Mapping Urban Residents' Place Attachment to Historic Environments: A Case Study of Edinburgh

Yang Wang

BE, MArch

Submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

School of Social and Political Sciences
College of Social Sciences
University of Glasgow

May 2021

Abstract

Place attachment refers to the positive emotional bonds between people and places. Disrupting place attachment has a negative impact on people's psychological well-being and the health of their communities. Place attachment can motivate people's engagement in civic actions to protect their beloved places from being destroyed, especially when buildings and public spaces are demolished or redeveloped in historic places. However, the UK planning and heritage sectors have made only limited attempts to understand people's attachment to the historic environment and how it may influence planning, conservation and development that affects historic places. This draws attention to the lack of empirical studies on place attachment to the historic environment, and thus a need for place attachment research to develop methodologies that might address this gap. The research presented in this thesis sets out to explore urban residents' attachment to the historic environment they experience in their daily lives and to apply a mapping approach to visualise this attachment.

A sequential explanatory mixed-methods approach, with a built-in mapping component, was used to pursue this aim. Edinburgh was selected as a single case study. A map-based PPGIS (Public Participation Geographic Information System) survey was designed and circulated among members of Edinburgh's local civic associations and a Facebook interest group. The cross-sectional data collected during the fieldwork was analysed using various computational and spatial statistics. Twenty-five survey participants also took part in semi-structured follow-up interviews. The interview data were analysed using thematic coding.

The employment of a mapping approach originated from the intention to visualise historic places to where people form attachments. In the course of the research, it has developed into an EGIS (Emotional GIS) methodology for place attachment research, which the author proposes for use by other researchers, whereby spatially referenced emotional data are collected via map-based surveys, interrogated by spatial analysis and made visually explicit with maps.

This study provides a quantitative analysis of the author's own self-reported measure of attachment to the historic environment, whereby a measurement

theory of attachment to the historic environment was developed. The findings indicated that residents' attachment to the historic environment can be described by a three-dimensional construct, comprised of an intellectual, an autobiographical and a nostalgic dimension. Qualitative findings then provided deeper insights into the nuanced ways in which people develop these three attachment dimensions. More specifically, people can develop intellectual attachments to the historic environment as the consequences of aesthetic appreciation, imagination and self-reflection. They attach to their 'lived-in' and 'remembered' historic places and 'reflect' on such attachments as the result of growing a sense of 'autobiographical insideness'. They also tend to yearn for historic places that have disappeared and for the happy moments in their lives.

Attachment to the historic environment was spatially operationalised as 'special historic place' and its spatial distribution was visualised. A spatial relationship between special historic place distribution and places that people use in their daily lives was then confirmed using spatial point process modelling, which highlighted the unconscious developmental process of attachment to the historic environment. Two types of special historic places stood out: historic open green spaces such as gardens and parks, and popular visitor attractions like Edinburgh Castle, Arthur's Seat and Calton Hill. The underlying reasons, revealed in the qualitative findings, suggested two other attributes that make historic places emotionally significant — restorative potential and visual magnitude.

The nature of attachment(s) to the historic environment was also highlighted by examining the associations of those three attachment dimensions with sociodemographic variables through quantitative analysis, as well as probing the more latent social and cultural factors through qualitative coding.

The thesis therefore highlights the need to create an additional designation category alongside current 'Listing, scheduling and designations' in Scotland that appreciates, legitimises and protects the emotional values of historic places that are used, experienced and loved by people, and demonstrates the value of using a mapping approach for such an endeavour.

Table of Contents

List of Tables

List of Figures

Acknowledgements

First and foremost, I would like to thank my research participants. I am hugely grateful to those who generously gave me their time to speak to me about their life stories. I would also like to thank those administrative staff of the local civic associations in Edinburgh, Lost Edinburgh and North Edinburgh Arts for their support with accessing their individual members and Facebook/Twitter followers to broaden my research survey. I also thank other people who helped suggest contacts, as well as many others who provided valuable advice and support during my fieldwork: in particular Adam Wilkinson (former Director, Edinburgh World Heritage), Alan McIntosh (Spurtle's Chief Editor), Euan Leitch (Director, Built Environment Forum Scotland) and Richard Rodger (Professor Emeritus of Economic and Social History, The University of Edinburgh).

Huge thanks to my three supervisors: Professor Rebecca Madgin, Dr James White and Dr Phil Mason, for their constructive advice, encouragement, and critical feedback throughout my research. My greatest and most special thanks goes to Rebecca, my principal supervisor. I don't think any of this would have happened if she hadn't first given me the opportunity to express my wish to do this research. Our first meeting in Tianjin, China on that sunny afternoon in April 2016, which has changed my life, seems like only yesterday, and I will never forget. I am so grateful and proud to have her as my supervisor. She has always been patient and kind to me, so encouraging, refreshingly honest and supportive, and having the belief in me to allow me almost complete autonomy in my research.

Thanks very much to Professor David Adams and Professor Nick Bailey for their clear, constructive feedback from my annual reviews. Many thanks to my examiners, Professor Peter Larkham and Dr David McArthur, for their extremely helpful feedback and engaging discussions in the viva. Also, this research would not have been possible without the financial support of Urban Studies Foundation who provided me with a scholarship over the course of the degree, and the University of Glasgow who paid for the license for the online PPGIS toolkit with which I was able to collect the data.

To me, the Urban Studies staff at the University are a lovely ‘family’. Not only have I received the best academic support, but also I have been made personally welcome by them. I clearly remember being warmly invited to birthday parties and Christmas parties, the day when my other urban studies family members brought me to tears with their best wishes for me and my future son before I went on paternity leave, and the day when I had my baby’s first photo taken, in which he wore the T-shirt with Scottish symbols on the front, a gift from my supervisors.

The PhD journey can be a lonely one, so I am very grateful to the many wonderful friends I have made since coming to Glasgow. Huge thanks to Kostas – for being my best friend, for always being there, for every moment we spent together. Particular thanks to Nigel for being the most super friend that I could ever imagine, introducing me to the football community and helping me get my first GTA job. To John – the ‘day-cycle trip’ is always something I look forward to and enjoy enormously, to Rafael and Paulina — for sharing my ups and downs in countless phone calls and dinners, and to Simona — for our shared sense of humour and future ambition. Many thanks also to my friends Chris, Gokhan, Jiangteng, Lynn, Tunbosun, and to all my lovely fellow PhD students Alice, Linda, Lucille, Marjan, Weikai and others too numerous to mention. I treasure their friendships, wisdom and kindness. My time as a PhD student has come to a close, but the friendships will last for the rest of my life.

Lastly to my dear Mum, whose unwavering support and love over the years have given me the confidence I needed to do this. To my Dad — I hope that knowing I had completed this PhD in Glasgow would have made you happy. And to my wife, who sacrificed so much, looking after our wee baby son, allowing me to focus on this work, and for more than I could write here.

Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Name: Yang Wang

Signature:

1. Chapter 1: Introduction

1.1 Context

The key context for this research is the emphasis upon the term 'place' in a series of policy documents published by the UK national government and heritage sector that address planning, place-making, and the conservation of the historic environment[1] in the past decade. For example, Scotland's 2014 *Our Place in Time* historic environment strategy states:

> **People cherish places, and the values of the historic environment lie in defining and enhancing that connection of people to a place. [….] We need to be innovative in the way we approach the historic environment, even if that means moving out of our own comfort zone. We need to challenge the silos that still define the workings of central and local government. In particular, we must inject the place dimension, and thus the historic environment, into community planning. (Scottish Government, 2014, pp.02-03)**

Within this context, a series of facts and ideological turns highlight the importance of developing an inclusive, participatory approach to the conservation and management of the historic environment (or heritage).

First, the term 'place' and its connotations[2] established by human geographers (e.g., Relph, 1976; Tuan, 1975, 1977) means heritage practice, and in particular, conservation, should extend its long-standing focus on the physical form of a historic building, monument or site, to consider all characteristics and attributes of a place that can contribute to the making of its societal or personal meanings. In other words, "whilst material fabric does have value we also need to be

---

[1] The broad definition of the historic environment may not be very different from that of heritage (see Graham, Mason & Newman, 2009). In this thesis, the two terms are used interchangeably to refer to the built and natural materiality of place in the urban context.

[2] Tuan (1975) defines 'place' as "a centre of meaning constructed by experience" (p.152), "created by human beings for human purposes" (p.165). Places may be constructed out of textual and visual elements in the environment, their present appearance and how they have changed or are changing over time, and how they are known, felt and understood through not only the eyes and mind, but also a "more passive and direct mode of experience" (Tuan, 1975, p.152).

aware that this value is intimately connected to the feel, use, and experience of place" (Madgin et al., 2018, p.587). This idea has been recognised far earlier by international charters such as the Burra Charter:

> **[the cultural significance of a place] is embodied in the place itself, its setting, use, associations, meanings, records, related places and related objects. (Article 1.2, The Australia ICOMOS, 1999)**

Second, the dominance of an 'authorised heritage discourse'[3] (Smith, 2006; Waterton & Smith, 2010)) that privileges the experience and values of elite social classes is increasingly challenged. Heritage is not something like 'high' art which is only appreciated by certain groups of experts (usually heritage professionals or conservation advocates), but rather something embedded in the terrain of everyday urban life that is approachable by the general public. Heritage is protected for being more than heritage. It is additionally tasked with securing a wide range of social benefits. In the UK, with a strong focus on the social inclusion agenda in the broader social policy mission of the national government over the past 20 years[4], there has been a need for the heritage sector to demonstrate its non-elitist, progressive nature (Pendlebury, Townshend & Gilroy, 2004), and to take on a more heterogeneous and pluralist discourse of heritage and conservation practices. In fact, there are many initiatives where heritage sectors worked with local communities to collaboratively define heritage and sought ways of communicating its importance, such as the All Our Stories programme in England, the 'What Your

[3] Authorised heritage discourse focuses on "aesthetically pleasing material objects, sites, places and/or landscapes that current generations 'must' care for, protect and revere so that they may be passed to nebulous future generations for their 'education', and to forge a sense of common identity based on the past" (Smith, 2006, p.29). Waterton and Smith (2010) further developed this concept to refer to "a professional discourse that validates and defines what is or is not heritage and frames and constrains heritage practices [….] as inevitably contributing to all that is 'good' in the construction of national or group identity" (p.12).

