has the potential to encourage both pro-social and pro-environmental behaviours through perceptual processes (Brown et al., 2019). Therefore, emotional attachment and empathy with others is arguably driven by social relationships and how these are fostered could be an important process in the creation of urban places for social wellbeing.

As Kyttä (2015) outlines, the nuances in localities are 'context sensitive' therefore if place is the source of emotional attachment, understanding of behaviours must be localised. Individual differences for the lived experience of place play a role in how the social environment is perceived to gain an understanding of how places develop for socio-environmental justice.

6.4.2 Outdoor learning spaces – how we learn social behaviours

The role of the outdoor environment based on relational processes could be labelled as *socio-spatial* learning landscapes (Banerjee, 2015, p.167). The outdoor environment provides a platform where social behaviours are vicariously learnt as well as more natural features providing self-directed knowledge-scapes as the research has shown. Walking in urban places is arguably associated with a sense of belonging in place as it defines freedom of movement and facilitates social relationships and formation of social capital, of which the social outcomes of connections with neighbours support physical and psychological wellbeing (Leyden, 2003 and Jennings, Larson and Yun, 2016). John demonstrates building a sense of belonging to place regardless of financial ownership by building cultural knowledge through self-directed movement in space.

In the context of SCT, the urban outdoor environment can be considered a platform where personal efficacy is continually evaluated, and the interpretation of *proxy efficacy* and *collective efficacy* is dynamically forming through the psychological processes of emotional attachments to place as this research suggests. The dynamic process between environment, behaviour and person (as outlined by the TRC model) influences the formation of an outdoor social learning environment as the collective experience is experienced and observed by others. Observations and experiences in the outdoors environment have the potential to strengthen or weaken self and *collective efficacy* to contribute to the social environment. The belief in *proxy efficacy* can be weakened by perceptions of poor safety and care in the social environment which impacts the extent a person believes they can contribute as a producer to the social environment and to act with others. The impact of feeling unsafe can also be seen in defensive and protective behaviours adopted and feelings of mistrust amongst strangers. The lack of *coherence* experienced interpreting the outdoor environment is consistent with *Kaplan's Preference Matrix*. The theory helps to explain subjective environmental perceptions and suggests that urban landscapes are least preferred due the greater *complexity* experienced compared to natural settings (Kaplan and Kaplan, 1989). Although preferred landscapes relate to natural settings, the matrix can be applied to interpreting the complexity of urban landscapes. Within the understanding domain, coherence has been evidenced as a significant predictor for preference of an environment in an immediate context. From the perspective of *inference* (predicted) context, legibility is a key criteria for a favoured environment.

It is important to note that the preference matrix does not reflect behaviours and it is based on scenic quality of static images rather than momentary experience (Kaplan and Kaplan, 1989). The Attention Restoration Theory (ART) suggests why behaviours might differ in preferred landscapes through two mechanisms of attention, *involuntary and directed attention. Directed attention* requires greater cognitive control using the frontal and parietal brain regions, which result in *direct attention fatigue*, which is being used when feeling unsafe (Kaplan and Berman, 2010).

Neuroscience suggests that the *anterior cingulate cortex* in the brain is involved in the control of cognition and emotions, influencing the ability for directed attention and involuntary attention, which is impacted by *mental fatigue* (Kaplan, 2010). Safe green spaces provide *soft fascination,* which enables the brain to restore depleted attention and mental fatigue, supporting *executive functioning.* Arguably, the alert state that co-researchers experience, relates to negative inferred behaviours of others and a perceived unsafe social environment. Therefore, mental resources required for unpredictable environments such as Alina's experiences in some green spaces challenge the regulation of emotions due to a depletion of executive functions required for directed attention. Therefore, a constant alert state informs innate need for seeking connection and reflection to replenish mental fatigue, which green spaces offer.

As previously raised, Hartig et al (2014) found no studies that highlighted the role of perception of crime as a mediator between exposure to green space and social cohesion. However the qualitative data in this study suggests safety requires further exploration quantitatively and qualitatively.

6.4.3 Social spaces – how we produce social spaces

Safety is a key factor that influences perception of environment and behaviours and therefore influences the manifestation of *perceived* and *conceived* social spaces. Therefore, green spaces contribute to urban places for social wellbeing by enabling innate environments when perceived to be safe, to support self-regulation of emotions, restoring cognitive functions (restoration of directed attention) and arguably reducing sense of perceived threats which could support greater perceptions of trust of others around you and therefore supports social engagement.

Alina reflected preferred environmental aesthetics in her experiences of places and avoided places that felt abandoned which suggests deprivation reduces social quality alongside cohesion, social inclusion and social empowerment (Holman and Walker, 2017). The co-researchers suggest that care is lacking in the everyday environment, from an individual and proxy perspective represented by observations such as closure of public toilets, therefore social quality is inconsistent in a day-to-day context. In reference to green spaces, it has been evidenced that local parks much must be well maintained and be aesthetically pleasing to support the development of social ties (Ka'zmierczak, 2003).

The research shows a mistrust of others in the outdoor environments and preference for being with relatable groups. However strong social ties can negatively tip the balance of social cohesion through 'quartered' living as documented by urban planner Peter Marcuse (Stevenson, 2003, p.44) and influence *perceived* and *conceived* spaces. Strength of social ties can also result in social exclusion and contribute to the

paradoxical narrative of cities being places of oppression as well as empowerment (Jennings, Larson and Yun, 2016). Therefore, in the context of social integration, the visibility of care in social environments is arguably vital for social cohesion which is produced by bridging and linking social capital which at an individual level is associated with increased levels of self-reported health (Poortinga, 2012).

By exploring an understanding of urban places for social wellbeing in the outdoor environment through perceptions of safety, green environments and individual and collective agency, emotional and psychological processes are arguably at the core to manifestation of places and social behaviours. In urban places, perceptions of safety play an important role in the development and maintenance of social environments. In green spaces the perception of safety is important, as this impacts whether the experience is restorative or facilitates meaningful connections based on how trustful of others people feel. The ability to be able to self-regulate one's own behaviour, is related to being able to restore cognitive functions which is arguably innate to human wellbeing. Green infrastructure can support social wellbeing through individual recognition of inward and outward engagement needs and being able to find these spaces innately in the urban environment. By viewing the outdoor environment as a social learning environment, recognises human agency to be an important factor in social wellbeing as belief in being able to change or contribute to your surroundings manifests collectively, which others learn from. Therefore, this research suggests to understand urban places for social wellbeing, the interrelated nature of social and environmental sustainability must be recognised, underpinned by place attachment, that enables outdoor environments to be formed as places, supported by theories that relate to social spaces and social learning.

6.5 How can this research contribute to the debate to plan for socio-environmental justice?

Emotions experienced in place are undervalued in the planning of urban places for social wellbeing, therefore this research evidences the value of emotions in cultivating urban places for social wellbeing by connecting the pillars of social and environmental sustainability. This research suggests the two pillars are related at:

- An individual level in terms of safe green spaces supporting self-regulation of emotions to support social behaviours
- A collective level by viewing the urban outdoors as a social learning environment, connected by a triad of integrated social, environmental and spatial political theories

Essentially the outdoor urban environment can be considered a tool for urban planning to promote social sustainability. Crucially, designing for socio-environmental justice is related to understanding human's irrationality due to poor social and environmental quality, therefore this suggests that a right to feeling safe

and the quality of the environment becomes an issue for the operation of democracy and exercise of human agency, individual and collective social wellbeing as well as social and environmental sustainability.

By valuing emotional bonds through an understanding of lived experiences in place enables a context-sensitive approach to planning which is citizen driven to address power imbalances and design that supports social and environmental wellbeing infrastructure. The emphasis on involving a citizen perspective is important in being able to develop social insights that differ from typical institution-led planning. Relational research practice notes that involving third sector and citizen viewpoints in planning is vital to reconfiguring institution and citizen relations for socio-environmental justice to enable and promote 'right to place' and 'right to nature' (Tornaghi, 2015, p.35).

The issues raised are essential to the integrity of democracy in day-to-day life, therefore to truly embed democracy in places; urban places for social wellbeing are key to fostering social behaviours that allow a more trustful environment to develop. The context of safety is key to in order to facilitate social behaviours to allow trust to form. The need for trust situates the importance of accessible, safe green spaces in order to allow psychological processes that support self-regulation of emotions and restoration. Therefore, it could be argued that accessible green spaces are a matter for socio-environmental justice for a functioning society. Related debates would be interesting to explore in relation to what supports a safe environment specifically to green spaces and meanings of trust and how to develop such environments, so they are balanced with ecological needs.

6.5.1 How can shaping green outdoor social learning environments support urban planning for socio-environmental justice?

Places exist as invisible structures; therefore the psychological processes of place attachment become the invisible bricks that shape social wellbeing, intertwined with human relationships to urban landscapes. Adopting an approach in urban planning that values outdoor environments as social learning environments has the ability to forge socio-environmental justice by viewing green and social infrastructure essential to human and environmental wellbeing and challenge the power imbalances that exist in urban planning. A socio-environmental behavioural approach to planning in place also has implications for economic sustainability in a world that relies on the success of an information led economy, reliant on social connections (Mason, 2016).

Haase stated that urban places represent rationality and irrationality through invisible processes. Therefore, integrating social learning approaches into urban planning for outdoor environments values understanding emotional attachments as part of dynamic nature of social behaviours. By valuing emotions in places from alternative voices such as non-government and non-profit perspectives, aids planning for socio-

environmental justice by including multiple lived experiences in place. An inclusive approach of alternative voices has the potential to influence the formation of *conceived* spaces in the urban environment. Safe green environments are arguably key to balancing the irrationality of urban living, facilitating different types of engagement for social wellbeing, and allowing restorative processes to aid self-regulation of emotions that can contribute to social environments for wellbeing. The integration of theories as demonstrated in *figure 3*, potentially provides a perspective for outdoor social learning environments shaped through multiple lenses and layers based on place attachment, social spaces and dynamic social learning behaviours that can contribute to social and environmental sustainability.

Social sustainability is a notoriously elusive concept, as Murphy (2012) notes how the arguments usually are political, rather than scientific, constrained by the influence and weight of a neo-liberal economic agenda. The research in Tower Hamlets has aimed to broaden a place-based debate for health and give a greater voice to citizens.

Society requires an urgent shift to one of shared resources vital for social and environmental sustainability (IPCC, 2018). Consumer capitalism is in 'breach of multiple planetary boundaries' and our future modes of work such as Artificial Intelligence (AI) are likely to have greater energy producing properties (Lewis and Maslin, 2018, p. 348). Therefore, urban places for social wellbeing are needed to cultivate sustainable social and environmental behaviours and some research has demonstrated empirical relationships between place and pro-environmental behaviours (Brehm, Eisenhauer and Stedman, 2013; Uzzell, Pol and Badenas, 2002). Uniting the concepts of social and environmental sustainability is complex, however valuing the invisible bricks that support social wellbeing has the potential to focus urban planning for socio-environmental justice as part of an outdoor social learning behavioural approach for a wellbeing focussed society.

7 Reflections and future research

The research process for the master's project has been a huge learning journey. As I wanted to do my master's project with an existing research initiative to support the value and use of it beyond a personal thesis paper, I was open in the research aims under the broad umbrella of urban green spaces until I found a live project with Urban Mind. Initially the research was going to be conducted in an area of London where the green infrastructure in a large social housing area was in very early stages of being redeveloped, however this did not get the go ahead. However, with this area in mind I started to develop a research perspective related to social sustainability and engaging with low socio-economic groups. I then transferred this perspective to Tower Hamlets, as this is where Phytology is based and developed a mixed methods study. On reflection, if I had planned a qualitative study from the start rather than mixed methods, I would have considered exploring the use of Phytology as one green community space in the context of social sustainability. However, at this stage, I was not aware the focus would be on place attachment as that emerged inductively through the research analysis. However, the broad focus at the beginning enabled engagement with different groups and to scope community social concerns to focus on safety. Applying a social capital framework captured safety domains, but perhaps for the remit of a master's project not all domains needed to be explored. Capturing the experience of green spaces had predominantly been aimed to be captured by the Urban Mind app as it measures exposure to nature, therefore the qualitative interviews were exploring social sustainability in the context of urban living, not just green spaces. On reflection, for a master's project, I would have focussed more on the qualitative questions related to green spaces. What the research has enabled is an understanding of the use of green spaces in to broad context of day-to-day urban life which is context specific to Bethnal Green and positions the importance of them. I feel I have missed in depth responses to what makes people feel unsafe in green spaces, which is important to understand for the design and maintenance of green spaces in context of social wellbeing.