[4] Poverty and social exclusion have been the subject of some of the UK government's most high-profile targets since the New Labour Government administration (1997-2010). The first National Action Plan on Social Inclusion (NAP/inclusion) (2001-03) was published in July 2001.

Heritage' campaign in Scotland and 'Leith Listing' project in Edinburgh (where my research focused on).

Third, and relatedly, community engagement in heritage practices that involve managing, interpreting and conserving 'everyday heritage' has gained momentum as part of the broad and growing emphasis on participatory place-making and management in current policy (e.g., the Historic Environment Policy for Scotland 2019) and legislation (e.g., the Community Empowerment (Scotland) Act 2015). This form of heritage conservation usually deals intimately with people's everyday lives, their homes, social networking, and the significance of places to local communities (Gentry, 2013).

In short, there is a certain logic and desire of considering the relationship between, and close proximity of, people's daily lives and heritage practice. However, heritage conservation practice has largely failed to make effective responses in the above-mentioned recognition and treatment of heritage (Wells & Stiefel, 2019). One reason, argue Wells and Stiefel (2019) (see also Wells, 2020), is that "professionals in the heritage conservation field do not use social science research methodologies to manage cultural landscapes, assess the historical significance and inform the treatment of building and landscape fabric". As Wells (2020) criticised, heritage sectors have been using ideas of sense of place to justify the practice of heritage conservation, but they only adopt a "tautological, rationalistic perspective: historic places have a sense of place because they are historic; people think they are historic because they have a sense of place" (p.6).

1.2 Academic Rationale

There are several knowledge gaps that have led to this situation. The most important of these arises from the lack of focus on heritage-related issues within the realm of relevant social science research *per se*, namely place attachment research. Place attachment may be better considered as an 'idea' which "subsumes or is subsumed by" (Low & Altman, 1992, p.3) a variety of many analogous 'ideas' than as an independent concept that can be explicitly defined. These ideas include 'place identity' (Proshansky, 1978; Proshansky, Fabian &

Kaminoff, 1983) and 'sense of place' (Relph, 1976; Shamai, 1991), 'insidedness' (Relph, 1976; Rowles, 1983), 'topophilia' (Tuan, 1974), and so on. At the heart of each of these concepts is the desire to understand the positive emotional bond developed between people and the environment, or 'places' (Low & Altman, 1992). This has been a particular preoccupation of environmental psychologists and social/community psychologists, although sociologists, humanistic geographers and architects have also made significant contributions to the field of study.

Developing attachments[5] to places is human nature and is largely considered a good thing. Attachments to place contribute to people's well-being, increasing people's levels of self-esteem, belonging and meanings (Scannell & Gifford, 2017). 'Attached' community members, compared to those who are 'non-attached', tend to have higher levels of life satisfaction (Theodori, 2001), more social capital and better social networks (Lewicka, 2005; Mesch & Manor, 1998), greater interest in family roots (Lewicka, 2005) and local history (Lewicka, 2008), greater trust in people and a more positive attitude towards the environment (Lewicka, 2010).

Interest in place attachment has grown in recent decades. There is a now a large body of academic literature addressing people's various types of attachments to a wide range of 'places', primarily in environmental psychology and tourism and leisure studies, covering residential places of different spatial scales, from the neighbourhood (e.g., Brehm, Eisenhauer & Krannich, 2006; Brown, Perkins & Brown, 2003, 2004; Lewicka, 2005; Livingston, Bailey & Kearns, 2010) to the city (e.g., Félonneau, 2004; Hull, Lam & Vigo, 1994; Lalli, 1992), and recreational places such as a natural environment (e.g., Hammitt, Backlund & Bixler, 2006; Jorgensen & Stedman, 2001, 2006; Kyle et al., 2003; Neal et al., 2015; Stedman, 2003) and other outdoor spaces (e.g., Madgin, Bradley & Hasting, 2016; Rishbeth & Powell, 2013). However, research empirically addressing people's attachment

[5] In this thesis, I try to distinguish between the singular and plural forms of attachment. I use the singular form of the word (attachment) to refer to the abstract concept of attachment as a phenomenon, for example 'place attachment research', 'place attachment data', 'place attachment mapping', 'place attachment literature'. In contrast, by using its plural form such as in 'residents' attachments to the historic environment' or 'place attachments people have', I mean to highlight the various dimensions (reasons/types) of attachments in reality.

to the historic environment in and around their residential places and its defining historic features like Hoang et al. (2020), Madgin et al. (2018), Wells (2017) and Whittington (2020) remains scarce and relatively new. There are a few studies of tourists' attachment to heritage sites, and more often the historic environment is only considered as an environmental background (i.e., the area of study, e.g., Woosnam et al., 2018; Zhang & Smith, 2019). The literature on the historic environment does mention and discuss on the emotional values of the historic environment (Graham et al., 2009), but seldom focus on the emotional bond developed between people and the historic environment that defines place attachment (Wells, 2017).

Alongside this lack of empirical evidence is a methodological 'obstacle' that results in a failure to offer specific, usable guidance for heritage professionals to apply place attachment research (the findings) to real-world problem-solving. The outputs of place attachment research are usually presented in the form of numbers (for quantitative studies) or as verbal descriptors (for qualitative studies). However, heritage practices, specifically heritage conservation in the UK which has developed as a planning aim and practice since the Second World War (Pendlebury & Strange, 2011), often involves spatial-related problem-solving. Place attachment research therefore "has not achieved significant practical planning or decision support impact" (Brown, Raymond & Corcoran, 2015, p.51). Nevertheless, an emerging emotional mapping method that adopts a PPGIS (Public Participation GIS) technique to spatially render place attachment data on maps for planning and decision support such as land-use planning (e.g., Brown & Raymond, 2007; Brown et al., 2015) offers inspiring insights into how to address such a methodological obstacle. Participatory mapping in heritage research conducted for, with, and by local indigenous communities is not new (see a review in Harrison, 2011), but none of these projects did really work with a place attachment framework.

In response to the knowledge gaps in place attachment research, as well as to the methodological difficulties of applying place attachment research to spatial-related problem solving, this research aims to explore urban residents' attachments to the historic environment they experience in their daily lives and to develop a mapping approach to visualise such attachments.

As concerns research impact, the importance of analysing place attachment to the historic environment can go beyond serving policy design and decision-making. Place attachment can motivate people to take civic action against place changes (Devine-Wright, 2009; Manzo & Perkins, 2006). A distinguishing characteristic of the history of town planning and urban conservation in the UK is the growth of civic associations and the development of a vibrant "urban associational culture" (Hewitt & Pendlebury, 2014, p.26)[6]. This thesis argues that urban associational culture can be a useful lens through which to explore the impact of researching place attachment to the historic environment.

1.3 Aims and Questions

The overall aim of this research is to:

> Derive new empirical evidence about, and theoretical insights into, urban residents' attachments to the historic environment they experience in their daily lives.

The ambition is to shed light on future practical applications of place attachment research to design and decision-making related to the historic environment.

This is achieved by exploring the ways in which urban residents form attachments to the historic environment, and by applying a PPGIS mapping approach to visualise such attachments. In particular, this research focuses on the following main research questions:

> RQ1 Why and in what ways do urban residents form attachments to the historic environment both in their local neighbourhoods and the wider city in which they live?
>
> RQ2 What are the factors that influence an individual resident's attachments to the historic environment?

[6] Civic associations in the UK emerged in the late 19th century, and played an important role in shaping planning and conservation policy in contemporary Britain. For a good introduction see Hewitt (2012) and Hewitt and Pendlebury (2014).

RQ3 How are attachments to the historic environment associated with (and/or different from) people's place attachments to their local neighbourhoods and the wider city in which they live?

RQ4 When attachments to the historic environment are directly identified in PPGIS using a mapping approach, what is the spatial expression of participants' responses?

These questions are explored through a case study of Edinburgh. Methodologically, an *explanatory sequential mixed methods* strategy (Creswell, 2015) is adopted, wherein the qualitative strand of the research is conducted after the quantitative strand to further explain and expand the quantitative findings. More specifically, following an in-depth review of the place attachment literature, a survey consisting in part of PPGIS mapping tasks is used to measure and spatially locate people's attachments. It is circulated among members of nine civic associations in Edinburgh, and those of a history interest group on Facebook called Lost Edinburgh, to collect cross-sectional data. This is followed up with 25 semi-structured face-to-face interviews, which were conducted with people who had taken part in the survey.

1.4 Structure of the Thesis

The thesis is structured as follows. Chapter Two and Chapter Three lay out the theoretical foundations for the research through a review of the literature on place attachment. Chapter Two first defines place attachment — the central phenomenon under investigation in this thesis, exploring the academic interpretations of the concept. It then provides an overview of the central debates and knowledge gaps of place attachment research through reviewing factors influencing attachment to the residential settings. It then draws on empirical evidence in the literature to discuss attachments to the historic environment in residential places. Particularly, four hypothesised dimensions (the reasons/types of place attachment) of attachment to the historic environment are identified. They are intellectual, nostalgic, and autobiographical and life-dependent dimensions.

Chapter Three clarifies the rationale for using a mapping approach to the spatial visualisation of place attachment to the historic environment. It begins by

exploring the broader context of the associations of civic engagement with place attachment, establishing the significance of researching place attachment in conservation and planning initiatives that affect historic urban spaces. It is within this context that place attachment mapping studies using the PPGIS technique are reviewed and considered as the vehicle by which place attachment research can "achieve practical planning and decision support impact" (Brown et al., 2015, p.51). The chapter also discusses the underexplored spatial attributes of place attachment, which can be approached by using the mapping method, collecting spatial-referenced data and performing spatial analysis.

Chapter Four outlines the methodological approach taken to address the research questions. It explains the use of a mixed methods approach, the specific *explanatory sequential mixed methods* (Creswell, 2015) design with a built-in mapping component, and the selection of Edinburgh as the case study. The sampling strategies and all the techniques and procedures taken to collect and analyse data for the two strands of the sequential design are presented in turn. Finally, the ethics of the research are briefly discussed.

Chapter Five, the first of three empirical chapters, presents the quantitative findings. It provides an overview of residents' attachments to the historic environment they experience in their daily lives, including its dimensions, determinants (in particular the sociodemographic determinants), and associations with residents' place attachments to their neighbourhood and city environment.

Chapter Six presents the mapping and spatial analysis results. This leads to the development of an 'Emotional Geographic Information System' (EGIS) methodology for place attachment research. The combination of the two terms 'emotion' and 'GIS' highlights the nature of the methods – to examine and understand place attachment from a geographical perspective. The idea originated from the use of a mapping approach to visualising place attachment. In the course of the research, it has developed into a methodological approach to place attachment research, whereby spatially referenced emotional data are

collected via map-based surveys, interrogated by spatial analysis and made visually explicit with maps.

Chapter Seven explores the richness, nuance and complexity of the qualitative data obtained from semi-structured interviews and provides in-depth insights into how Edinburgh residents form place attachments to the city's historic environment, as well as why certain historic places are of exceptional emotional significance.

Chapter Eight concludes the thesis by summarising the answers to the research questions, identifying the contributions this thesis makes to advancing, not only our empirical and theoretical knowledge in this area of study, but also methodological approaches, while also reflecting on the study's limitations. Recommendations for future research are made and the implications of the study for conservation policy and practice are discussed.

2. Chapter 2: Place Attachment and the Historic Environment

2.1 Introduction

As stated in Chapter One, there is a need for a more systematic empirical study of residents' attachment to the historic environment. The aim of this chapter is to build a theoretical framework for such a study.

Specifically, this chapter first examines how the term 'place attachment' is conceptualised differently, which reflects different understandings of its dimensions[7] and underlying causes of attachment phenomenon. It then presents the factors that can influence place attachment, which is fundamental to characterising place attachment phenomenon. These include sociodemographic factors, family ties, social status and personality which characterise individuals' differences, social and physical conditions of the environment which features the role of places, as well as place-scale effects which shed light on the spatial dimension of place attachment (Lewicka, 2010). This is followed by a section which presents the evidence of attachment to the historic environment that can be found in the literature. Throughout the discussions, special focuses were given to attachment to residential settings, for example, this chapter purposefully reviews factors that influence attachment to residential places. In so doing, it offers up a working theoretical framework for exploring urban residents' attachment to the historic environment, and specifically for designing the analytical approach used for the quantitative element of this study that follows.

[7] A dimension refers to a reason/type of attachment which describes a specific way in which people form attachment to a place.

2.2 Defining Place Attachment: The Structural Interpretation from Environmental Psychologists

Place attachment is one of the terms in environmental psychology, like place identity (Proshansky, 1978; Proshansky et al., 1983), place dependence (Stokols & Shumaker, 1981), and place identification (Droseltis & Vignoles, 2010), that address a highly complex phenomenon incorporating several inseparable, integral, and mutually defining aspects of people-place bonding. The nuances and relationships between some of these concepts, specifically the relationship between place attachment and place identity, however, have not been clarified. For example, place attachment is usually considered to be a multi-dimensional construct that incorporates place identity as one of its sub-dimensions (explained in detail later in this section). Sometimes, these two terms are used interchangeably (e.g., Williams et al., 1992). At other times, they are both treated as sub-dimensions of 'sense of place'[8] (Jorgenson & Stedman, 2001, 2006).

In the literature, place attachment has been either treated as a uni-dimensional concept (e.g., Bonaiuto, Fornara & Bonnes, 2003; Lewicka, 2005) or a multi-dimensional construct. However, there is a lack of consensus about how the concept should be structurally interpreted. Different typologies and terminologies of place attachment dimensions have been defined for different research objectives, as explained in more detail in the following paragraphs.

In research on place *attachment* to places of recreation and tourism, for example, a two-dimensional construct is most frequently used. It incorporates a *place identity* and a *place dependence* dimension. The construct was first proposed by William and Roggenbuck (1989) and further elaborated by Williams and Vaske (2003). Place *identity* defines a sense of affective attachment derived from an individual's understandings about the physical world and its properties

[8] Sense of place, which is a term usually appeared in human geographers' studies of people-place relationship, is viewed as the equivalence of place attachment. There are two obviously divergent research traditions of place-related research – psychometric and phenomenological (Patterson & Williams, 2005). Most environmental psychologists studying place attachment phenomenon follow the psychometric research tradition, while phenomenological research tradition is usually taken by human geographers.

in which she/he lives that shapes his/her self-identity (Proshansky, 1978; Proshansky et al., 1983). Place *dependence* highlights a type of functional attachment that rests on the qualities of a setting in satisfying people's goals and activity needs (Stokols & Shumaker, 1981). It is related to whether or not a particular place could replace by similar ones (Stokols & Shumaker, 1981). This two-dimensional structure was expanded by Kyle, Graefe and Manning (2005) who added a third dimension, *social bonding*, which refers to social attachment associated with "meaningful social relationships that occurred and were maintained in specific settings" (p.156).

Researchers studying attachment to residential places take a different typology that distinguishes between the *social* and *physical* dimension of place attachment (e.g., Brehm et al., 2006; Hidalgo & Hernández, 2001; Mesch & Manor, 1998; Riger & Lavrakas, 1981). For the former, place is the *locus* of meaningful social connections, community life, interpersonal associations, friendships, social identity and symbolism. The physical world is the environmental background of human life or communities within which social connections occur, and it is these various social connections and people in a place, not the place itself, to which people are attached. In the literature, this attachment to the social context has been operationalised using various terms, including community attachment (Brehm et al., 2006), place belongingness where people claim a feeling of membership to a community (Mesch & Manor, 1998), or a group of people with shared history, interests or concerns (Perkins & Long, 2002). In general, these operationalisations all represent the *social* dimension of place attachment. For the *physical* dimension, attachment is directed to the physical fabric and ensembles that support such social interactions and meanings, for example, a coffee shop, public spaces or natural spaces. In Brehm et al.'s (2006) the physical dimension specifically refers to people's attachment to the natural environment.

Scannell and Gifford (2010b) use *civic* attachment and *natural* attachment to represent the social and physical dimensions of place attachment. A civic

attachment[9], as they argue, defines a type of group-based symbolic place attachment that occurs at the city level (Scannell & Gifford, 2010b).

Much of the place attachment literature has focused on the social dimension (Lewicka, 2011b; Scannell & Gifford, 2010a,b). Most of the time, place attachment has been viewed and studied as a social construction; a product of social processes rather than the result of perceptual and cognitive processes rested on the physical characteristics of places (Lewicka, 2011b). The physical environment of a place, it is widely argued, in this view, is seen as no more than a container of social processes.

Lewicka (2011a, 2013b) develops an important typology that differs significantly from those mentioned above that distinguishes between two types of place attachment: *place inherited* and *place discovered*, which for her is a more appropriate terminology equivalent to the '*everyday* vs. *ideological* rootedness' proposed by Hummon (1992). Place inherited (or everyday rootedness) refers to an unconscious or taken-for-granted people-place relationship, which derives from a deep familiarity with a place. This is usually observed among long-term residents. On the other hand, place discovered (or ideological rootedness) means a deliberate choice of a particular place to reside, followed by "active involvement in its goings-on" (Lewicka, 2013b, p.162). This conceptualisation is of great importance for understanding the spatial attributes of place attachment. This will be explained further in the next chapter.

There are also other conceptualisations such as the proposal of Lin and Lockwood (2014a) which distinguishes between *localised* and *(geographically) generalised* attachment. For Lin and Lockwood (2014a), place attachment can be formed for both specific locations (localised geographical settings) and "sets of places" sharing common physical characteristics and social, cultural and ideological attributes (p.75).

[9] In Scannell and Gifford's (2010b) study, the term 'civic attachment' means nothing regarding civic engagement — a term discussed extensively in later sections in this thesis. Civic attachment, for Scannell and Gifford (2010b), is only a different terminology that has been developed by researchers to refer to the social dimension of place attachment.

Considering the lack of clarity and consensus in the definition of place attachment, Scannell and Gifford (2010a) proposed a three-dimensional framework, aiming to 'structure' these varied conceptualisations of place attachment in the literature. The framework treats place attachment as a multidimensional concept with *person*, *psychological process*, and *place* dimensions, in which the term *dimension* carries a different meaning from that mentioned above. In this model, a dimension is not a type/reason for place attachment. It represents the analytical perspective of place attachment research. The *person* dimension highlights place attachments occurring, not only at the individual level, but also at the group level. The *psychological process* dimension concerns attachment demonstrated in three forms: affects (*pure* emotional attachments); cognitions (attachments built on memories, beliefs, meaning and knowledge that individuals associate with places that make them personally important, such as place identity); and, behaviours motivated by attachment (the act of re-visiting a place, pro-environmental behaviours or taking place protective behaviours such as civic actions). The *place* dimension emphasises the role of place in the development of attachment, including spatial scale (home, neighbourhood, city); place specificity (e.g., physical characteristics that offer amenities or resources to support one's goals and leads to place dependence); and, the prominence of social or physical elements.

2.3 Factors that Influence Attachment to Residential Places

The previous section presents the abstract theoretical definitions of place attachment in the literature. This section presents the actual descriptions of the nature and intensity of place attachment through reviewing empirical findings of factors that influence place attachment. It focuses specifically on factors that influence attachment to residential places. For this purpose, Scannell and Gifford's (2010a) model is used as a structure to categorise the various factors that influence place attachment into two categories: factors at the *person* level and factors at the *place* level.