I have also reflected on my role as a researcher throughout the process. It was only towards the end of the thesis write up that I discovered a book called 'Public space and relational perspectives' which really helped to frame the purpose of the research, discover Lefebvre's theory production of spaces and skills as a 'relational' researcher which have guided the following reflections. The book helped to put into context why at times it was an emotional experience as I became embedded in a community and

research relationships are not formal, you get to know people and they get to know you, therefore a contract of trust accompanies the social relationships but also an expectation for action which comes with it responsibility. Throughout the process I have felt that I want to help those involved and the wider area, but unsure if I am and if I can, but as Tornaghi states, accessing a lived space is 'a social act' therefore working 'with' communities should characterise any future steps (p. 37). This is how I would like to continue to conduct research but now with a much greater awareness of the expectations and emotions that are likely to accompany the process. As a researcher in this situation I must assume full responsibility for the legacy of the relationships as the research practice guides. Listening to others is an important skill in the empowerment of marginalised voices and recognises a 'politics of position' (Tornaghi, 2015, p.36). The authors recognise the 'transformational potential of social engagement', and that through the process societal power and knowledge dynamics are being challenged which is key to the purpose of the research. During the interview process I was unsure whether to share my opinion, and mostly refrained from doing so until after the interview, however the relational approach states the practice encourages an 'ethical stance against neutrality' therefore this is encouraging to read to help build research relationships with a more balanced dynamic. I was particularly pleased to read that relational practitioners aim to question typical boundaries of how a problem has been defined and conceptualised, which I now feel on reflection is fitting to how I approached the research aims inductively, guided by the community and the insight for topics of focus and ultimately how the research was analysed. For future research I think I will feel more confident to be continually guided by communities in defining a research focus and also involve willing co-researchers in analysis steps and sharing results. It is important to remember that data is someone's life story. This is the gift of qualitative research, filled with emotions and feelings that have a real meaning to someone's every-day life, especially in the context of urban places and social dimensions.

There are several ways research could be developed from this initial study:

Mixed methods analysis: The research has been designed as a mixed methods study, however this study only uses the quantitative data to support a qualitative led study. Following the completion of the thesis it would be interesting to explore how both data sets can be integrated more systematically as a mixed methods approach for both academic and community presentation.

Socio-environmental equity measure to define place-based movement for wellbeing: The research suggests that socio-environmental justice is related to place based movement, which can cross socio-economic divisions and therefore potentially change how we might consider deprivation in a city living context and access to green spaces from a wellbeing perspective. Therefore, it would be interesting to explore the quality of environment as a deprivation measure through a place-based experience in

the city, and what sort of equity measures could support an understanding of socio-environmental equity.

Phytology as a social learning environment for human agency: The research findings have broad application at a wider society level, however Phytology is a place in itself that involves citizens beyond geographic boundaries. It would be interesting to explore how Phytology through place attachments mobilises social and environmental action, which could have implication for further design of green spaces and urban land in the borough and elsewhere from a citizen perspective. What are the core values that unite people in a common purpose? A case study could be drafted in relation to the theoretical framework outlined in this research.

Evolution of emotions in poor quality urban environments: In the context of safety, the research suggests the experience of human emotions in urban environments can evolve to have darker meanings, such as laughter and joy. It would be useful to explore how emotions within socio-environmental contexts might be modified by poor quality conditions, which may link to mental health issues. Understanding how emotions link to 'place cells' and the hippocampus from a neurological perspective would also be interesting to explore to understand the cognitive impact.

Role of women in design of cities: Fostering the role of women in the design of wellbeing in cities is important to reflect an experience that could support the development of 'value regulating' initiatives alongside provision structures that have wide social and environmental equity benefits for place-based populations.

8 Glossary

Biopsychosocial: A perspective in health that diseases and symptoms can be explained by physical, social, cultural and psychological factors

Collective efficacy: The process of activating social ties in neighbourhoods to achieve collective goals (such as regulation of safe environments).

Environmental sustainability: A term that directs responsible interaction between humanity and the environment to meet the needs for today's population without damaging the ability for future generations needs to be met whilst avoiding depletion of natural resources for long-term environmental quality

Place attachment: An emotional bond between a person and location from an individual perspective

Place: An environment formed through lived experiences based on interrelationships with an individual's psychological and social processes and activities at the spatial location

Proxy efficacy: The belief in others to act in one's interests (democratic institutions)

Self-efficacy: The belief that one can perform particular behaviour in a given set of circumstances

Social sustainability: A term that is recognized as having two core pillars; social equity and sustainable communities as Bramley et al outline. Social sustainability is often referred to as the least explored sustainability concept alongside ecological and economical domains

Sustainable communities: The functioning of society as a collective group which includes aspects social concepts such as neighbourhood attachment, stability, safety, security, social interaction, participation and perceived quality of the local environment as Dempsey et al and Bramley et al outline

Social equity: Defined by social justice and fairness of distribution of resources and the equality of condition as Dempsey et al outline

Social wellbeing: The basis for social equality, social capital and social trust

9 Bibliography

A More Cohesive Borough: A Scrutiny Challenge Report. (2017). Tower Hamlets council.

A Treatise of Human Nature, by David Hume: B1.4.6. [online] Available at: https://ebooks.adelaide.edu.au/h/hume/david/treatise-of-human-nature/B1.4.6.html [Accessed 7 May 2019].

All of us, The Mayor's strategy for social integration. (2018). Greater London Authority.

A review of London's parks and green spaces: strategy, governance and value for THE LONDON GREEN SPACES COMMISSION. (2019). Parks for London [online] Available at: https://www.london.gov.uk/sites/default/files/a_review_of_londons_parks_green_spaces.pdf [Accessed 7 Sep. 2019].

Araya, R., Dunstan, F., Playle, R., Thomas, H., Palmer, S. and Lewis, G. (2006). Perceptions of social capital and the built environment and mental health. *Social Science and Medicine*, 62(12), pp.3072-3083.

Arbesman, S. and Christakis, N. (2011). Scaling of prosocial behaviour in cities. *Physica A: Statistical Mechanics and its Applications*, 390(11), pp.2155-2159.

Arnett, H. (2018). The challenges in quantifying social sustainability at a neighbourhood level. Cities and Health, 1(2), pp.139-140.

Astell-Burt, T. and Feng, X. (2014). Investigating 'place effects' on mental health: implications for population-based studies in psychiatry. *Epidemiology and Psychiatric Sciences*, 24(1), pp.27-37.

Atlas of Democratic Variation. (2019). Cabinet Office.

Bakolis, I., Hammoud, R., Smythe, M., Gibbons, J., Davidson, N., Tognin, S. and Mechelli, A. (2018). Urban Mind: Using Smartphone Technologies to Investigate the Impact of Nature on Mental Well-Being in Real Time. *BioScience*, 68(2), pp.134-145.

Bandura, A. (2000). Exercise of Human Agency Through Collective Efficacy. *Current Directions in Psychological Science*, 9(3), pp.75-78.

Bandura, A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, 52(1), pp.1-26.

Banerjee, I. (2015). From classrooms to learning landscapes, new socio-spatial imaginaries of learning and learning spaces. In: Tornaghi, C. and Knierbein, S. (eds) *Public space and relational perspectives*. 1st ed. Abingdon: Routledge, pp.167-182.

Bergthaller, H. and Schinko, C. (2011). *Addressing modernity*. Amsterdam: Rodopi.

Bethnal Green Ward Profile. (2014). Tower Hamlets council.

Bollyky, T., Templin, T., Cohen, M., Schoder, D., Dieleman, J. and Wigley, S. (2019). The relationships between democratic experience, adult health, and cause-specific mortality in 170 countries between 1980 and 2016: an observational analysis. *The Lancet*, 393(10181), pp.1628-1640.

Bramley, G., Dempsey, N., Power, S., Brown, C. and Watkins, D. (2009). Social sustainability and urban form: evidence from five British cities. *Environment and Planning A: Economy and Space*, 41(9), pp.2125-2142.

Brehm, J., Eisenhauer, B. and Stedman, R. (2013). Environmental concern: examining the role of place meaning and place attachment. *Society and Natural Resources*, 26(5), pp.522-538.

Brown, B., Perkins, D. and Brown, G. (2004). Incivilities, place attachment and crime: block and individual effects. *Journal of Environmental Psychology*, 24(3), pp.359-371.

Brown, K., Adger, W., Devine-Wright, P., Anderies, J., Barr, S., Bousquet, F., Butler, C., Evans, L., Marshall, N. and Quinn, T. (2019). Empathy, place and identity interactions for sustainability. *Global Environmental Change*, 56, pp.11-17.

Browning, C. (2009). Illuminating the downside of social capital. *American Behavioural Scientist*, 52(11), pp.1556-1578.

Bruinsma, G., Pauwels, L., Weerman, F. and Bernasco, W. (2013). Social disorganization, social capital, collective efficacy and the spatial distribution of crime and offenders: an empirical test of six neighbourhood models for a Dutch City. *British Journal of Criminology*, 53(5), pp.942-963.

Burns, V., Lavoie, J. and Rose, D. (2012). Revisiting the role of neighbourhood change in social exclusion and inclusion of older people. *Journal of Aging Research*, 2012, pp.1-12.

Chaparro, M., Benzeval, M., Richardson, E. and Mitchell, R. (2018). Neighborhood deprivation and biomarkers of health in Britain: the mediating role of the physical environment. *BMC Public Health*, 18(1).

Cohen, D., Inagami, S. and Finch, B. (2008). The built environment and collective efficacy. *Health and Place*, 14(2), pp.198-208.

Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, pp. S95-S120.

Collins, C., Neal, J. and Neal, Z. (2014). Transforming: individual civic engagement into community collective efficacy: the role of bonding social capital. *American Journal of Community Psychology*, 54(3-4), pp.328-336.

Community Life Survey London. (2017). Department of Digital, Culture, Media and Sport.

Cresswell, J. (2014). *Research Design*. Sage Publications.

Cusson, M. (2015). Social control. In Wright, J D, *International Encyclopedia of the Social and Behavioural Sciences*, Second Edition (pp. 822-827) Elsevier.

Dallago, L., Perkins, D., Santinello, M., Boyce, W., Molcho, M. and Morgan, A. (2009). Adolescent place attachment, social capital, and perceived safety: A comparison of 13 countries. *American Journal of Community Psychology*, 44(1-2), pp.148-160.

Dempsey, N., Bramley, G., Power, S. and Brown, C. (2009). The social dimension of sustainable development: Defining urban social sustainability. *Sustainable Development*, 19(5), pp.289-300.

Dempsey, N., Brown, C. and Bramley, G. (2012). The key to sustainable urban development in UK cities? The influence of density on social sustainability. *Progress in Planning*, 77(3), pp.89-141.

DePoy, E. and Gitlin, L. (2016). *Introduction to research: understanding and applying multiple strategies*. 5th ed. USA: Elsevier.

Ekman, P. (2016). What Scientists Who Study Emotion Agree About. *Perspectives on Psychological Science*, 11(1), pp.31-34.

English Indices of Deprivation 2015. (2016). [online] London: Greater London Authority. Available at: https://data.london.gov.uk/dataset/indices-of-deprivation-2015 [Accessed 23 Aug. 2019].

Esol.britishcouncil.org. (2019). *Values and principles of the UK | ESOL Nexus*. [online] Available at: https://esol.britishcouncil.org/content/learners/uk-life/life-uk-test/values-and-principles-uk [Accessed 11 Aug. 2019].

Forest Research. (2019). *Social and environmental justice - Forest Research*. [online] Available at: https://www.forestresearch.gov.uk/tools-and-resources/urban-regeneration-and-greenspace-partnership/greenspace-in-practice/practical-considerations-and-challenges-to-greenspace/social-and-environmental-justice/ [Accessed 4 Sep. 2019].

Forjaz, M., Prieto-Flores, M., Ayala, A., Rodriguez-Blazquez, C., Fernandez-Mayoralas, G., Rojo-Perez, F. and Martinez-Martin, P. (2010). Measurement properties of the Community Wellbeing Index in older adults. *Quality of Life Research*, 20(5), pp.733-743.

Forrest, R. and Kearns, A. (2001). Social cohesion, social capital and the neighbourhood. *Urban Studies*, 38(12), pp.2125-2143.

Fortnam, M., Brown, K., Chaigneau, T., Crona, B., Daw, T., Gonçalves, D., Hicks, C., Revmatas, M., Sandbrook, C. and Schulte-Herbruggen, B. (2019). The gendered nature of ecosystem services. *Ecological Economics*, 159, pp.312-325.

Frumkin, H. (2003). Healthy places: Exploring the evidence. *American Journal of Public Health*, 93(9), pp.1451-1456.

Frumkin, H., Bratman, G., Breslow, S., Cochran, B., Kahn Jr, P., Lawler, J., Levin, P., Tandon, P., Varanasi, U., Wolf, K. and Wood, S. (2017). Nature contact and human health: a research agenda. *Environmental Health Perspectives*, 125(7), p.075001.

García☐Mira, R. and Eulogio Real, J. (2005). Environmental perception and cognitive maps. *International Journal of Psychology*, 40(1), pp.1-2.

Giorgi, A. (2009). *The descriptive phenomenological method in psychology*. Pittsburgh, Pa.: Duquesne University Press.

Giorgi, A. (2012). The descriptive phenomenological psychological method. *Journal of Phenomenological Psychology*, 43(1), pp.3-12.