2.3.1 Factors at Person Level

2.3.1.1 Sociodemographic Factors

The first group of factors at the personal level are *sociodemographic* factors. These include age, gender, educational attainment, employment status, income, homeownership, migration background and ethnicity, etc. Sociodemographic factors are relatively easy to measure and have been extensively examined in the literature. They are useful estimates of the characteristics of the sample population and individual/group differences.

Two factors consistently found to positively predict place attachment are *length of residence* (e.g., Anton & Lawrence, 2014; Brown et al., 2003; Kasarda & Janowitz, 1974) and *homeownership* (e.g., Bolan, 1997; Brown et al., 2003, 2004; Mesch & Manor, 1998; Ringel & Finkelstein, 1991), while other factors like income, education and employment status show a more inconsistent picture (see Lewicka, 2011b for an extensive review). However, few studies probe how these two factors influence attachment in a positive sense. Nevertheless, it is easy to imagine that length of residence is a sign of temporal stability in the 'person-place' relationship, especially for long-term residents. Temporal stability contributes to the development of place attachment through ever-accumulating autobiographical memories associated with that place (Knez, 2006; Lewicka, 2014; Rowles, 1983), mastery of cultural codes (Hay, 1998), spatial familiarity resulting from "*everyday movements in space*" (Seamon, 1980, p.148, italics in original), development of social connections (Kasarda & Janowitz, 1974), and so on. For example, Kasarda and Janowitz's (1974) study, using data from a large scale survey in England, identified length of residence as a central and crucial factor in the development of social bonds (local acquaintances, friends, and relatives) which therefore lead to community attachment, despite subsequent social changes in the community (population size and density). People born in a place are therefore likely to have a deeper sense of place or attachment than those who moved to that place later in life (Hay, 1998; Lewicka, 2008).

When it comes to homeownership, owning a home in a place is akin to claiming partial ownership of that place as a personal possession. People become

attached to their home as a symbol of their "bibliography, an expression of self, and a source of security" (Belk, 1992, p.39). Home is also associated with the experience of joy, protection, comfort, belonging and rootedness (Moore, 2000, also cited in Manzo, 2003).

A closely related factor is spatial mobility. High spatial mobility results in a short length of residence in a particular place. Examples include a mobile person who frequently changes her/his place of residence, a person who has a stable place to live but often travels to another city or country for work or business, or simply a person who travels a lot on holiday. Mobility threatens established ties with a living environment, causing a decrease in the level of attachment to a place of residence (Gustafson, 2014), but may on the other hand help people to establish attachments to multiple places they regularly visit. Developing attachments to multiple places is a common way for people to maintain meaningful connections with family, local traditions, nature and one's self-identity (Di Masso et al., 2019). Yet, there are also circumstances that a person's attachment to her/his place of residence or home becomes strengthened after being absent for a period of time (Case, 1996; van der Klis & Karsten, 2009).

Mesch and Manor (1998) state that having young children makes a big difference in people's social lives and place attachment. This is because, as they argue, young children's lives are quite limited to their immediate geographical environment, they play and socialise with neighbours and usually attend school in neighbourhoods close by, the social lives of families with young children may centre around their neighbours as well (Mesch & Manor, 1998). This may increase their interest in the neighbourhood and nurture local attachment. However, their research did not provide empirical evidence.

2.3.1.2 Family Ties

Family ties play important roles in the development of place attachment. In Lewicka's (2008) study of Lviv (Ukraine) residents' place attachment to their neighbourhoods and the city was stronger amongst people who have a family history of living in the city compared to newcomers. Raymond, Brown & Weber

(2010) even consider family bonding as a sub-dimension of place attachment, showing that attachments directly related to family need should be considered alongside place identity and place dependence.

People tend to maintain spatial proximity with their families. Literature in migration studies found family ties play a significant role in people's migration decisions (e.g., Cuba & Hummon, 1993b; Morse & Mudgett, 2018; Mulder & Malmberg, 2014). For example, Morse and Mudgett's (2018) study focused on the non-economic reasons why people in the state of Vermont (US) choose to 'stay' and found that family ties explain the emotional reasons for people choosing to stay or go. In their study, those who chose to leave Vermont reported significantly fewer family connections in the state than those who chose to stay. Cuba & Hummon (1993b) found family-related reasons are more important than prior place experience for young migrants (17-54 years old) to establish their sense of belongings and place identities to the new locals they moved in.

2.3.1.3 Social Status

Manzo (2003) argues that it is inadequate to consider people's emotional relationships with places without locating such phenomena in the larger socio-political context that defines "who we are [, which] can have a real impact on where we find ourselves and where we feel we belong" (p.54). Personal issues are themselves products of a larger context. However, this field remains largely underexplored.

Social status determines a person's spatial mobility and most of the time can be reflected in the person's family background. One frequently studied factor that may reflect a person's social status in a larger social context is social ties, which, in various forms, represent social capital. Social capital can be defined as all the kinds of formal or informal social networks among individuals within a community or society (e.g., a residential neighbourhood, an interest club, or a civic organization) which can foster their mutual trust and effective collaborations in taking actions and behaviours, such as volunteering, political participation and other forms of civic actions, that contribute positively to the

collective life of the community or society[10] (Fukuyama, 2001). People who have a higher level of social capital tend to demonstrate stronger place attachment to their neighbourhoods. Yet, it can also be the fact that place attachment increases people's willingness to enter into meaningful contacts with neighbours. Social ties that can be considered to be social capital have been operationalised in place-related research as social cohesion and control (Brown et al., 2003, 2004), and/or the level of personal involvement in voluntary activates activities through local associations, clubs, town planning meetings (Cuba & Hummon, 1993a; Kasarda & Janowitz, 1974; Perkin & Lung, 1992).

The associations of place attachment with cultural capital, a concept which has much to do with a person's social status or social class (see Bourdieu, 1986), offers some insights into how place attachment can be conditioned by the wider social context. Lewicka (2013a) followed Bennett et al.'s (2009) to distinguish between established cultural capital and emerging cultural tastes, and found that established cultural capital was positively related to the *active* dimension of place attachment, while emergent cultural tastes were age-dependent (Lewicka, 2013a). Established cultural capital is defined as cultural activities such as reading books, watching local news and cultural programs on TV, listening to classical music, showing historical interests (Lewicka, 2013a). It is different from emerging popular and modern cultural taste, which is usually expressed through activities like watching entertainment shows, soap operas and reality shows, listening to club music, pop, dance and hip-hop, watching sports programs, listening to jazz, rock, alternative music, blues and reggae (Lewicka, 2013a). These two types of cultural capitals differentiate people's social status or class.

Sociological studies of class may shed some lights on how social status may influence place attachment. For example, Savage, Bagnall & Longhurst (2005) explored attitudes towards places of residence among newly settled and more localized residents in Manchester, proposing the concept of elective belonging which they define as the outcome of newly settled people's higher social and educational status. They also showed cultural tastes that differentiated them

[10] Therefore, not all social networks can be viewed as social capital.

from others. They had the most positive attitude towards reading books, displayed preferences for certain genres of music (e.g., classical music), and cultural activity in the form of museum attendance and interest in historical heritage (Savage, 2010).

2.3.1.4 Personality Factors

Research by Lewicka (2013b) suggests the possible existence of an association between place attachment and personality. In her study, two dimensions of attachments (place inherited and place discovered) tended to cluster with different groups of variables showing people's (individual vs. social) personality profiles, which relate to two fundamental modalities of human existence: *communion* and *agency*. Communion and agency are two spheres of human functioning. The former refers to the human need for unity with other people, acceptance by and care for others. The latter concerns human needs for independence and individual development (for detailed discussions, see Lewicka, 2013b). More specifically, the research found that the place-inherited dimensions? of attachment were correlated with the communion-related traits (e.g., social values, trust in close people, strong neighbourhood ties), while the agency related traits (e.g., cultural capital, individual values, etc.) tended to cluster with the place-discovered dimension.

2.3.2 Factors at Place Level

2.3.2.1 Social and Physical Factors of Places that Influence Attachment

The concept of 'place' is socially constructed, yet it has a physical fabric. Both aspects play important (although different) roles in the developmental process of place attachment. It is important to note that this social aspect of places is not the same as the *social* dimension of place attachment. The latter defines a type of attachment centred around important social connections (e.g., Hidalgo & Hernández, 2011; Mesch & Manor, 1998). In contrast, the social aspect of place refers to the social condition or social characteristic of community life that occur in a place, such as social deprivation, crime rate, population size.

One frequently examined social condition of places that influences place attachment is *sense of security* It has been operationalised in many different ways to understand perceived incivilities (experience of drug dealing, street robbery and gang activities) (Brown et al., 2003, 2004), number of delinquents (Mesch & Manor, 1998), and how safe people feel with respect to home burglary, car theft, and physical assaults on the street (Lewicka, 2010). Undoubtedly, sense of security consistently demonstrates a positive relationship with place attachment. Other social characteristics include social deprivation, population size and density, social mix and population turnover, and crime. Using Citizenship Survey data from England and Wales, Livingston et al. (2010) explored residents' attachment to deprived neighbourhoods and found attachment declines with increased neighbourhood deprivation, largely due to the influence of deprivation on social cohesion and perceived safety or crime. However, place attachment can also rest on the physical features of the place. The place dependence dimension, for instance, considers the extent to which particular qualities of the (physical) environment fulfil people's special needs and goals (Stokols & Shumaker, 1981). Stedman (2003) proposed a meaning-mediated model to demonstrate how physical landscape affects place attachment via the indirect effects of their associated symbolic meanings (either socially constructed or physically generated).

Compared to sociodemographic factors, family ties, and social characteristics of a place – all of which usually have well-defined measures – the physical factors that may affect attachment are harder to identify. First, physical characteristics may not be limited to those objectively measurable features of a place such as building density, the amount of green space or spatial accessibility, but also include people's subjective estimates of environmental qualities of the place, which sometimes are not mutually exclusive with people's place attachment or sense of satisfaction. That said, attached people usually hold more positive perceptions towards their living environment than those who feel less attached. For example, in Bonaiuto et al.'s (1999) list of factors that influence place attachment, the presence of aesthetically pleasing buildings was a positive predictor of attachment. Yet, in Félonneau's (2004) research, people who were more attached to their city also tended to perceive its physical characteristics as more pleasant and less polluted. Similarly, Bonaiuto, Breakwell and Cano (1996)

found young residents living in beach towns in Southern England who has stronger local identity tended to perceive their town in less negative environmental terms. They tended to see the beaches in their town less polluted (Bonaiuto et al., 1996).

Second, as noted by Lewicka (2011b) the number of such perceived physical characteristics can be endless. She mentioned the extensive Italian project (Bonaiuto et al., 1999; Bonaiuto et al., 2003, 2006) which includes almost all possible physical characteristics of urban neighbourhoods. The project used three scales consist of 46 questionnaire items in total measuring the 'architectural and town-planning feature' of urban neighbourhoods (Bonaiuto et al., 2003, 2006). They are 'Architectural and Town-planning Space' Scale (22 items), 'Organization of Accessibility and Roads' Scale (14 items) and 'Green Areas' Scale (10 items). The 'Architectural and Town-planning Space' Scale consists of items measuring physical characteristics including building size (height, volume, width, etc), building density (the balance between built area and open space), building aesthetics (shape, colour, material, details, etc) (for detailed discussions, see Bonaiuto et al., 2003, 2006).

Perhaps a more appropriate way of thinking about the social and physical conditions of places is to consider their inextricable and interweaving nature. The physical environment facilitates social life, influences place experience or fulfils people's specific goals (in the development of place dependence). The symbolic meanings of a place may not be constructed independently from its environmental background. Brehm (2007), in a series of in-depth interviews with residents of a small Mormon community in Utah (US), found a large proportion of respondents discussed their attachment to the physical environment within its social context or lifestyle activities. A more recent study from Madgin et al. (2016) explored the intimate relationships between the physical look and feel of spaces for sport and recreation in Parkhead Glasgow and people's memories, perceived meanings, and projections, which were provoked through their interactions and lived experiences in the physical environment.

2.3.2.2 Place-Scale Effect

Place differs in spatial scale, ranging from a building (e.g., house) to a country, and people's attachments to places of different spatial scales vary in term of their strength, nature and predictors. There are only a few studies looking at attachments to places of different spatial scales simultaneously (e.g., Casakin, Hernández & Ruiz, 2015; Hernández et al., 2007; Hidalgo & Hernández, 2001; Lewicka, 2010). Both Hidalgo and Hernández (2001) and Lewicka (2010) revealed a curvilinear, U-shaped relationship between the scale of place and strength of place attachment, in which neighbourhoods tended to attract less emotion than the home (house) or wider city. Casakin et al.'s (2015) and Hernández et al.'s (2007) studies also found stronger place attachment and place identity at the city level than at the neighbourhood level. Yet, the relationship may be conditioned by other factors, including age. In Hidalgo and Hernández's (2001) study, for example, people of a younger age showed greater attachment to the city, while middle-aged people were more attached to the house. Quoting Gieryn (2000) and others, Lewicka (2010) attributes the weaker attachment at the neighbourhood level (compared with that at the city and/or home level) to its relatively blurred spatial edge, since "people tend to identify with distinguishable topological units rather than with areas whose edges are not clearly defined" (p.47).

Place-scale effect on place attachment is also reflected in the varying predictors of people-place bonding across different place scales. In Cuba and Hummon's (1993a) study of place identity, *dwelling place* identities were strongly influenced by demographic factors, *community place* identities by social participation attributes in addition to friendship, organizational, and *regional place identities* by intercommunity spatial activity. In Lewicka's (2010) study, the best predictors of attachment to the building-level were physical factors (building size, building type and building precincts), while social factors better predicted attachment at the neighbourhood and city level. The study also found weaker direct paths from the predictors to attachments at home and city level than at the neighbourhood level, leaving a considerable portion of the variance of home and city attachment unexplained (Lewicka, 2010). Lewicka (2010) therefore called for a need for further research on place-specific factors that

would uniquely predict attachment to places of different spatial scales (e.g., homes, neighbourhoods, and cities) and in particular factors that would predict attachment to specific cities that differs in the extent to which they create good living conditions for their inhabitants. Factors to consider may include good public space, imageability, presence of greenery, historical asset, etc (Lewicka, 2010).

2.4 Attachment to the Historic Environment

2.4.1 Overview

As is argued in the introduction to this thesis, there is a lack of empirical findings relating to people's attachments to the historic environment in residential settings.

Among the few exceptions, the studies by Hoang et al. (2020) and Wells (2017), to my knowledge, are the only ones addressing attachment to historic environments, their dimensions and factors in particular with regard to residential settings. Wells (2017) explored how the physical features that make a place 'old', namely patina in comparison to new/modern residential settings, provoked people's spontaneous fantasies[11] and hence forged their emotional attachment. Hoang et al.'s (2020) study measured and compared both residents' and tourists' attachment to Hoi An (Vietnam), a town centred around a World Cultural Heritage site. The study revealed that the prestige endowed by the World Heritage designation significantly influences local residents' emotional feelings, identities and dependence, especially their feelings of pride, honour and happiness (Hoang et al., 2020).

Despite this lack of empirical evidence, existing literature on broader people-place emotions has much to offer in terms of thinking about the possible ways in which residents form attachments to the historic environment they experience in their daily lives. Some place attachment research directly involves investigations/discussions on the associations of place attachment with issues

[11] Spontaneously stimulated imaginations of hypothetical pasts (life, people, moments, and things in another world) upon encountering an aged landscape or building element (Wells, 2017).

related to history or the historic aspects of places, for example, the associations of place attachment with people's interest in local history (Lewicka, 2008), or with collective memory (Lewicka, 2008; Madgin et al., 2016). Among these are recent publications examining attachment to museums (Eckersley, 2017) which are usually high-profile historic buildings in a city, and 'found' historic urban spaces (Madgin et al., 2018). Another important source to refer to is the literature on nostalgia (emotional reaction to the past). Further insights may be drawn from early literature on the historic environment that links place distinctiveness, place continuity and place dependence to 'sense of place' (e.g., Ashworth & Graham, 2005; Shamsuddin & Ujang, 2008). We may also be inspired by looking at the psychogeography literature. People have different degrees of attachment, ranging from being directly interested in historic buildings to more passive enjoyment of art, history or literature — which might not involve a direct connection to the historic environment as part of the attachment, but is nevertheless implicitly important to their enjoyment of other things in the city.

The following sections bring together these studies and build hypotheses.

Before discussing attachment to the historic environment, it is crucial to clarify what the term 'historic environment' refers to. In this thesis, drawing on two recent definitions (the first from the UK's *National Policy Framework*, the second one as presented in the historic environment strategy for Scotland *Our Place in Time*), I define the historic environment as the built and natural materiality of place. Attachment to the historic environment concerns attachment to built and natural places in this thesis, in the urban residential context.

First, in the glossary section of the UK's *National Policy Framework*, historic environment was defined as:

> **All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. (Ministry of Housing, Communities & Local Government, 2019, p.67)**

Second, historic environment strategy for Scotland *Our Place in Time* described 'Scotland's historic environment' is:

> **the physical evidence for human activity that connects people with place, linked with the associations we can see, feel and understand. (Scottish Government, 2014, p.02)**

When it comes to which built and natural places of attachment might be considered as 'historic', in response to the ideological turns discussed in the introduction chapter (for instance, the rising of more heterogeneous and pluralist discourse in heritage and conservation practices), I have left the question to be answered by the research participants (some arguments are made in Chapter Seven).

2.4.2 Attachment to the Historic Environment in Residential Settings: Four Hypothesised Dimensions

2.4.2.1 Intellectual Attachment

The first hypothesised dimension is *intellectual attachment*. The term was borrowed from Lin and Lockwood's (2014b) study which reported a cognitive attachment to places as a result of historical knowledge and association. Intellectual attachment thus delineates the cognitive dimension of attachment to the historic environment. It defines the type of attachments that are derived from people's interests in history and their appreciation of the historical associations of the historic environment.

One common expression of intellectual attachment is place identity. Historic environment provides one of the foundations upon which people construct their identity. Its salient physical features (historic fabric) and non-material properties (sociocultural meanings) that make it unique are attached to one's self-concept (Scannell & Gifford, 2010a), and are used as a means to distinguish oneself from others, to preserve a sense of continuity, to build self-esteem, and to create self-efficacy (Twigger-Ross & Uzzell, 1996). Hoang et al. (2020) found the prestige associated with the World Heritage designation of Hoi An (Vietnam) was a powerful source of local residents' identity, helping to nurture special

meanings and blend them into a distinctive form of place attachment. Residential identity is also strongly associated with residential history. For example, Lin and Lockwood (2014b) presented one participant's words:

> I do make a connection. I feel there is a connection for me because it is where the French people landed. When I discovered the first white woman that landed in Tasmania was a French woman …. It did give me a sense of that I belong here just as much as any other white people here. I thought I've got as much right to be here as the other white people here. (p.79)

Another expression of intellectual attachment may be the interest in, and knowledge of, local history or 'collective memories' (i.e., the memory shared by a group or within the society). Lewicka (2008) found positive relationships between residents' place attachment and their declared interest in city history and historic knowledge (measured as the number of famous city persons, important events, and old street names that one knows). In Madgin et al.'s (2016) study, the historic condition of a sports complex in Glasgow and the meaning it held for local residents as shared memory and common history appeared to be strong drivers of attachment.