Grahn, P. and Stigsdotter, U. (2010). The relation between perceived sensory dimensions of urban green space and stress restoration. *Landscape and Urban Planning*, 94(3-4), pp.264-275.

Grahn, P., Tenngart Ivarsson, C., Stigsdotter, U., and Bengtsson, A. (2010). Using affordances as a health-promoting tool in a therapeutic garden. In Ward Thompson C., Aspinall, P and Bell S., *Innovative approaches to researching landscape and health. Open Space: People Space 2* (pp. 116-154). New York: Routledge.

Greenberg Raanan, M. and Shoval, N. (2014). Mental maps compared to actual spatial behaviour using GPS data: a new method for investigating segregation in cities. *Cities*, 36, pp.28-40.

Haase, D., Kabisch, S., Haase, A et al. (2017). Greening cities – to be socially inclusive? About the alleged paradox of society and ecology in cities. *Habitat International*, 64, pp.41-48.

Haase, J. (2016). Emotions in an Urban Environment: Embellishing the cities from the perspectives of humanities. In: W. Dietrich Sahr, ed., *Cities and Fascination: Beyond the Surplus of Meaning*. Routledge.

Hartig, T., Mitchell, R., de Vries, S. and Frumkin, H. (2014). Nature and Health. *Annual Review of Public Health*, 35(1), pp.207-228.

Hartig, T., van den Berg, A E. and Hagerhall, C M et al. (2011). Health benefits of nature experience: psychological, social and cultural processes. In: Nilsson et al. (eds) *Forest, Trees and Human health.* Springer, pp.127-167.

Hobsbawm, E. (1997). *The age of capital, 1848-1875*. London: Abacus.

Holman, D. and Walker, A. (2017). Social Quality and Health: Examining individual and neighbourhood contextual effects using a multilevel modelling approach. *Social Indicators Research*, 138(1), pp.245-270.

Urbanmind.info. (2019). *Home | Urban Mind*. [online] Available at:
https://www.urbanmind.info/ [Accessed 7 May 2019].

HuffPost. (2019). *This is the decade of cities*. [online] Available at:
    https://www.huffpost.com/entry/this-is-the-decade-of-
    cit_b_9596524?guccounter=1. [Accessed 6 May 2019].

Iaconesi, S. and Persico, O. (n.d.). *Digital urban acupuncture*.

Imani, F. and Tabaeian, M. (2012). Recreating mental image with the aid of cognitive
    maps and its role in environmental perception. *Procedia - Social and
    Behavioural Sciences*, 32, pp.53-62.

IPCC, 2018: Summary for policymakers. *World Meteorological Organization,
Geneva, Switzerland.*

Jennings, V., Larson, L., and Yun, J. (2016). Advancing sustainability through urban
    green space: Cultural ecosystem services, equity, and social determinants of
    health. *International Journal of Environmental Research and Public Health*,
    13(2), p.196.

Kaplan, R., and Kaplan, S. (1989). *The experience of nature: A psychological
perspective.* New York: University Press.

Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative
    framework. *Journal of Environmental Psychology*, 15(3), pp.169-182.

Kaplan, S. and Berman, M. (2010). Directed attention as a common resource for
executive functioning and self-regulation. *Perspectives on Psychological Scienc*e,
5(1), pp.43-57.

Kaźmierczak, A. (2013). The contribution of local parks to neighbourhood social
    ties. *Landscape and Urban Planning*, 109(1), pp.31-44.

Kent, J., Ma, L. and Mulley, C. (2017). The objective and perceived built
    environment: What matters for happiness? *Cities and Health*, 1(1), pp.59-71.

 Kimber, R. (1989). On democracy. *Scandinavian Political Studies*, 12(3), pp.199-
219.

Kuo F E. and Sullivan W C. (2001). Aggression and violence in the inner city: effects
of environment via mental fatigue. *Environment and Behaviour,* 33, pp.543–71.

Kuo F E. and Sullivan W C. (2001). Environment and crime in the inner city: Does
vegetation reduce crime? *Environment and Behaviour,* 33, pp.343–67.

Kuo FE., Sullivan WC., Coley R L and Brunson L. (1998). Fertile ground for
community: inner-city neighbourhood common spaces. *American Journal of
Community Psychology*, 26, pp. 823-51.

Kyttä, M., Broberg, A., Haybatollahi, M. and Schmidt-Thomé, K. (2015). Urban
    happiness: context-sensitive study of the social sustainability of urban
    settings. *Environment and Planning B: Planning and Design*, 43(1), pp.34-57.

Lakes, T., Brückner, M. and Krämer, A. (2013). Development of an environmental justice index to determine socio-economic disparities of noise pollution and green space in residential areas in Berlin. *Journal of Environmental Planning and Management*, 57(4), pp.538-556.

Lammers, B. (2005). The Birth of the East Ender: Neighbourhood and local identity in interwar East London. *Journal of Social History*, 39(2), pp.331-344.

Lederman, D., Loayza, N. and Menéndez, A. (2002). Violent crime: does social capital matter?. *Economic Development and Cultural Change*, 50(3), pp.509-539.

Lefebvre, H. and Nicholson-Smith, D. (2009). *The production of space*. Malden, MA: Blackwell.

Lengen, C. and Kistemann, T. (2012). Sense of place and place identity: Review of neuroscientific evidence. *Health and Place*, 18(5), pp.1162-1171.

Lewicka, M. (2010). What makes neighbourhood different from home and city? Effects of place scale on place attachment. *Journal of Environmental Psychology*, 30(1), pp.35-51.

Lewicka, M. (2013). In searcb of roots: memory as enabler of place attachment. In: Manzo, L and Devine-Wright, P. (eds) *Place attachment: Advances in theory, methods and applications*. Taylor and Francis, pp.49-60.

Lewis, S. and Maslin, M. (2018). The human planet. UK: Penguin.

Lloyd, R., Golledge, R. and Stimson, R. (1998). Spatial behaviour: A geographic perspective. *Economic Geography*, 74(1), p.83.

Lo, A. and Jim, C. (2010). Differential community effects on perception and use of urban greenspaces. *Cities*, 27(6), pp.430-442.

London Infrastructure Plan 2050. (2015). Greater London Authority.

Lopez-Fernandez, O. and Molina-Azorin, J. (2011). The use of mixed methods research in the field of behavioural sciences. *Quality and Quantity*, 45(6), pp.1459-1472.

Maas, J., van Dillen, S., Verheij, R. and Groenewegen, P. (2009). Social contacts as a possible mechanism behind the relation between green space and health. *Health and Place*, 15(2), pp.586-595.

Maas J., Spreeuwenberg P., van Winsum-Westra M., Verheij RA., de Vries S., and Groenewegen P. (2009). Is green space in the living environment associated with people's feelings of social safety? *Environment and Planning. A* (41), pp.1763–77.

Maslow, A. (1943). A theory of human motivation. *Psychological Review*, 50(4), pp.370-396.

Mason, P. (2016). Post-capitalism: a guide to our future. Penguin.

Mazumdar, S., Learnihan, V., Cochrane, T. and Davey, R. (2017). The built environment and social capital: a systematic review. *Environment and Behaviour*, 50(2), pp.119-158.

Mertens, D. (2012). Transformative mixed methods. *American Behavioural Scientist*, 56(6), pp.802-813.

Mitchell, R. and Popham, F. (2008). Effect of exposure to natural environment on health inequalities: an observational population study. *The Lancet*, 372 (9650), pp.1655-1660.

Morgan, D. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry*, 20(8), pp.1045-1053.

Morrison, V. and Bennett, P. (2012). *An introduction to health psychology.* 3rd edition.

Mouratidis, K. (2018). Built environment and social wellbeing: how does urban form affect social life and personal relationships? *Cities*, 74, pp.7-20.

Murphy, K. (2012). The social pillar of sustainable development: a literature review and framework for policy analysis. *Sustainability: Science, Practice and Policy*, 8(1), pp.15-29.

Natural Capital: Investing in a green infrastructure for a future London. (2015). Greater London Authority.

NHS Long Term Plan. (2019). Department of Health.

Nilsson, K., De Vries, S., Gallis, C., Hartig, T., Sangster, M., Schipperijn, J. and Seeland, K. (2011). *Forests, trees and human health*. Dordrecht: Springer Science and Business Media B.V.

Ottoni, C., Sims-Gould, J., Winters, M., Heijnen, M. and McKay, H. (2016). "Benches become like porches": Built and social environment influences on older adults' experiences of mobility and wellbeing. *Social Science and Medicine*, 169, pp.33-41.

Panksepp, J. (2014). *Affective neuroscience*. Oxford [et al.]: Oxford University Press.

Parks and Open Spaces An open space strategy for the London Borough of Tower Hamlets 2017-2027. (2017). Tower Hamlets Council.

Polling, C., Khondoker, M., Hatch, S. and Hotopf, M. (2014). Influence of perceived and actual neighbourhood disorder on common mental illness. *Social Psychiatry and Psychiatric Epidemiology*, 49(6), pp.889-901.

Pol, E et al (2017). Quality of life and sustainability: The end of quality at any price. In: Fleury-Bahi, Pol, Enric, Navarro, Oscar (eds) *Handbook of Environmental Psychology and Quality of Life Research*. Switzerland, Springer International Publishing, pp. 11-39.

Poortinga, W. (2012). Community resilience and health: the role of bonding, bridging, and linking aspects of social capital. *Health and Place*, 18(2), pp.286-295.

Proshansky, H., Fabian, A. and Kaminoff, R. (1983). Place-identity: Physical world socialisation of the self. *Journal of Environmental Psychology*, 3(1), pp.57-83.

Putnam, R. (2001). *Bowling alone*. New York: Touchstone.

Richardson, E. and Mitchell, R. (2010). Gender differences in relationships between urban green space and health in the United Kingdom. *Social Science and Medicine*, 71(3), pp.568-575.

Richardson, E., Pearce, J., Shortt, N. and Mitchell, R. (2017). The role of public and private natural space in children's social, emotional and behavioural development in Scotland: a longitudinal study. *Environmental Research*, 158, pp.729-736.

Rimmer, A. (2018). RCGP calls for national campaign to tackle loneliness. *BMJ*, p.k2283.

Sampson, R. and Graif, C. (2009). Neighbourhood social capital as differential social organization. *American Behavioural Scientist*, 52 (11), pp.1579-1605.

Sanders, A., Lim, S. and Sohn, W. (2008). Resilience to urban poverty: theoretical and empirical considerations for population health. *American Journal of Public Health*, 98(6), pp.1101-1106.

Scannell, L. and Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology*, 30(1), pp.1-10.

Seamon, D. (2013). Place attachment and phenomenology: the synergistic dynamism of place*. In: Manzo, L and Devine-Wright, P.* (eds) Place attachment: advances in theory, methods and applications. Taylor and Francis, pp.11-22.

Semenza, J. and March, T. (2008). An urban community-based intervention to advance social interactions. *Environment and Behaviour*, 41(1), pp.22-42.

Sennett, R. (1994). *Flesh and stone*. New York: W.W. Norton.

Smith, J., Flowers, P. and Larkin, M. (2013). *Interpretative phenomenological analysis*. London: Sage.

Social capital across the UK: 2011 to 2012. (2016). Office of National Statistics.

Sonntag-Öström, E. (2014). Forest for Rest: Recovery from exhaustion disorder. Umeå: *Department of Public Health and Clinical Medicine, Occupational and Environmental Medicine.*

Sonntag-Öström, E., Nordin, M., Slunga Järvholm, L., Lundell, Y., Brännström, R. and Dolling, A. (2011). Can the boreal forest be used for rehabilitation and recovery from stress-related exhaustion? A pilot study. *Scandinavian Journal of Forest Research*, 26(3), pp.245-256.

Sousa, D. (2014). Validation in Qualitative Research: General Aspects and Specificities of the Descriptive Phenomenological Method. *Qualitative Research in Psychology*, 11(2), pp.211-227.

Stafford, M., Bartley, M., Mitchell, R. and Marmot, M. (2001). Characteristics of individuals and characteristics of areas: investigating their influence on health in the Whitehall II study. *Health and Place*, 7(2), pp.117-129.

Steg, L. (2013). *Environmental psychology: an introduction by Linda Steg, 1st edition*. [S. l.]: Cram101.

Stevenson, D. (2003). *Cities and urban cultures*. Maidenhead: Open University Press.

Tashakkori, A. and Teddlie, C. (2010). Putting the human back in ''human research methodology': the researcher in mixed methods Research. *Journal of Mixed Methods Research*, 4(4), pp.271-277.

Tashakkori, A. and Teddlie, C. (n.d.). *SAGE handbook of mixed methods in social and behavioural research*.

Teig, E., Amulya, J., Bardwell, L., Buchenau, M., Marshall, J. and Litt, J. (2009). Collective efficacy in Denver, Colorado: strengthening neighbourhoods and health through community gardens. *Health and Place*, 15(4), pp.1115-1122.

Thomas, J, (2009). The social environment of public transport, *Doctor of Philosophy in Psychology,* Victoria University of Wellington, New Zealand

Tornaghi, C. and Knierbein, S. (2015). *Public space and relational perspectives*. 1st ed. Abingdon: Routledge.

Tornaghi, C. (2015). The relational ontology of public space and action orientated pedagogy in action, dilemmas of professional ethics and social justice. In: Tornaghi, C. and Knierbein, S. (eds) *Public space and relational perspectives*. 1st ed. Abingdon: Routledge, pp. 17-41.

Tower Hamlets Strategic Plan 2016-19 Year 2- 2017-18 A place of opportunity. (2017). Tower Hamlets Council.

Trust for London. (2019). *Overview of London boroughs*. [online] Available at: https://www.trustforlondon.org.uk/data/boroughs/overview-of-london-boroughs/ [Accessed 6 May 2019].

Twigger-Ross, C., Bonaiuto, M., and Breakwell, G. (2003). Identity theories and environmental psychology. In M. Bonnes, T. Lee, and M. Bonaiuto (eds), *Psychological theories for environmental issues.* Aldershot: Ashgate, pp. 203-233.

Uchino, B., Cacioppo, J. and Kiecolt-Glaser, J. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, 119(3), pp.488-531.

Ujang, N. and Zakariya, K. (2015). The notion of place, place meaning and Identity in urban regeneration. *Procedia - Social and Behavioural Sciences*, 170, pp.709-717.

Uzzell, D., Pol, E. and Badenas, D. (2002). Place identification, social cohesion, and environmental sustainability. *Environment and Behaviour*, 34(1), pp.26-53.

Vallance, S., Perkins, H. C., and Dixon, J. E. (2011). What is social sustainability? A clarification of concepts. *Geoforum,* 42, 342–348.

Vemuri, A., Morgan Grove, J., Wilson, M. and Burch, W. (2009). A tale of two scales: evaluating the relationship among life satisfaction, social capital, income, and the natural environment at individual and neighbourhood levels in metropolitan Baltimore. *Environment and Behaviour*, 43(1), pp.3-25.

Ward Thompson, C., Aspinall, P., Roe, J., Robertson, L. and Miller, D. (2016). Mitigating stress and supporting health in deprived urban communities: The importance of green space and the social environment. *International Journal of Environmental Research and Public Health*, 13(4), p.440.

Watt, P. (2006). Respectability, Roughness and 'Race': Neighbourhood place images and the making of working-class social distinctions in London. *International Journal of Urban and Regional Research*, 30(4), pp.776-797.

Who.int. (2019). *Constitution*. [online] Available at: https://www.who.int/about/who-we-are/constitution [Accessed 6 May 2019].

Who.int. (2019). *Non-communicable diseases*. [online] Available at: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases [Accessed 6 May 2019].

Who.int. (2019). *WHO | Urban population growth*. [online] Available at: https://www.who.int/gho/urban_health/situation_trends/urban_population_growth_text/en/ [Accessed 6 May 2019].

Wilkinson, R., Pickett, K. and Wilkinson, R. (2018). *The inner level*. Penguin.

Wilton, R. (1998). The constitution of difference: Space and psyche in landscapes of exclusion. *Geoforum*, 29(2), pp.173-185.

Wood, L. and Giles-Corti, B. (2008). Is there a place for social capital in the psychology of health and place?. *Journal of Environmental Psychology*, 28(2), pp.154-163.

Wood, L., Shannon, T., Bulsara, M., Pikora, T., McCormack, G. and Giles-Corti, B. (2008). The anatomy of the safe and social suburb: An exploratory study of the built environment, social capital and residents' perceptions of safety. *Health and Place*, 14(1), pp.15-31.

World Cities Report: Urbanization and development Emerging Futures. (2016).

10 Appendices

Appendix 10.1 Urban Mind Tower Hamlets research

Phytology

Phytology is on the site of Bethnal Green Nature Reserve, which is an art led project exploring the function and value of the modern urban landscape, established and led by local artist Michael Smythe and the board of trustees. It is on the site that was formally St Jude's church before it was bombed in the Second World War. Since then, local citizens in partnership with the tenant association attached to the nature reserve have protected the land from development, including the threat of it being turned into a car park by the local council. In 2014, Phytology established a medicine garden for local education and medicine harvesting. The Phytology medicinal garden provides free food and medicine for the local community and commission's artists, writers and researchers in action based work. The project can also be considered a citizen led social and environmental reform movement, challenging current society models through supportive relationships with local landscape and society. Now in its sixth year of a ten-year plan, which is the foundation for a 100-year plan, Phytology is exploring ways the project and land can be managed collectively by the community to remain a community asset.

Descriptive statistics and summary findings from Urban Mind quantitative app data (April 2018-November 2018)

As part of the larger Urban Mind project, there is also a transformative element to drive positive societal and political change (Mertens, 2012). In this study the analysis will not adopt one political agenda in its interpretation i.e. a Marxist or feminist approach. However interpretation does aim to understand issues of London residents from their individual perspective to help identify broader issues of disenfranchisement, empowerment and inequality in context of social sustainability.

Results will be shared with engaged community groups, and suitable social activities will be explored to help aid community action such as a wellbeing walk based on appropriate findings and informing a relational toolkit for Urban Mind but this will not form part of this master's project. As part of a place based Urban Mind Tower Hamlets social wellbeing research project, preliminary quantitative data exploring

social wellbeing using the Urban Mind app data has been captured in the Tower Hamlets locality from April – November 2018. The Urban Mind quantitative analysis is unpublished and has been conducted by Lucie Burgess, PhD candidate at Kings College London (KCL).

See appendix 10.3 for the overview of the study design, which frames how the quantitative variables are associated with domains of social capital.

Population sample	Number = n
Participants	
Number of participants	n=42
Age (16-57)	mean = 34.64
Gender	
Female	26 (62%)
Male	14 (33%)
Other	2 (5%)
Momentary observations in Tower Hamlets	176
Ethnicity	
Caucasian	126
Asian East Asian (5) South Asian (32)	37
Other Mixed (7) Middle Eastern (1) Caribbean (1) Other (4)	13
Type of habitat	
Large city	171
Town	5
Education	
University	155
Less than high school	2
Apprenticeship	19
Occupation	
Employed	128
Retired	5
Self-employed	34
Student	9

Who do you live with?	
Acquaintances	11
Alone	27
Family	107
Friends	16
None of the above	11
Strangers	4

Table 2: Quantitative data, Urban Mind Tower Hamlets population sample

Variables for quantitative analysis

Variable	Urban Mind app questions Y=Yes, N=No *Not sure answers included as No*
Dependent variables: Social wellbeing outcomes	
Social cohesion topics	Do you feel welcome amongst them? Y/N
	Do you feel they would be willing to help you? Y/N
	Do you feel they have the same values? Y/N
Mental wellbeing	Right now I feel connected with other people (rate 1-5) Y/N
Confounders	
Independent variables	Age, ethnicity and gender
Quality of environment	
Nature	Can you see plants right now? Y/N
	Can you see trees right now? Y/N
	Can you see the sky right now? Y/N
	Can you see water right now? Y/N
	Can you see or hear birds right now? Y/N
Deprivation	Is it clean and well looked after? Y/N
	Are there derelict buildings? Y/N
Safety	Do you feel safe here during the day? Y/N
	Do you feel safe here during the night? Y/N
Indoor and outdoor observations	

Momentary location	Are you indoors or outdoors?
	Where are you exactly?
	(1) Home
	(2) Workplace
	- *school / university*
	(3) Public place
	- *street/square/garden/park*
	- *sea/lake/river*
	(4) Public transport
	(5) Other
Momentary company	Who is with you right now?
	(1) No-one
	(2) Family/partner
	(3) Classmates/co-workers
	(4) Strangers
	(5) Friends
	- *pet*
	- *other*

Table 3: Quantitative variables from the Urban Mind app

Location of Urban Mind momentary assessments

The Urban Mind subjective momentary assessments provide a spatial micro-history, which provides context for the localised research in Bethnal Green. The below figures 1 – 4, illustrate the deprivation characteristics in the area of focus for the study with the objective data from English Indices of Deprivation 2015 (English Indices of Deprivation 2015, 2016). The area is highly deprived, particularly regarding a high level of recorded crime and a low-quality outdoor environment.

Plot of London boroughs and Tower Hamlets with Tower Hamlets Urban Mind points overlaid

Study area: Tower Hamlets

Source: Urban Mind project and London datastore
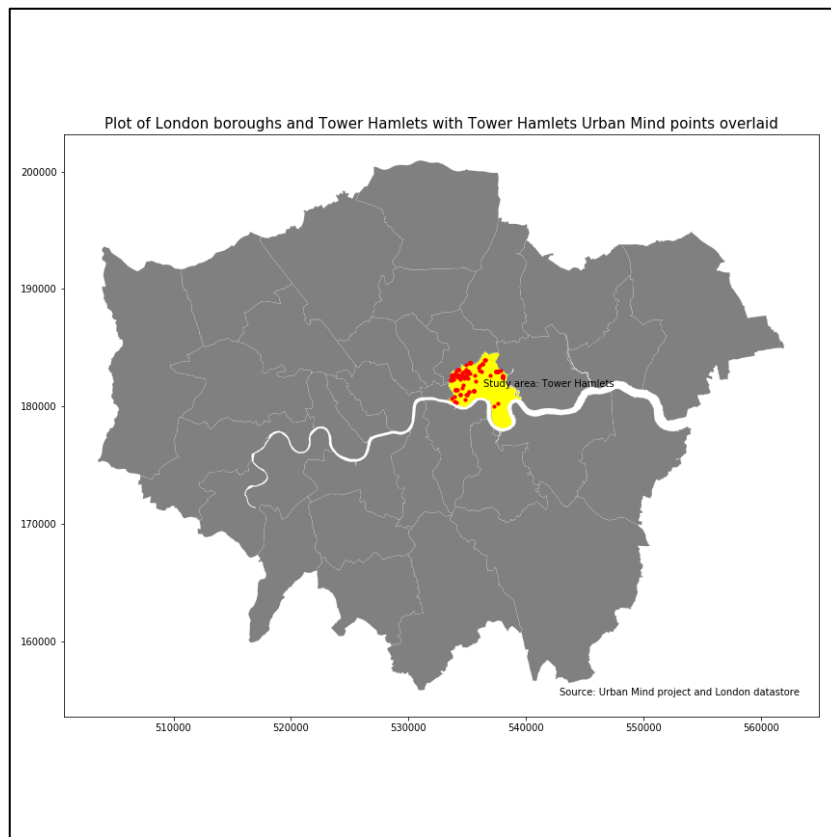
Figure 4: EMAs in Tower Hamlets (April-November 2018)
A map to show the location of the 176 EMA points from 42 participants that were recorded in the London borough of Tower Hamlets concentrated in the North West of the borough where Bethnal Green is located and Phytology is situated.

Tower Hamlets - Index of Multiple Deprivation 2015 by decile, with Urban Mind points overlaid, February 2019

7.30 - 17.35
17.35 - 23.46
23.46 - 30.08
30.08 - 33.42
33.42 - 37.60
37.60 - 40.98
40.98 - 42.97
42.97 - 45.88
45.88 - 48.79
48.79 - 58.30