Collective memories of local places are not independent of the history of higher-order entities (e.g., the history of a country, a nation or the world). In Devine-Wright and Lyon's (1996) study, iconic historic places in Dublin such as the Dublin General Post Office are remembered by Irish people as places representing patriotism, democracy, independence, freedom, and as places associated with a 'sad' history of Ireland's independency — thus significant in maintaining Irish people's national identities and giving them a sense of belongings. City museums, for example, according to Eckersley (2017), are "ideal" and "institutionally unique" memory-triggering places that amplify a sense of place attachment (p.26). In her studies, the Silesian Museum in Poland was where local people (German and Polish) discovered the history of their 'home' (the Silesia region) and sensed/felt a "'dis-placed', intangible and 'un-situated' sense of belonging and 'at-home-ness'" (Eckersley, 2017, p.26). Museums provide their visitors with memory-triggering experiences through creating encounters with tangible and intangible local history (objects and displays, stories, histories, imagined places). Museum-going can also facilitate

interaction, sharing and dialogue between visitors based on shared interests, emotions, local and national identity (many museums ran specific interest and voluntary groups). Meanwhile, most museums are also high-profile public historic buildings. They themselves are cues for collective memories. Indeed, the urban fabric contains numerous such places serving as icons of collective memories that tell us something about ourselves (who we are and who we are not, how we have changed and into what we are changing) and something about those for whom they are symbolic of the past (Hull et al., 1996).

2.4.2.2 Autobiographical Attachment

For intellectual attachments as discussed above, the historic environment becomes emotionally significant because it is historic. There are also circumstances where the historic environment is emotionally significant for other reasons regardless of its historic nature. For example, people may consider a historic place important because of their memories of what happened there, and in particular when the memory is imbued with greater importance because the place is associated with either specific events, emotions or experiences (Eckersley, 2017; Lewicka, 2014). Alternatively, a historic place may serve as the marker of significant periods (e.g., childhood), changes or transitions, or 'milestone moments 'in one's life journey (Manzo, 2005). I call these types of connections to historic places *autobiographical attachments*. The term is adapted from Rowles's (1983, 2000) definition of 'autobiographical insideness': a feeling of attachment that is usually developed over a lifetime of residence in a place, and is in particular strong among the elderly

Over the years, people develop accumulated memories of "myriad events in their lives that transpired in the setting" (Rowles, 2000, p.58). Autobiographical attachment thus involves a temporal dimension, embracing not only a series of remembered 'incident places' (Rowles, 1983) in the distant past, but also the recent past and the present. These incident places can be considered as "spanning the space/time trajectory of the individual's entire lifespan, [….] involving not only spatially displaced settings but also proximate locations remembered as they existed at different points in the individual's life" (Rowles, 1983, p.305). This entails the person-place interactions that may take place

across the full span of one's life, from routine everyday activities like commuting, grocery shopping, and visiting friends and family, to the socialising part of life in pubs, coffee shops or restaurants, and even rare occasions such as attending weddings, hospitals and funerals. As a result, people develop intimate relationships with their residential setting and the 'incident places 'within, in which they become more and more a part of the place, to the point where it has become an extension of self. Nowell et al. (2006) found one of the ways in which participants described neighbourhood and community physical characteristics as meaningful was how they served as markers of their personal histories.

As such, autobiographical attachment can be quite personal — this is situated at the opposite pole from intellectual attachment, which is mainly based on the 'socialisation 'of localities (place identity) and understanding of (place) history and/or collective memories. Such a difference is well-demonstrated in Whittington's (2020) writing about the different ways in which her belonging and place attachment to the "systematically document authorized manifestations of heritage" and 'her personal heritage 'are constructed.

Autobiographical attachment should be positively associated with age and length of residence. Hay (1998) examined sense of place by age stages in the life cycle. His research found residents living in the Banks Peninsula (New Zealand) who were raised and had spent most of their lives there were more likely to develop a *cultural* and *ancestral* sense of place through the presence of successive generations on the land and their spiritual connections to it (Hay, 1998). On the other hand, those with limited residency may only have *superficial*, *partial* and *personal* senses of place (Hay, 1998). He also found for those who were raised and had spent most of their lifetimes in one place, the development (deepening) of their sense of belonging and attachment followed sequential stages from what he called 'embryonic '(childhood to adolescent) to 'commitment '(early to mid-adulthood), and eventually' culmination '(mid-adulthood to old age) (Hay, 1998).

Furthermore, in addition to directly experienced memories, the role of memories held and passed down by older family members, or memories of immediate family members, is also significant. Such memories influence people's feelings and behavioral reactions to certain historic places. For example, in Lin

and Lockwood's (2014) study, one participant reported frequent visits to where his father was born and grew up. For those who are the second or third generation, or have an even longer family history of living in a setting, their important 'incident places 'may also include those associated with their families, and interest in family history has been found to be positively related to place attachment (Lewicka, 2005, 2008).

2.4.2.3 Life-dependence

Another dimension in which the historic environment is of importance for non-historic reasons is a functional *life-dependence* which is comparable to the place-dependence dimension. Like place-dependence, historic places may be of importance in providing resources and conditions that support specific goals or desired activities in people's lives. I use life-dependence instead of place-dependence to highlight the functional reliance of people's daily lives upon these places. For example, in Hoang et al.'s (2020) study of residents 'attachment to the World Heritage site at Hoi An (Vietnam), many of their research participants claimed that they enjoyed living in Hoi An and did not want to move to another place if given a choice. A key reason for this was that they could easily find jobs in tourism-related sectors, and working served as a way to build up their connections with the town (Hoang et al., 2020).

2.4.2.4 Nostalgic Attachment

A final dimension is *attachment* taking the form of nostalgia.

Nostalgia, as stated in many studies, refers to a bittersweet sentimental yearning for an idealised past which is at least better than the present (Boym, 2001; Davis, 1979). The modern understanding of nostalgia as a psychologically constructed concept has been largely pejorative, especially in the context of heritage and urban studies, where it is discussed as a sentimental yearning for an unrealistic (idealised) past that is opposed to modernity and development (Boym, 2001). However, over the last decade, there has been an increasing interest in re-examining and re-considering the nature of nostalgia. Nostalgia as a romantic 'historical emotion' (Boym, 2001) has gained more acknowledgement

for its positive aspects recently. Performing local history practices (e.g., attending events held by local history groups), for example, in Wheeler's (2017) study, is a progressive process, "connecting individuals to wider social memories and practices and serving as a means of sustaining place identities through times of change for both long-term and newer residents" (p.481). Meanwhile, psychological studies of personal nostalgia (e.g., Batcho, 2013; Cheung et al., 2013; Routledge et al., 2013) have promoted its therapeutic potential for individuals' health and wellbeing, such as maintaining a sense of continuity "in a rapidly shifting landscape of their personal and social lives" (Batcho, 2013, p.173).

Nostalgia appears to be a longing for a place, but it is actually a yearning for a different time. "The nostalgic desires to obliterate history and turn it into private or collective mythology, to revisit time as space, refusing to surrender to the irreversibility of time that plagues the human condition" (adapted and elaborated from Boym, 2001 by Boym, 2011). As such, nostalgic attachment may also incorporate an emotive reminiscing or remembering of lives in the past that no longer exists.

The historic environment provokes sensorial recollections of past life through various ways of person-place engagement such as walking around historic places. In Adams and Larkham's (2015) study, 'walking 'or a 'go-along 'method was employed to facilitate their investigations of Birmingham and Coventry residents 'nostalgic feelings, attachments and embodied experiences. Degen and Rose (2012) demonstrate how residents 'once-suppressed recollections of how places looked, smelled and sounded in the past were provoked in unusual ways.

2.5 Summary

This chapter initially introduced the tensions associated with conceptualisations of place attachment in environmental psychology, presenting how place attachment has been interpreted and approached in different contexts and for different research purposes. Subsequently, it reviewed the factors at both the people and place level that can influence place attachment to residential places, outlining several knowledge gaps in the literature. The chapter then

discussed residents' attachment to the historic environment. Drawing on empirical evidence that can be found in the literature, four hypothesised dimensions of attachment to the historic environment were identified as worthy of further exploration. They were intellectual, autobiographical, life-dependent and nostalgic dimensions, defined as:

> *Intellectual dimension* — attachment derived from people's interest in history, and their appreciation of historical associations with the historic environment.
>
> *Autobiographical dimension* — attachment developed along with a person's life journey and/or resultant from family connections.
>
> *Life-dependent dimension* — attachment resulting from a functional dependence in everyday life.
>
> *Nostalgic dimension* — attachment taking the form of sentimental yearning for places, things and periods in the past.

For the intellectual and nostalgic dimensions, the attributes of, or associations with historic places play a decisive role in forging people's attachment to them. For the autobiographical and life-dependent dimensions, it is not such places being historic *per se*, but how they were used, experienced and memorised that ingrained a deep sense of attachment. In addition, these four dimensions are not mutually exclusive.

This chapter has argued that there is a need to research people's attachments to the historic environment in residential settings framed within the theoretical context of current place attachment scholarship. This should examine whether people's attachment to the historic environment falls into the hypothesised categories outlined above, and reflect on the key factors influencing these attachment dimensions. In so doing, the thesis will also contribute to addressing those knowledge gaps identified in the place attachment literature.

The next chapter discusses why researching place attachment should be considered in planning and decision-making that might affect the historic environment, and the mapping approach that has been developed as appropriate for this endeavour.

3. Chapter 3: Place Attachment Mapping

3.1 Introduction

Chapter Two reviewed research on place attachment, highlighted the lack of empirical studies addressing the attachment people have for the historic environment and suggested four dimensions worthy of further exploration: intellectual, nostalgic, autobiographical and life-dependent. This chapter focuses on practical applications of place attachment research to examine how adopting a civic framework alongside a mapping approach can help to explore the under-researched relationship between place attachment and the historic environment.