Source: London DataStore and Urban Mind project
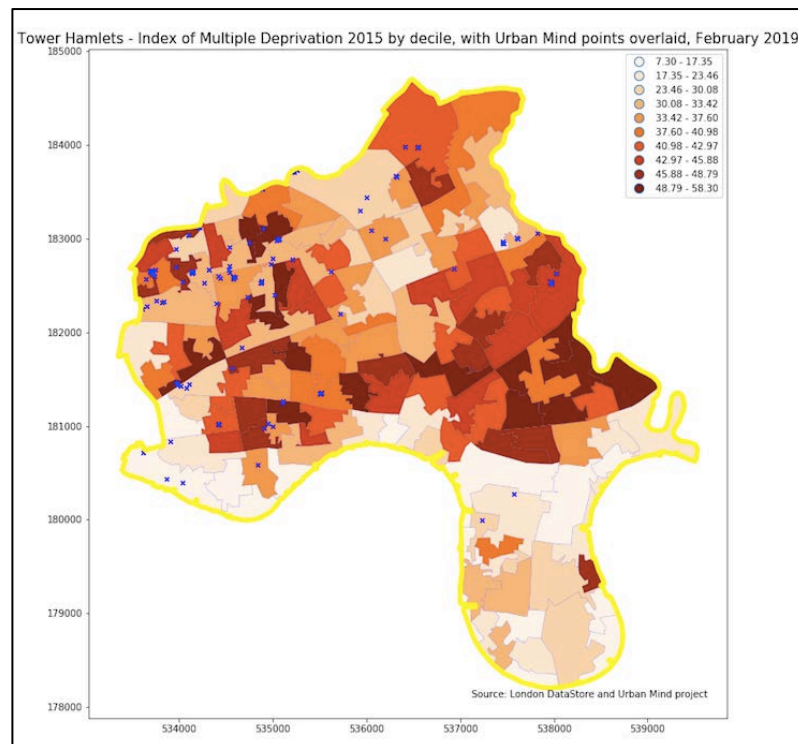
Figure 5: EMAs in Tower Hamlets and the index of multiple deprivation
The index of multiple combines seven aspects of deprivation which are income, employment, education, health, crime, barriers to housing and living environment. The below map shows that some of the highest areas of deprivation are located in the North West of the borough where the majority of the UM assessments were plotted.
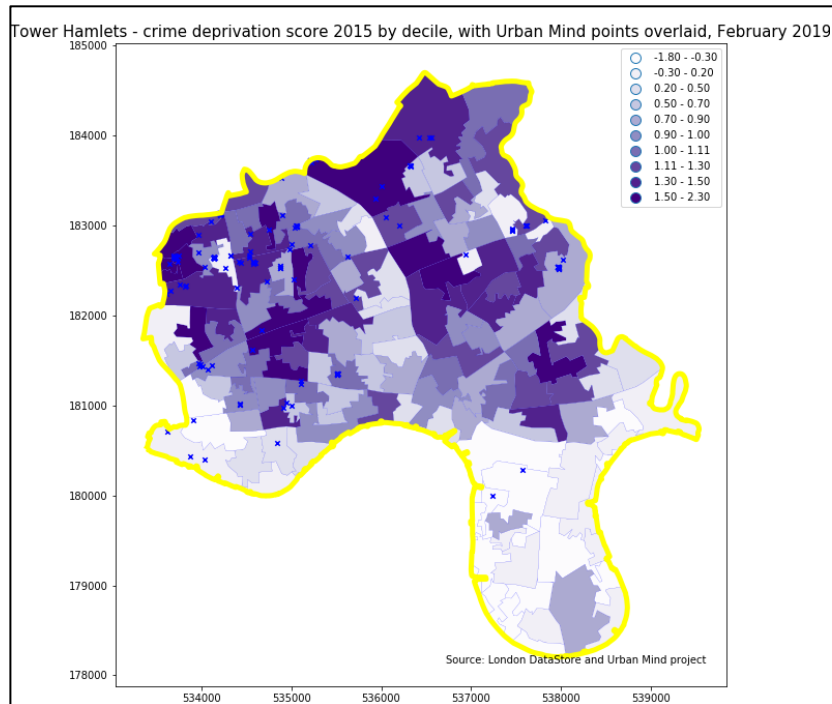
Figure 6: EMAs in Tower Hamlets and the index of deprivation for crime
The index of deprivation for crime categorises four broad categories of burglary, theft, criminal damage and violence. From the 12 identified areas with the greatest crime deprivation, 11 of them are located in the north of the borough suggesting there is a clear divide within the borough in terms of recorded crime which may impact perceptions of safety experienced

88
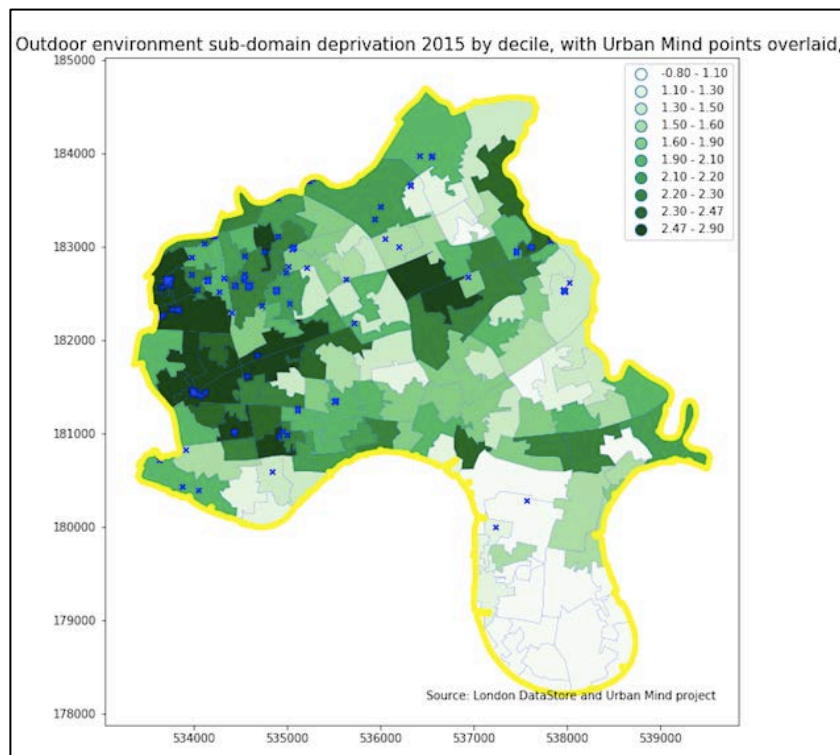
Figure 7: EMAs in Tower Hamlets and the index of deprivation for outdoor environment
The index of deprivation for outdoor environment measures the outdoor living environment by air quality and injuries from road accidents. The greatest areas of deprivation for the outdoor environment are located in the North West of the borough where the majority of the Urban Mind assessments were recorded suggesting objectively there is a poorer quality of outdoor environment compared to the rest of the borough.

Correlation matrix

P-values of statistically significant correlation coefficients
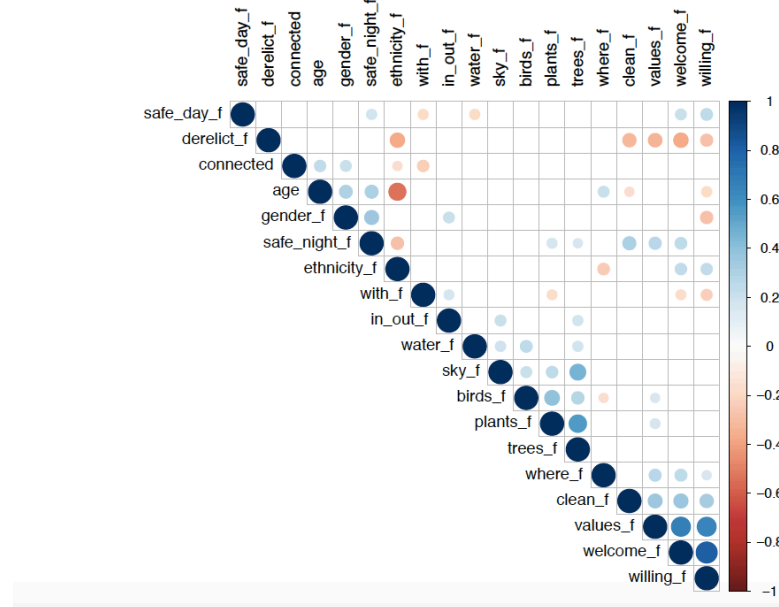
Figure 8: A correlogram to show the associations between self-reported variables relating to the social environment and the quality of the environment from a population sample in Tower Hamlets who participated from April 2018-November 2018

Key findings show variables of interest for further investigation with a multi-level regression model:

- Perceived evaluations of the social environment are statistically significantly associated with the perceived quality of environment
  - Perceptions of the social environment (*values, willingness to help and feeling welcome*) is positively associated with perceptions of a clean environment
  - Perceptions of feeling safe at night is positively associated with perceptions of a clean environment
  - Perceptions of social environment (*values, willingness to help and feeling welcome*) negatively associated with perceptions of a derelict environment

89

- Perceived evaluations of the social environment is statistically significantly positively associated with the perceptions of safety
  - Perceptions of shared values and feeling welcome with others is positively associated with feeling safe at night
  - Perceptions of feeling welcome and a willingness to help others is positively associated with feeling safe in the day
- Perceived evaluations of the social environment and safety at night is statistically significantly positively associated with the natural features in the environment
  - Perceptions of feeling safe at night is positively associated with seeing plants and trees
  - Perceptions of shared values is positively associated with seeing plants

Multi-level regression analysis

A multi-level regression was completed for variables to explore the predictive associations. The result of the qualitative research has informed sorting of the quantitative data. As the quantitative data analysis is not part of this master's project, the data has been evaluated for the discussion only. I hope to conduct further analysis with the Urban Mind team to explore the quantitative data further, appropriate presentation of the results and consider how the data could be integrated as part of a mixed methods study. Social capital domains structured the overall study design so when evaluating the quantitative data this has informed how the variables are grouped as outcome variables in relation to the independent variables of the quality of the environment. As the qualitative results showed the relevance of place attachment as a higher order concept in the IPA analysis, the variables have been divided up to associate with the formation of *place* and psychological *process* that influence formation of emotional bonds in place at a collective level which represent perceived and conceived social spaces.

Social capital domain	(P-value and correlation coefficients)										
	Quality of environment			Safety		Momentary location			Momentary company		
	Plants	Trees	Clean	Day	Night	Public space	Public transport	Outdoors	Family/partner	Friends/other/pet	Strangers
Belonging											
Place											
Feeling welcome	*P=0.014 (1.82)*										
Feeling connected									*P=0.018 (0.57)*	*P=0.001 (1.05)*	
Process											
Feeling welcome				*P=0.009 (6.18)*	*P=0.001 (4.33)*			*P=0.018*			
Feeling connected						*P=0.006 (0.48)*	*P=0.006 (-0.96)*				

Supportive networks								
Place								
Willingness to help	*P=0.007* (1.88)	*P=0.032* (1.18)						*P=0.004* (-4.57)
Process								
Willingness to help			*P=0.007* (2.19)	*P=0.002* (5.32)	*P=0.001* (3.46)	*P=0.002* (-4.73)		
Collective norms and values								
Place								
Shared values	*P=0.013* (1.48)							
Process								
Shared values					*P=0.002* (2.35)	*P=0.29* (-3.51)	*P=0.018* (-1.57)	

Table 4: A table showing the predictive associations between self-reported variables relating to the social environment and the quality of the environment from the population sample in Tower Hamlets who participated from April 2018-November 2018.

*Lucie Burgess, PhD candidate at KCL, conducted a multi-level random effects regression model
* In a multi-level random effects regression model, the correlation coefficient represents the intercept deviation between x and y for the line of best fit
*Potential confounders controlled for in all results include age, ethnicity and gender
* Three domains of social capital (Belonging, supportive networks and collective norms and values) one domain of social capital (safety) are represented in the findings
*The findings are categorised by two domains of the tripartite model of place attachment (Process and Place) as outlined in the higher order concept that emerged from the qualitative analysis.
*The findings are specific to data captured in the Tower Hamlets radius between April 2018 – November 2018

Summary statements

Place

- **In Tower Hamlets, the likelihood that positive perceptions of the social environment are formed is statistically significantly correlated with seeing plants, trees and being with familiar social networks**
  The likelihood of viewing your social environment positively is more likely when seeing plants, trees and being with people you know.

- The likelihood of perceiving a sense of belonging in place has a statistically significant positive association with seeing plants or being with people or pets you know
  - Likely to feel welcome if you can see plants
  - Borderline result: More likely to feel connected with others if you can see plants, p=0.065
  - Likely to feel connected with others if with family, partner, friends/pet
- The likelihood of perceiving supportive networks in place is statistically significantly positively associated with seeing plants and trees and negatively associated if with strangers
  - Likely to feel people willing to help you if you can see plants and trees
  - Less like to feel people are willing to help you when you with strangers
- The likelihood of perceiving shared values with others is statistically significantly positively associated with seeing plants
  - Likely to feel that you have shared values with others if you can see plants

Process

- **In Tower Hamlets, the likelihood that positive perceptions of social capital are formed is statistically significantly positively correlated with feeling safe in the day and at night**
  The likelihood of viewing your social environment positively is likely when feeling safe in the day and at night
  - The likelihood of perceiving a sense of belonging is statistically significantly positively associated with the experience of safety in day and night
    - Likely to feel welcome if feel safe at night in the day
  - The likelihood of perceiving collective norms and values is statistically significantly positively associated with experience of safety at night and in the day
    - Likely to feel you have shared values with others if you feel safe at night
    - Borderline result: Likely to feel you have shared values with others if you feel safe in day, p=0.1
  - The likelihood of perceiving supportive networks in place is statistically significantly positively associated with feeling safe at night and in the day
    - Likely to feel that people are willing to help you if feel safe in the day and at night

- **In Tower Hamlets, the likelihood that positive perceptions of social capital are formed is statistically significantly positively correlated with viewing the environment as being clean**
  The likelihood of viewing your social environment positively is more likely to be associated when in clean surroundings
  - The likelihood of perceiving supportive networks in place is statistically significantly positively associated with perception of the environment being clean
    - Likely to feel people are willing to help you if the environment is clean

- **In Tower Hamlets, the likelihood that positive perceptions of social capital are formed is statistically significantly negatively correlated with being on public transport**
  The likelihood of viewing your social environment positively is unlikely when you are on public transport
  - The likelihood of perceiving a sense of belonging is statistically significantly negatively associated with being on public transport
    - Unlikely to feel connected with others and welcome if you are on public transport
  - The likelihood of perceiving supportive networks is statistically significantly negatively associated with being on public transport
    - Unlikely to feel that people will help you if you are on public transport

- **In Tower Hamlets, the likelihood that feeling connected with others in the neighbourhood is statistically significantly positively correlated with being in a public space**
  The likelihood of feeling connected with others is likely when in a public space
  - The likelihood of perceiving a sense of belonging is statistically significantly positively associated with being in a public space
    - Unlikely to feel connected with others when in a public space

- **In Tower Hamlets, the likelihood that collective norms and values are perceived with others is statistically significantly negatively correlated with being in the outdoor environment**
  The likelihood of feeling that you have shared values with others is unlikely when in the outdoor environment
  - The likelihood of perceiving collective norms and values is statistically significantly negatively associated with being outdoors in urban environment
    - Unlikely to feel that you have shared values with others when in the outdoor urban environment

Appendix 10.2 PICOT criterion

The key literature searches were conducted via the SLU library tool 'Primo'. The journals included in the literature review reflect the interdisciplinary nature of the research problem. The following criteria were considered as a starting point to explore the literature topics using the PICOTS *(Population, intervention, comparator, outcome, timeframe and setting)* criterion. The literature review was planned when the study was going to include the quantitative data as well as the qualitative data as part of a mixed methods study to explore social sustainability and quality of outdoor environment.

PICOT criterion	Inclusion criterion	Potential bias in selecting studies for review	Possible biased result
Population	Urban residents	As the research will be conducted in a large city and in an area with high deprivation, the size of city the research was conducted is important as it reflects density. Therefore, studies with urban landform and density that is not comparable to London will be excluded.	The quality of the urban form infrastructure, density of city location and mix of socio-economic groups. Higher level of deprivation is likely to mean lower perceived aesthetic quality of the area. The country the city is located in and government policy and investment type may cause different perceptions of a 'deprived neighbourhood' due to societal political and social norms.
Intervention	Urban form, urban nature, urban green space	Quality and type of urban nature is likely to bias the study and time spent in certain urban environments.	The type of nature participants has access to is important to note. Studies selected should focus on garden and parks and urban water areas such as canals, which are likely to be consistent with other areas in London.
		The individual's current state of health and perception of social inclusion, socio-demographic background, cultural background, length of residence and perceptions of place is also likely to impact the findings of studies.	The study will be conducted with a 'healthy population' not clinical, but there are likely to be a range of health statuses amongst participants involved. Therefore, studies selected can encompass healthy and 'unhealthy' populations.
Comparator	Quality of urban outdoor environments	Perception of urban aesthetics (clean, derelict and safety).	The concepts of quality are likely to be related to deprivation in the literature. The country the city is located in and government responsibility for investment in the area, which may contrast different experiences of living in a 'deprived neighbourhood'.
	Exposure to nature in urban parks and gardens	Type of urban nature	The type of nature participants has access to is important to note. Studies selected should focus on garden and parks and urban water areas such as canals, which are likely to be consistent with other areas in London.
		Frequency and time in urban nature	Structured time in urban nature as part of a 'prescribed programme' is likely to bias results rather than an individual's choice in day-to-day life.

Outcome	Social sustainability	Different concepts of social sustainability and measured outcomes	After primary searches the most prevalent terms that relate to social outcomes are: Social capital Social cohesion Social quality Study outcomes are not comparable but will convey a perspective on what has been successfully or unsuccessfully measured.
Timeframe	Published in last 20 years (> 1998)	Allows for short term and long-term outcome studies to be selected, to allow for some studies that are informed by longer established environmental psychology theories and social psychology	
Setting		Excludes studies conducted in virtual environment where it is more possible to control variables	Lack of controlled variables weakens evidence to isolate impact of variables
	Qualitative and observational >50 participants for quantitative > 2 participant for qualitative		Exclusion of small studies may exclude valuable information and introduce bias by excluding studies conducted by non-academic institutions

Appendix 10.3 Study design

Convergent mixed methods study design and positioning of qualitative research
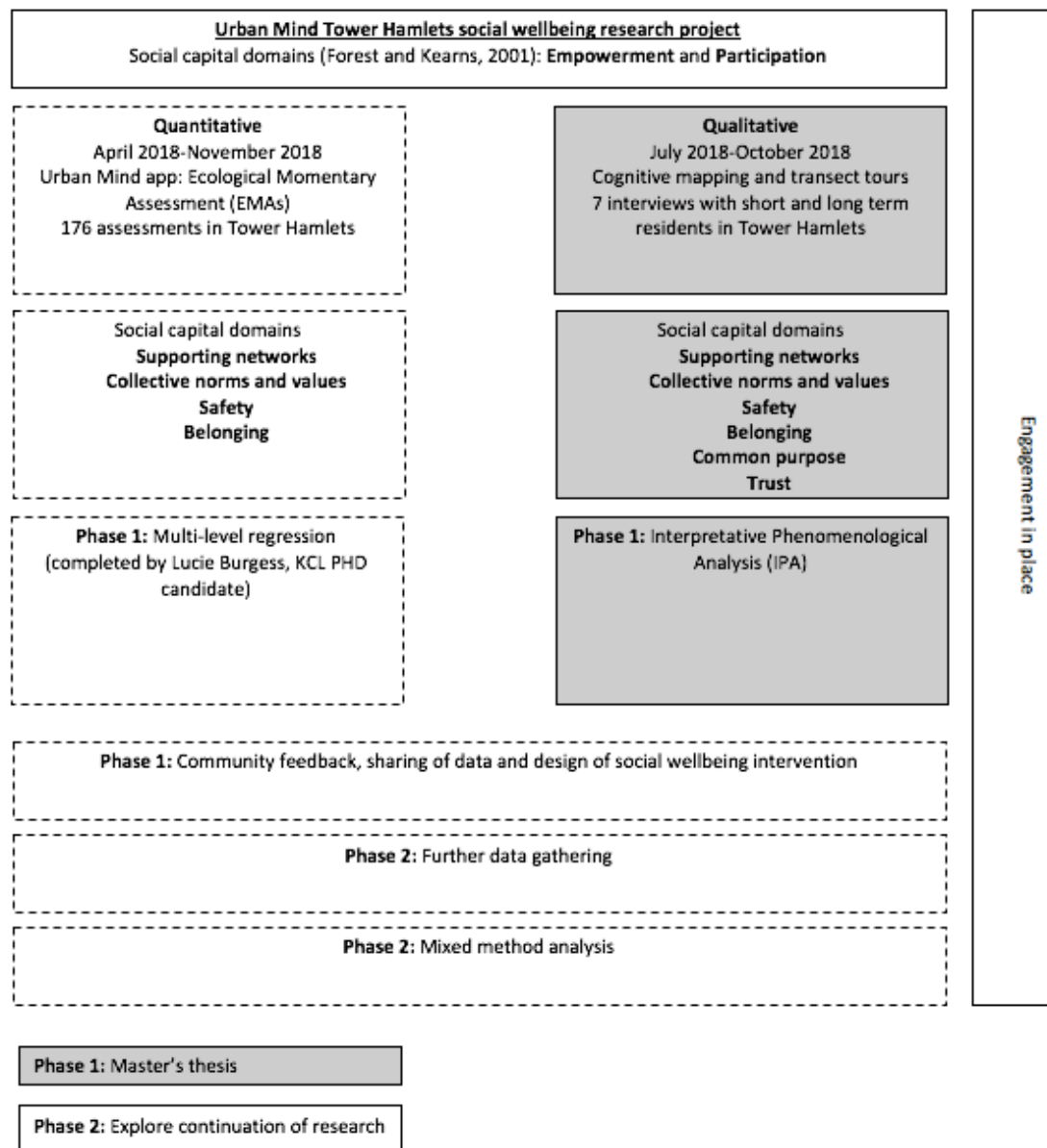
Figure 9: Urban Mind Tower Hamlets social wellbeing research design

The study design initially has been considered based on a convergent mixed method design to allow for both qualitative and qualitative data collection as part of Urban Mind Tower Hamlets social wellbeing research project. This thesis focuses on the qualitative analysis, which is supported by the quantitative data in the discussion. I

would like to explore completing a full mixed methods analysis at a later phase. As discussed in the methodology chapter the design has been structured by Forrest and Kearns (2001) proposed domains of social capital domains to influence the formation of local policy. The domains of empowerment and participation are addressed through using the Urban Mind app and approach to engaging local citizens in a research project to influence planning of places.

Social capital domains captured by the Urban Mind app by understanding the subjective experience of the social environment are:

- **Supporting networks** (*Thinking about the people in the neighbourhood you are in – do you feel they would be willing to help you*)?
- **Collective norms and values** (*Thinking about the people in the neighbourhood you are in - do you feel they have the same values as you*)?
- **Safety** (*Do you feel safe here in the day/at night*)?
- **Belonging** (*Thinking about the people in the neighbourhood you are in – do you feel welcome amongst them)? (Right now I feel connected with other people*).

The qualitative method has been designed to build on the quantitative elements listed above and covers the additional areas:

- **Common purpose**
- **Trust**

Appendix 10.4 SLU Qualitative data privacy policy

The below privacy policy document shows what each participant signed as part of the qualitative interview process. The project is now referred to as a social wellbeing project rather than community to be reflective of social behaviours in place rather than suggesting place-based experiences are related to residents only.

Department of Work Science, Business Economics and Environmental Psychology

Data controller
The Swedish University of Agricultural Sciences (SLU) is the data controller for the processing of your personal data. Your contact for this processing is: Hannah Arnett, MSc Outdoor Environments for Health and Wellbeing, hhar0001@stud.slu.se or 07837429514.

The data protection officer at SLU can be reached at dataskydd@slu.se or by phone at +4618-67 20 90.
Purpose
The research aims to help improve the development of healthy and inclusive cities and gain a better understanding of the social environment experienced by residents in Tower Hamlets. The research is being conducted with Phytology, Bethnal Green nature reserve and is part of Hannah Arnett's MSc in Outdoor Environments for Health and Wellbeing with SLU.

In order to conduct the research, we need to collect personal data from the residents of Tower Hamlets regarding their perceptions and experience of their social environment. Some of the information discussed in the interviews may be considered personal sensitive data. The data will be collected for the following purposes:

1. To analyse the interviews as part of a qualitative method and mixed methods analysis to inform the results and discussion for an MSc thesis. The results will also be compared against anonymised findings from Urban Mind app data in the Tower Hamlets borough.
2. The summary of key findings and themes will be provided to community groups interested in the research project and presented in any relevant community discussions. All the findings will be anonymised and not directly related to you as an individual.
3. Following the completion of research and analysis, third parties may request the data to inform further research in the spirit of open science. The data will only be shared if the third party continues the research to benefit community needs. The data shared will be anonymised and therefore cannot be connected to you as an individual.

SLU will also process your personal data as required for SLU to comply with regulations on public documents and the archives of public authorities.

Legal basis
SLU processes your data only after you've given your informed consent to the data processing. If you'd like to withdraw your consent, contact Hannah Arnett.
Categories of personal data and sources
In 1-1 interviews, data will be collected with regards to your perceptions about:

- Your neighbourhood and sense of belonging
- Trust and safety in your area
- Your views, thoughts and feelings with regards to social norms, social networks and common purpose
- Types of outdoor environments and social inclusion
- Green spaces and the neighbourhood

In discussions, you may disclose personal sensitive data. Personal sensitive data is considered to be:

- Racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person's sex life or sexual orientation

Disclosure of public information
In accordance with Swedish law on freedom of public information, SLU may disclose your personal data to anyone who requests a public document that includes your data, unless they are subject to non-disclosure according to Swedish law.

International transfer of personal data
The data will be transferred to SLU, a university based in Sweden, and all necessary steps will be taken to ensure the security of your data in line with university, national and EU GDPR data regulations and policy.

Storing data
The data will be stored on Hannah Arnett's laptop and transcripts and analysis will form part of her MSc thesis in Outdoor Environments for Health and Wellbeing. The data will be stored for the completion of her MSc (by January 2019) and then the need to keep the data will be reviewed dependent on whether the information is useful to community partners involved.

Your personal data will also be stored for as long as required by the Public Access to Information Act and the regulations on the archives of public authorities.

Obligation to provide personal data, your rights and withdrawing consent
For SLU to be able to include the data as part of the Tower Hamlets community wellbeing project, we need to process your personal data.

Participation in the research is voluntary, and you may withdraw from the process at any time.

You have the right, under certain circumstances, to have your personal data erased, corrected or limited. You also have the right of access to the personal data being processed, and you have the right to object to the processing of your data.

You may contact Hannah Arnett directly regarding any questions or to withdraw from the research:
hhar0001@stud.slu.se

Should you wish to lodge any complaints with the data protection authorities then you may do so with the following organisations:
UK
Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF
casework@ico.org.uk.
0303 123 1113

Sweden
Datainspektionen
Box 8114
104 20 Stockholm
datainspektionen@datainspektionen.se,
+468 657 61 00
Comments
If you have any comments on the processing of personal data at SLU, contact the Privacy and Data Protection Function at dataskydd@slu.se, 018-67 20 90.
If you are not happy with the answer provided by SLU, you can take your complaint to the Swedish Data Protection Authority, datainspektionen@datainspektionen.se or 08-657 61 00.