It first draws on the associations of civic engagement with place attachment to look at the urban associational culture[12] in the UK which has played a significant role in shaping the country's built environment since the early 20th century. It discusses the connections between place attachment, 'enthusiasm', nostalgia and various passionate ways in which people engage with civic activities in safeguarding the historic environment through local civic associations, history groups and/or conservation campaigns. In so doing, it reinforces the importance of considering people's attachment to the historic environment in conservation- and planning-related decision-making that affect urban historic spaces. This chapter then goes on to review emerging mapping studies in which place attachment is spatially visualised through maps. This is viewed as a crucial step for the practical application of place attachment research in planning.

The mapping approach is seen in this thesis as more than a tool to simply visualise place attachment. Rather, the thesis argues that this approach helps to reveal the spatial attributes of place attachment. The chapter finishes with a

[12] In addition to public sector bodies charged with preserving the past, such as English Heritage and Historic Environment Scotland (HES), the UK has a strong tradition of citizen participation in heritage conservation in the form of "non-state, voluntary and local associations that aim at improving the quality of the built and natural environment" (Hewitt & Pendlebury, 2014, p.26).

discussion of these attributes — another topic which remains underexplored in the literature.

3.2 Place Attachment and Civic Engagement: The Importance of Understanding Attachment to the Historic Environment from a Practical Perspective

Civic engagement may be defined in very broad terms and encompass various ways in which citizens participate in the life of a community in order to improve conditions for others or the community's future (see Adler & Goggin, 2005). The relationship between place attachment and civic engagement has been reported extensively (see Anton & Lawrence, 2014, 2016; Devine-Wright, 2009; Devine-Wright & Howe, 2011; Lewicka, 2005; Lokocz, Ryan & Sadler, 2011; Manzo & Perkins, 2006; von Wirth et al., 2016; Wakefield et al., 2001; Walker & Ryan, 2008). In this thesis, I focus particularly on residents' voluntary participations in civic-minded activities concerning local development issues that might affect the historic environment. These may take the form of voluntary participation in local civic associations, residents associations and/or amenity groups, or conservation campaigns for the protection of historic sites (e.g., preventing the demolition of /changes to a historic building).

A traditional manifestation of civic engagement is to become a member of a local civic association. In the UK, 'civic associations' narrowly refers to those apolitical voluntary organisations where local residents get together to present their concerns over issues regarding the development of their lives and living environments[13] (Hewitt & Pendlebury, 2014). They have demonstrated a constant and strong focus on "the quality of place and the value of local distinctiveness throughout their history" (Hewitt & Pendlebury, 2014, p.26). The burgeoning of civic associations dates back to the 19th century. It started from a local manifestation of a growing interest in landscape, architecture and heritage that resulted from or was accompanied by growing societal unease about the

[13] For individual members of these organisations, their levels of engagement vary. Some are active, volunteering in the association, organising and participating in events, attending Annual General Meeting meetings and so on, while most may be quite passive, simply paying subscriptions, receiving associations' publications, but not participating in events.

eroding effects of industrialisation and urbanisation (Hewitt & Pendlebury, 2014). They played a provocative role in the early 20th century when modern urban conservation in the UK originated (Hewitt & Pendlebury, 2014) and continue to be a notable force in promoting conservation.

Actively engaged people also form the main pool from which the sample in this research was drawn. They are also considered as an appropriate window to the 'public' and 'participation' aspects in PPGIS (Public Participation GIS) mapping. These themes, as well as the relationship between place attachment and civic engagement, are referred to throughout the rest of this thesis, specifically in the discussion of social class, education, and participation.

3.2.1 Enthusiasm and Attachment

In some research, the motivation for joining local civic associations is referred to as 'enthusiasm' or 'serious leisure'. Geoghegan (2013) defines enthusiasm as "an emotional affiliation that influences our passions, performances and actions in space' (p.45). In Craggs, Geoghegan and Neate's (2013, 2016) research on 'architectural enthusiasm', 'enthusiasm' was found to be a mode by which the members of an architectural amenity group (The Twentieth Century Society, an architecture conservation group which campaigns to save the post-1914 architecture) engage with historic buildings. Those who were actively involved in the Society reported that they do so because of their strong desire to share, educate, and excite others about 20th-century architecture (Craggs et al., 2013, 2016; see also Craggs, Geoghegan & Neate, 2015). It is this emotional affiliation (i.e., enthusiasm), which "motivates civic engagement, enabling long-term participation and transforming relationships between people, place and others" (Craggs et al., 2015, p.370).

Intellectual attachment, which is derived from and/or expressed through a high level of interest in the history of places, can be seen as a driving force of such enthusiasm. Lewicka (2005) found the interest in local history mediates the effects of place attachment on civic engagement. Stefaniak, Bilewicz & Lewicka (2017) found learning about local history and an increased interest in it resulted in individuals' emotional attachment to the community, which in turn was

translated into increased (declared) willingness to become socially engaged. In Lin and Lockwood's (2014b) study, participants who appreciated the historical significance of the place also committed to various form of place-protective activities, such as getting involved in local development plan campaigning.

3.2.2 Place Changes, Attachment and Civic Engagement

Place attachment is a fundamental psychological need of human existence but may only become (more) palpable when disrupted by, for example, forced relocation (Fried, 1963) or changes to place (Manzo, 2003). Changes which disrupt (or are believed to disrupt) place attachment have the capacity to overwhelm people with threats to their sense of continuity, stability and place-related identity in life (Brown & Perkins, 1992), and can result in emotional reactions such as anxiety, grief, sadness or loss (Fried, 1963, 2000; Fullilove, 1996). In cases of incongruous and unsympathetic place changes induced by proposed developments, these disruptions may not only cause negative emotions but also prompt people to engage in civic actions to resist the proposals (Manzo & Perkins, 2006), such as the place-protective actions taken against the wind farm projects in the UK (Devine-Wright, 2009).

Research shows that people who are highly attached, when their attachments are disrupted, are more likely to hold negative attitudes towards developments that introduce environmental changes to the area (Vorkinn & Riese, 2001). They are therefore more likely to take behavioural actions to protect the valued characteristics of their attached places, supporting conservation strategies (e.g., Wakefield et al., 2001; Walker & Ryan, 2008) and becoming civically engaged (Manzo & Perkins, 2006; Scannell & Gifford, 2010b). For Manzo and Perkins (2006), those shared, place-based values — place identity, place attachment, and sense of community — make up a psychological dimension of community-based experience that helps motivate people's voluntary participation, either in loosely structured neighbouring activities or formally organised civic actions. Nostalgia can also be a psychological desire as well. Wheeler (2017) argues that local history groups, another established cultural activity in the UK, emerging for a similar reason as, although later than, the origin of local civic associations, are often associated with a nostalgic response (i.e., anti-modernist sentiment) to

the continued 'uglification' of the countryside and loss of 'true' community due to industrialization. Her study confirmed that nostalgia bound up in local history practices serves as a means of sustaining place identities through times of change for both long-term and newer residents in a traditional windmills village in East Norfolk (England).

By proposing to be mindful of this psychological force of public oppositions, Devine-Wright (2009) suggested project instigators "seek to anchor and objectify changes in such a way as to enhance rather than threaten" place attachment (p.437). Devine-Wright's idea is equally crucial for local authorities and project instigators in the sphere of conservation and redevelopment of urban historic spaces. Madgin et al. (2018) highlighted the significance of understanding "lived, sensorial and embodied experiences of, and emotional attachments to, historic spaces alongside traditional assessments of physical fabric" (p.596). The research followed London Southbank's Undercroft skaters' conservation campaign and found the skaters' embodied experiences of, and emotional attachments to the skate spot (Undercroft) were central elements of why some historic places are seen as so important that they cannot be replicated or demolished (Madgin et al., 2018). In Edinburgh, where my research has been carried out, citizen-led campaigns to resist changes in the historic environment have consistently been the focus of local news media and civic associations. The Save Leith Walk campaign, which launched in 2018, is a recent example. Local residents have fought against the demolition of a historic two-storey sandstone block because it is a well-loved place to shop, work and socialise (Rae, 2019).

What underpinned the desire to prevent changes in the London Undercroft case and in the Edinburgh cases, was a strong sense of attachment, identity and ownership "derived from cumulative lived experience of places" (Madgin et al., 2018, p.587; see also Jones & Leech, 2005). However, to investigate the affection that people have for a particular historic place in reaction to a development proposal each time may be too late. The geography of "the affective connections between bodies and spaces that transformed spaces into places", particularly the affective connections with historic spaces, ought to be uncovered and thereby be 'rescued' prior to developments or redevelopments being carried out (Jones & Evans, 2012, p.2322).

Turning to the place attachment literature, there is again a paucity of literature about the historic environment and therefore the next section focuses on findings from work in natural landscape areas. Geographies of the affective connections with natural landscape areas have been approached in mapping studies which identified a more effective and intuitive way of spatially accessing individual's attachments to various localities that 'could be lined with place protective action' (Brown at al., 2015, p.51). These mapping studies are discussed in the next section, examining their relevance to the historic environment.

Additionally, it is important to note that the relationship between place attachment and civic engagement is not always direct, but instead can be conditioned/mediated by social capital or other engagement-supporting personal resources like cultural capital (Lewicka, 2013a). For instance, Lewicka (2005) used the concept of neighbourhood ties to operationalise and measure social capital to conclude that the relationship between place attachment and civic activity is mediated by locally based social networks (i.e., neighbourhood ties). Devine-Wright (2009) illustrated the trajectories of how individuals' attachments can foster their collective responses to place changes wherein social networks play an important role.

Social capital is often viewed as an individual asset and is perceived to be richer among people who live in more affluent, middle-class and stable communities. The relationship between the degree of place attachment and the level of civic engagement may thus vary across the city areas, making it crucial to examine whether the relationship between place attachment and civic engagement can also be observed in deprived communities.