Read more about the Data Protection Authority at
hhttps://www.datainspektionen.se/other-lang/in-english/

By signing the privacy policy you agree to the following:

1) I agree to participate in the Tower Hamlets community wellbeing project as outlined in the above document which may include personal sensitive data

Signed: Date:

Appendix 10.5 Qualitative discussion guide

Community objective:

To explore how community knowledge of the local area can help shape a healthy and inclusive borough

Community format:

1. **Drawing activity:** To explore the social environment in Tower Hamlets
2. **Walking and talking activity:** To explore a day to day walking route in Tower Hamlets and the social interactions

Qualitative discussion guide

Part 1: 30mins

Intro question:

Tell me a bit about your life in the Tower Hamlets neighbourhood (as a resident or location of work)

Cognitive mapping

Living in Tower Hamlets and a sense of belonging

Provide a blank piece of A4 paper.

1. Please make a very simple drawing of your neighbourhood in Tower Hamlets
2. Draw the outdoor areas where you feel most welcome *(in orange)*
   - Include 2-3 words to describe the emotions you feel
3. Draw the outdoor areas where you feel least welcome *(in green)*
   - Include 2- 3 words to describe the emotions you feel

Trust and safety

Provide an outline A3 map of Tower Hamlets and tracing paper.

1. Identify/annotate positive and negative feelings of trust in Tower Hamlets
   - Use colours to identify positive *(in blue)* and negative *(in red)* feelings and use words if you wish
2. Identify/annotate positive and negative feelings of safety in Tower Hamlets
   - Use colours to identify positive *(in brown)* and negative *(in pink)* feelings and use words if you wish

Describe any particular aspects that are important to you in the drawings and maps.

Part 2: Transect tour and semi-structured interview 45mins

Choose a 30-minute route in the outdoor environment, which is part of your day-to-day life in Tower Hamlets, and related to areas described in the first activity. Describe your experiences along the route. I will also ask some questions regarding the social environment.

To provide a map if needed.

- *What places and routes they take within designated area*
- *What they focus on during the route*
- *How they use places along the way*
- *When/whom they use places along the way*
- *How they name and describe places*
- *Perceptions of boundaries within their neighbourhood*
- *How they make use of their immediate surroundings*
- *Reflections with regards to social capital*

Part 3: Semi-structured interview during the walk

Question	Aim	Comment
Reflections from the walk		
Explore any key themes identified in the walk and maps	Probe further to gain understanding	
Collective norms, supporting networks and common purpose		
What values are shared in Tower Hamlets?	Probe further around perceptions of values in neighbourhood	
What values are not shared in Tower Hamlets? Tell me about feelings (positive or negative) of community in Tower Hamlets.	Explore feelings towards the community social network in the local area and how this is experienced	
What role does the network/community play in your day-to-day life?		

Tell me about any situations where you feel you have experienced working towards a shared goal in Tower Hamlets?

Explore how a sense of common purpose is experienced in the neighbourhood

How often do you feel a shared goal is experienced in Tower Hamlets?

Types of outdoor environments and social inclusion

You mentioned that you felt welcome in XX, why do you think this is?

You mentioned that you felt safer in XX, why do you think this is?

Green space in Tower Hamlets

What green spaces do you use in Tower Hamlets and Bethnal Green?

How are these used as part of your day-to-day life?

How does the wider neighbourhood use these spaces?

Appendix 10.6 IPA summary of core themes

Phase one analysis

The table screenshots below shows an example of the analysis method for an individual used in phase one and demonstrates the process used for each person involved.

The first table shows the full transcript with relevant text highlighted for analysis and descriptive comments in the right hand column that reflect descriptive essence of whole text. This process prepared the text for further analysis as meaning units.

R: What features are important to you to feel like you have that peace of mind? C: I feel, when I was talking to my boyfriend about it, about how would the ideal home would look like, and what you would see and what you would feel, what would it have close by, and I think seeing something green on the windows, through the windows is really important to me, seeing just a tree or a plant or something green, and the sky (long pause) is really really important to me. Just to feel connected with I don't know, not with a plant as that sounds a bit cheesy but to feel connected to the environment around you, and not in a box, seeing another box or seeing a wall or seeing yeah, think that is very important, and I think just being close to a park or a water (pause) being close to nature (laughter)! R: What sort of environments do you feel you are more closely connected to people in a positive way?	In nature she can find personal space to relax Importance of connection to nature to feel homely both indoors and outdoors

C: Hmm – well it has to go against the public spaces – I think it's hard I mean connected to people (pause) – connected to people I feel at work, connected to other people in my day to day life…I don't know social interactions that are with with the same people which give you a bit of ease, but otherwise, has to be where people come together to enjoy a similar thing like concert or I don't know, maybe at a concert where you all sing along to it, I would feel connected to that , it happened at multiple concerts and I would have that feeling of being connected to a bigger thing with a community of people whatever but otherwise, I wouldn't say that I feel that connection in my day to day life..which is a shame. R: Are there any other situations where you have been in the outdoors that you feel like you have a shared goal with the people around you or a shared values? C: A flea market of sorts or a food market, that could be something, but otherwise I'm thinking particularly of London and my time here in Tower Hamlets, I don't feel yeah like Broadway market, Victoria market, being at a market, where this a lot of people enjoying foods and drinks…whatever, yeah, outdoors, not that I can think of, maybe like marathons or something but as you know I'm not part of that (laughter). R: So in your day to day life how often do you feel that in TH, that kind of shared? C: I feel it in work everyday, we are very similar as a team we share a lot of similar values and lifestyles and all that, so that's good but besides work and these familiar faces that I know around the neighbourhood that I share kind of interactions with and positive kind of vibes, bouncing off each other, I don't particularly feel – I don't know if there are as many people who feel as connected as much, I mean I know that there a lot of local people I interact with and they are very friendly overall and might leave bits and bobs of like positivity about where they go but in terms of actual place I don't know, I don't feel any particular. R: Is there anything else you want to point out that is important to you or not important to you? C: I have enjoyed looking at these houses for so long and I have been very curious about who lives in there, but I have never like, had an interaction in any way either positive or negative with anyone living in these houses. There was a cat around one of these corners, sitting all the time in one of these corners on the fence and all the time everyone would pet her, and that was something nice, but there wasn't anyone sitting in the garden that would chat to	Rare to feel closely connected to other people in the same environment

The columns from left to right show the meaning unit, combined descriptive and exploratory comments, third person perspective and emergent themes.

you have enough personal space around you and you can relax...	Size of park = ability to relax – for her dependent on personal space	able to relax by having personal space in a safe environment.	and safe environments
I think seeing something green on the windows, through the windows is really important to me, seeing just a tree or a plant or something green, and the sky (long pause) is really really important to me. Just to feel connected with I don't know, not with a plant as that sounds a bit cheesy but to feel connected to the environment around you, and not in a box, seeing another box or seeing a wall or seeing yeah, think that is very important, and I think just being close to a park or a water (pause) being close to nature (laughter)!	Importance of connection to nature to feel homely both indoors and outdoors 'Windows' mentions a lot as positive connection with nature – when no windows – negative thing – connection to the outdoors world Green important to her – indoor/outdoors blur boundaries Proximity to nature important – makes her feel like home and good for wellbeing? Feels trapped by rigid lines in the environment - box? Nature enables her to escape the box?	She requires a connection with nature whether indoors or outdoors and windows provide a connection with the environment for both seeing benefits of a green environment and observing the social environment. Suggests she can feel trapped in the urban environment and seeks a connection the outdoors and other life through being able to visibly see it.	Indoor and outdoor connection with nature Windows, nature and society Visibility of society
I have enjoyed looking at these houses for so long and I have been very curious about who lives in there, but I have never like, had an interaction in any way either positive or negative with anyone living in these houses. There was a cat around one of these	Nice houses' more private – removed from local community at first look – cat provides interaction - seems closed- thinks must be longer term residents	She intrigued by nice houses near the park, partly due to her love of nice architecture, but notes they are somewhat removed from the community as she	Pets and social divides Aesthetically pleasing architecture

Then themes were summarised and grouped through an iterative process.

Theme 2: Formation of emotional bonds in green space and managing wellbeing

Green space and social interactions
  Social interaction and pets in green space
  Park facilitating local connection
  Size of park and inclusiveness
  Lack of safety in green spaces
  Relationships and the park

Green space and mental wellbeing
  Lack of time and relaxation in green space
  Choosing green space for mental wellbeing
  Proactive behaviours to reduce stress and nature
  Stress in day to day routine in city
  Lack of control and ability to cope in stressful environments
  Windows, nature and society
  Indoor and outdoor connection with nature

    Observing wildlife and place attachment
      Wildlife and time
      Water and constant between homes
      Wildlife and development
      Pets and social divides
      Proximity of water and wellbeing

Phase two analysis

The table below illustrates step 8 in the IPA process. The step involved grouping themes across all seven cases to uncover the higher order concept of the *Tripartite Theory of Place Attachment* (Scannell and Gifford, 2010). Once this step was completed, I continued to refine the themes within the PPP framework. The themes

written are the original titles before further iterations were developed through the writing process.

Person

Theme	001	002	003	004	005	006	007
Evolving use of place through aging and identity							
Psychological life stage transitions	N/A	Transition from city visitor to city resident changes need for place attachment	N/A	N/A	Nostalgia and reflecting on difficulties of psychological transition to adulthood	N/A	Revaluation of time and age and sense of self-purpose and how relates to place
Empowered movement over time	N/A	N/A	Empowered movement over time in place builds sense of belonging and sense of self	N/A	N/A	N/A	
Political and cultural identities	Political: Class based identity and viewing unfairness of political system	N/A	Cultural: Spiritual person influenced by childhood and how relates to green spaces	N/A	Political: Liberal beliefs related to age as 'snowflake' generation Cultural: Identity as a young `Muslim woman	Cultural: Relating to place and connection with nature through cultural pro-environmental behaviours	Political: Class-based view of self and unfairness in sense of belonging to the land
Individual belief in ability for change as a producer in social environments							
Societal limits and self-belief as a producer in places	Societal structures limit self-efficacy and belief in impact of own actions	Self-awareness that can change social environment with support of local organisations to build community as experienced lack of belonging herself	Societal limits to self-efficacy	N/A	Acceptance of poor environments as the social and environmental urban norm	Feelings of failure of proxy powers to intervene to maintain social environment	High importance of individual self-efficacy to maintain cultural identity and way of life
Female identity and safety	Self-awareness of how to project confidence but feels unsafe due to vulnerability of being female in the city	Observes exclusion of women in public space	Defines herself as a person and not female	N/A	N/A	N/A	N/A

Process

Focus on neighbourhood perception and behaviours

Theme	001	002	003	004	005	006	007
Homelessness and helplessness	Lack of council responsibility	Negative experiences in social environment	Willingness to help but limits in individual ability and negative experiences	N/A	N/A	N/A	Informs his mistrust of social environment as some homelessness is dishonest
Evolving sense of community and perceptual barriers to exclusion	Feels willingness to ensure older people are a visible part of society	N/A	Represents young communities moving to area and formation of safe spaces	N/A	N/A	Witness gentrification and impacts negative view of sense of belonging and societal divisions	Changing family culture and seeks nostalgia to build sense of belonging

Context and collective behaviour

Theme	001	002	003	004	005	006	007
Lack of trust and defensive behaviours	Lack of trust and a adopts defensive behaviours	Inconsistent judgements of trust in social environment impacting feelings of safety	N/A	Lack of trust with money and feeling negative emotions	Lack of trust of people and avoiding areas in the neighbourhood	Lack of trust of people and defensive behaviours in outdoor environment	Lack of trust in others and negative perceptions of social environment
Seeking connection and reflection in the public space	Lack of meaningful connections which is a social norm created by an adult social contract	Discovery of place and feeling unsafe	Feeling safe in community and diversity	Observing communities and routine as social norm	Discovery: Finding personal space in public space in relation to self-identity and political views	Yes – social routines	Yes – in green space in museum gardens
Visibility of power and safety	Aware of female identity and feelings of exclusion in perceived male constructed spaces Demonstrates trust in public institutions such as police as a way of enforcing social behaviours Feels lack of visible proxy responsibility for social environment which impacts individual ability to show care	N/A	N/A	N/A	Remote proxy power through surveillance and lack of intervention which has negative impact on wellbeing and feelings of safety Role of family and a mother intervening in local youth violence	Crossrail demonstrate holding land power in area with local council. Risk to legacy land for gypsy community promised in land agreements	Financial precedent in development of buildings shows power in local development – perceives lower quality buildings compared to past Knowledge of mason lines forms historical knowledge and place identity linked to sense of fairness in design of spaces and power

Place

Theme	001	002	003	004	005	006	007

Interdependence in urban ecosystems for wellbeing

Knowledge-scopes	N/A	N/A	N/A	N/A	Hidden spaces to dwell	Types of trees and nature related to superstition and symbolic for human emotions and narratives	Historical/ Archaeology knowledge formed through exploring the land which builds sense of belonging to place and widening knowledge boundaries of place
Water for wellbeing	N/A	Positive wellbeing experience for relaxation and calm environment. Links to childhood which builds sense of belonging through evolving concept of home	Part of collective wellbeing for leisure and canal viewed as a shared and collective asset in the community	Part of leisure routine	N/A	N/A	Provides sense of discovery of place and learning but wellbeing impacted by feelings of safety by perception others using the space
Diversity of use of green spaces	Experiences privacy and secrecy which increases personal value of a space as it is rare to experience. Experiences positive impact of weak ties through green spaces as part of walking routine	Choice of interaction is important for utilisation of spaces for wellbeing. Experiences barriers to relaxation in green spaces if social environment feels unsafe as in state of awareness	N/A	Utilises spaces for relaxation, social, leisure with others	Consciously builds green spaces into day to day walks for feelings of calmness and reflection	Identifies lack of green space for children in proximity of neighbourhood but experiences distrust from others in public parks	Consciously visits graveyards for personal reflection and connection with nature and wildlife

Participation in social networks and defining of neighbourhood

Relatable social networks	N/A	Yes – finds comfort in others that are similar to themselves (age/values)	N/A	N/A	Experiences lack of cohesion and integration informally in day to day life	Defines personal and group identity by cultural identity and importance of family values	N/A
Social interactions in neighbourhood	Actively shapes social integration through participation in community activities and sharing food feasts	Actively builds social environment through making weak ties visible in the everyday through the weak ties	Older residents share knowledge of where to spend time in the area	Effort to integrate through work and conversations	N/A	Integration built in day-to-day routine and sharing knowledge between generations in gypsy community. Societal pressure to assimilate with social norm of residential living	Integration encouraged through work with charity social events

Appendix 10.7 Popular science summary

How do our feelings about the urban outdoor environment shape society?

Invisible bricks in cities shape democracy

Our outdoor environment in the city is where we experience life in between home and work [1]. Looking after our local environment is considered part of citizenship and different types of landscapes can support our wellbeing [2] [3]. The feelings we experience in cities impacts how we think and behave which contributes to how places are formed [4]. Sustainable urban planning has undervalued social wellbeing and role of emotions that influence how places are created and maintained and it is difficult to evidence [5][6]. This research focused on what contributes to a sustainable community, exploring **safety**, **quality of the environment** and ability to **participate** in place and the invisible bricks that support a democratic society to function.

How do places form in our cities?

By conducting an analysis of the text from talks and walks with citizens in Tower Hamlets, this study suggests it is our **emotional bonds** (place attachment) that influences how places are formed. Place attachment is at the heart of how social environments continuously change and can influence how we learn and adopt behaviours based on what we see. What we observe in our cities also influences our belief in our own ability to act and act together with others in the community for desired changes that improve our places for everyone. Therefore our places could be considered social learning environments.

A theoretical framework has emerged which provides an explanation of how outdoor urban places, learning spaces and social spaces form. (*Scannell and Gifford's Tripartite Framework of Place Attachment, Bandura's Social Cognitive Theory and Lefebvre's Theory of Produced Social Space*) [4], [7], [8].
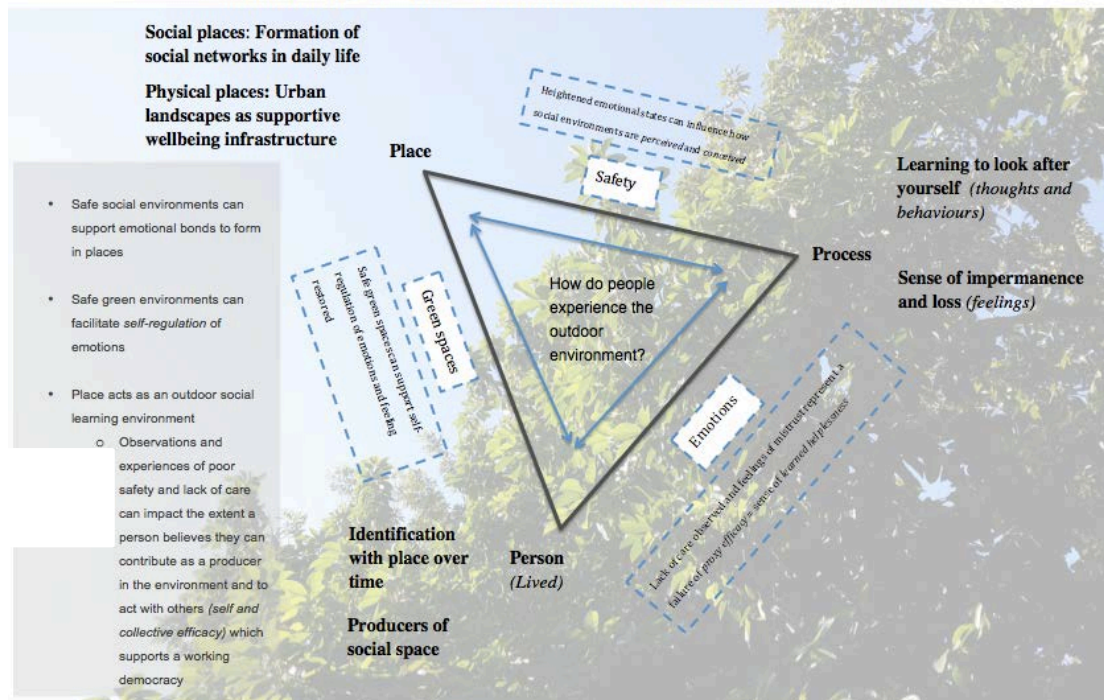
Why can safe green spaces in cities support our wellbeing and society?

Safe green spaces contribute to social wellbeing by enabling a place to reflect on our own emotions *(self-regulation)* and helping to recover from mental tiredness *(mental fatigue/cognitive restoration)* [9] the processes can reduce thoughts and feelings of threat from others and encourage social connection, which can support perceptions of trust in the social environment.
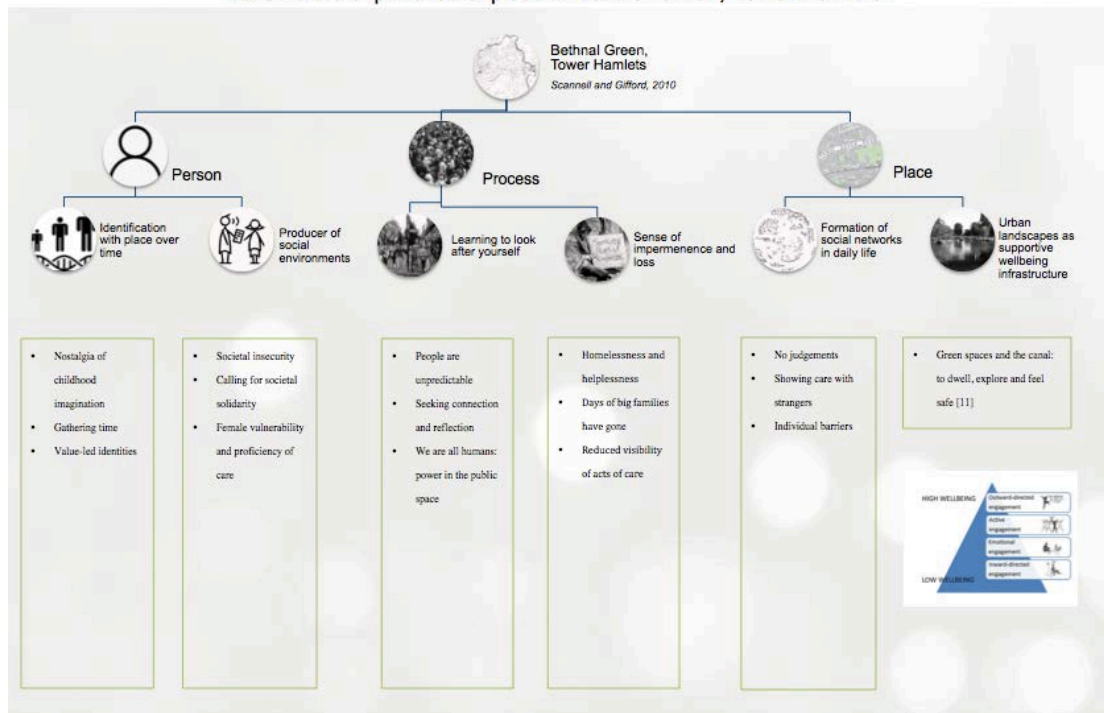
Therefore, **a right to feeling safe in green spaces** and the **quality of the urban environment and places** is an issue for the operation of **democracy** to help form a supportive social environment and connect with our local environment.

Different types of urban landscapes can support our wellbeing, including safe green quality spaces [10]. By understanding how we all feel day to day in cities, can help plan for urban landscapes that are supportive for **healthy people** and a **healthy planet**, which is known as planning for **socio-environmental justice**.

Social wellbeing in Bethnal Green and the London Borough of Tower Hamlets

Social places: Formation of social networks in daily life

Physical places: Urban landscapes as supportive wellbeing infrastructure

- Safe social environments can support emotional bonds to form in places

- Safe green environments can facilitate *self-regulation* of emotions

- Place acts as an outdoor social learning environment
  - Observations and experiences of poor safety and lack of care can impact the extent a person believes they can contribute as a producer in the environment and to act with others *(self and collective efficacy)* which supports a working democracy

Heightened emotional states can influence how social environments are perceived and conceived

Safe green spaces can support self regulation of emotions and feeling restored

Place

Safety

Green spaces

How do people experience the outdoor environment?

Process

Emotions

Learning to look after yourself *(thoughts and behaviours)*

Sense of impermanence and loss *(feelings)*

Lack of care observed and feelings of mistrust represent a failure of proxy efficacy, a sense of learned helplessness

Identification with place over time

Person *(Lived)*

Producers of social space

What is the experience of place in Bethnal Green, Tower Hamlets?

Bethnal Green, Tower Hamlets
Scannell and Gifford, 2010

Person
- Identification with place over time
- Producer of social environments

Process
- Learning to look after yourself
- Sense of impermenence and loss

Place
- Formation of social networks in daily life
- Urban landscapes as supportive wellbeing infrastructure

• Nostalgia of childhood imagination • Gathering time • Value-led identities	• Societal insecurity • Calling for societal solidarity • Female vulnerability and proficiency of care	• People are unpredictable • Seeking connection and reflection • We are all humans: power in the public space	• Homelessness and helplessness • Days of big families have gone • Reduced visibility of acts of care	• No judgements • Showing care with strangers • Individual barriers	• Green spaces and the canal: to dwell, explore and feel safe [11]

HIGH WELLBEING — Outward-directed engagement / Active engagement / Emotional engagement / Inward-directed engagement — LOW WELLBEING

References

1. Iaconesi, S. and Persico, O. (n.d.). *Digital urban acupuncture.*

2. Bollyky, T., Templin, T., Cohen, M., Schoder, D., Dieleman, J. and Wigley, S. (2019). The relationships between democratic experience, adult health, and cause-specific mortality in 170 countries between 1980 and 2016: an observational analysis. *The Lancet*, 393(10181), pp.1628-1640.

3. Esol.britishcouncil.org. (2019). Values and principles of the UK | ESOL Nexus. [online] Available at: https://esol.britishcouncil.org/content/learners/uk-life/life-uk-test/values-and-principles-uk [Accessed 11 Aug. 2019].

4. Scannell, L. and Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology*, 30(1), pp.1-10.

5. Brown, K., Adger, W., Devine-Wright, P., Anderies, J., Barr, S., Bousquet, F., Butler, C., Evans, L., Marshall, N. and Quinn, T. (2019). Empathy, place and identity interactions for sustainability. *Global Environmental Change*, 56, pp.11-17.

6. A More Cohesive Borough: A Scrutiny Challenge Report. (2017). Tower Hamlets council.

7. Bandura, A. (2000). Exercise of Human Agency Through Collective Efficacy. *Current Directions in Psychological Science*, 9(3), pp.75-78.

8. Lefebvre, H. and Nicholson-Smith, D. (2009). The production of space. Malden, MA: Blackwell.

9. Kaplan, S. and Berman, M. (2010). Directed attention as a common resource for executive functioning and self-regulation. *Perspectives on Psychological Science*, 5(1), pp.43-57.

10. Grahn, P., Tenngart-Ivarsson, C., Stigsdotter, U., & Bengtsson, A. (2010). Using affordances as a health-promoting tool in a therapeutic garden. In Ward Thompson C., Aspinall, P and Bell S., *Innovative approaches to researching landscape and health. Open Space: People Space 2* (pp. 116-154). New York: Routledge.

Acknowledgements