3.3 Place Attachment Mapping

As mentioned above, conservation-related decision-making could benefit from a better understanding of how and why people form emotional attachments to historic places. To date, however, "place attachment research has not achieved significant practical planning or decision support impact" (Brown et al., 2015, p.51). Researchers attribute this failure to a lack of interdisciplinary

collaboration. As Manzo and Perkins (2006) argue, environmental psychologists who study place attachment are too often interested in teasing out individualised place experiences and rarely examine the collective nature of these phenomena, while planners mainly focus on addressing problems in the public's interest (e.g., for the benefit of a community) and do not often consider personal experiences of place and attachment. However, this only explains part of the story. There is also a gap between usually verbally presented place attachment data and the often spatially related conservation and planning issues that need to be resolved. As such, this section reviews emerging mapping studies in which place attachment has been made spatially explicit. These studies are viewed as a necessary step for place attachment research to achieve its impact. For example, Brown et al. (2015) have stated "arguably, until place attachment can be meaningfully rendered on a map, it will not be influential for land use planning and decision support" (p.51).

3.3.1 Introducing Place Attachment Mapping

Place attachment mapping is an emerging area of interest in the literature, whereby emotional data held by different individuals or groups are visually displayed to reflect their commonalities. Existing mapping studies build on the spatial operationalisation of 'place attachment' or 'sense of place'. Two main types of spatial operationalisation have been developed. One draws from the theory that people ascribe different values and meanings to different places to which they are emotionally attached (see the discussion in Chapter Two). Spatial locations on the map can thus be used to represent places with specific meanings to which people feel attached. The other builds on the assumption that place attachment is the result of human-environment interplay. The spatial area within which an individual travels to fulfil material and non-material needs in her/his life, termed the 'home range'[14], is considered comparable to the area that she/he depends on and identifies with for their lifestyle or livelihood

[14] The term 'home range', according to Brown et al. (2015) is originally a biological definition of the area "traversed by the individual in its natural activity of food gathering, mating, and caring for young" (p.43).

(dependence and identity are the two dimensions in Williams' and Roggenbuck's seminal work on place attachment conceptualisation) (Brown et al., 2015).

The best example of the first type of spatial operationalisation of is what Brown and Raymond (2007) called *prima facia* measurement of place attachment, in which respondents were asked to identify several 'special places' on a given map of their study area. In their study, participants were asked to mark their special places using 'sticker dots', with different sizes representing different levels of specialness (Brown & Raymond, 2007). The 'special' value of a place was thus quantified, serving as a measure of the intensity of attachment. They embedded special place mapping into a method of 'landscape value mapping' (also developed by Brown and his colleagues; see, for example, Brown, 2002, 2005; Brown, Reed & Harris, 2004), which asked the same respondents to allocate a set of values symbols to places in the study area (Brown & Raymond, 2007). They then used spatial cross-correlation to examine the relationship between place attachment (special place density) and place meanings (landscape value density). The different landscape values people ascribed to places are like subsets of the psychological dimensions of place attachment, which could explain why people feel the place is special (i.e., feel attached to). They found that special place locations were significantly associated with locations of places where participants ascribe values such as recreational, aesthetic, economic and spiritual values ($R^2 = 0.97$, $p = 0.000$) (Brown & Raymond 2007, p.105). In so doing, not only was place attachment made spatially explicit, but the spatial operationalisations of place attachment used in their research also demonstrated a degree of external validity[15]. Another good example of this type of mapping is 'evaluative mapping', developed by Jorgenson and Stedman (2011), which asked participants to map areas that are 'significant in some way', such as those they consider to be most important. A similar idea was applied by Black and Liljeblad (2006), who asked people to locate 'special areas' using polygons and explain the reasons for their choices.

[15] I view place attachment mapping is different from place value mapping, for example the landscape value mapping presented here. Values people ascribed to places can be the reasons for which they feel attach to them, but simply see a place of some specific value does not necessarily lead to attachment. Therefore, landscape value mapping studies (e.g., Brown and his colleagues' 'landscape value typology', and the #MyValuedPlaces Survey developed in an Irish project by McClelland, 2019) are not reviewed here as place attachment mapping.

The second type of spatial operationalisation of place attachment was well-demonstrated in the later study by Brown and colleagues, which asked participants to identify areas that they most identified with and depended on for their lifestyle or livelihood (Brown et al., 2015). In their research, the identification and mapping of landscape values were also included, but the data were used to create a 'value home range' that reflected "a cognitive map of an area" wherein the mapped individual landscape values "represent different currencies [place of importance] that form part of the home range", and compared with the mapped place attachment areas in terms of spatial similarities and differences (Brown et al., 2015). There was a modest, quantitative spatial concurrence between mapped place attachment area and the 'value home range' (Brown et al., 2015).

When considering the practical application of place attachment research, these map-based place attachment measures offer an advantage over traditionally scale-based measures or a qualitative approach because of its place-specific attributes. They provide an operational bridge between place attachment data and its application in spatially related problem-solving. For example, Brown and Raymond (2007) produced a density map of geographic distributions of special place locations, which graphically indicates where introducing land-use change posed the highest (or lowest) risk of sustaining people's place attachment, which suggests a potential pathway for improving land-use decision-making and landscape management. The method was extended by the same researchers by incorporating land-use preference mapping to identify areas with the greatest potential for land-use conflict (Brown & Raymond, 2014). Similarly, Jogenson and Stedman (2011) suggest mapping can be used to "to evaluate potential responses to policy initiatives or other particular issues that might occur within subjective space (e.g., evaluating land-use planning options, providing municipal serves)" (p.803). Brown et al. (2015) also argue that making place attachment spatially explicit can help "to identify areas where place-protective actions would be strongest within a planning region, enabling planning practitioners to spatially target management and community engagement efforts (e.g., engagement on wind-farm developments) to known areas of local concern" (p.51).

Most of these mapping studies were conducted with online PPGIS (Public Participation GIS). The idea of PPGIS represents "a broad notion that the spatial visualization and analysis capacities inherent in GIS present a unique opportunity for enhanced citizen involvement in public policy and planning issues" (Schlossberg & Shuford, 2005, p.16). "The spatial visualization and analysis capacities" of PPGIS have been emphasised extensively. However, lying at the centre of the idea of PPGIS are the domains of 'public' (who is going to be involved, or whose opinion is going to be considered) and 'participation' (how they will be involved) techniques (Brown, 2012; Schlossberg & Shuford, 2005). However, to the best of my knowledge, none of the aforementioned place attachment mapping studies defined the public or engaged with participation theory. PPGIS was only used as a data collection tool.

3.3.2 Participatory Mapping in Historic Environment Research

It is also necessary to mention some current utilisations of participatory mapping in historic environment research and practices. Interestingly, the utilisation of participatory mapping in historic environment or heritage research is also highly concentrated in projects conducted for, with, or by traditional, indigenous, and minority communities. Cultural Mapping, for instance, is a type of such mapping activity distinguished by the participatory nature of its map-making. McConachie et al. (2020) reported a recently-completed cultural mapping project in Gunbower Island (Australia) in which local indigenous Barapa communities were involved in the identification and presentation of important places for their culture. Again, in the Australian context, Harrison (2011) reviewed a few similar research projects in Australia and Africa that sought to record and understand indigenous cultures and heritage, in which local people's attachment to places was mapped. For example, he discussed a project conducted to map the 'landscape biographies' of both Indigenous and non-Indigenous former pastoral workers and their families (Harrison, 2011, pp.2-3). In the project, participants were encouraged to use maps and aerial photographs at different scales to mark the locations of events and places to which they referred during oral history interviews (Harrison, 2011). The resulting landscape maps thus reflected both personal characters and shared meanings of places associated with the history of the pastoral industry (Harrison, 2011, see this cited paper for more details).

Although none of them really work with a place attachment framework, they highlight that maps are useful tools to capture the spatial dimension of cultural heritage, and could be more so if under the aegis of place attachment theory.

More importantly, as Harrison (2011) argues, the use of participatory mapping in these research projects is conceived as not only an approach to the mapping (presenting), but also an 'intervention' in mainstream heritage practices, coined as 'counter-mapping'. These projects "not only led to a deeper understanding of the complex and multi-layered attachments of participants in the studies with their landscapes, but also allowed us to deconstruct certain aspects of our own professional heritage practice" (Harrison, 2011, p.7). Such an ideological stance is in line with that of researching people's attachment to the historic places — giving voice to politically underrepresented understandings of the historic environment. It is also in line with considering the irrational knowledge generated in the various engagement in civic activities.

As such, the participatory nature of place attachment mapping should be recognised and developed as conferring an advantage in mapping methodology over traditional quantitative or qualitative approaches. It is further justified and discussed in Chapter Four and Chapter Six.

3.4 Spatial Attributes of Place Attachment

Mapping is more than a tool to spatially visualise attachment to the historic environment, it is also a methodological approach that enables the spatial investigation of place attachment. After identifying the spatial pattern (clusters, hotspots, disparities, etc.), it is meaningful to raise questions about, not only *why* certain places with higher emotional significance are clustered in and around a specific area, but also *which* spatial variables (e.g., spatial locations, distance and paths) can affect the spatial distribution of attached places, and *how* they do so. This section considers the spatial attributes of the emotional relationship between people and place, which is a largely underexplored topic in the literature.

Place attachment is not only socially constructed but also spatially located. For most empirical studies aimed at understanding the affective bonds between people and places, a place, be it residential or recreational, natural or civic, modern or historic, is geographically located in the world. The affective bonds under investigation are generated from people's engagement with these localities. However, the spatial aspect of attachment development has not been adequately discussed in the literature.

Williams and Vaske (2003) mentioned that place dependence can be affected by the spatial distance between people and place. They stated that "this functional attachment" (i.e., place dependence) "may increase when the place is close enough to allow for frequent visitation" (Williams & Vaske, 2003, p.831). That said, the spatial proximity can underpin or hinder the enrichment of human-environment engagement with a particular place. Place dependence does not only rely on how well a place facilitates the desired experience or goals, but is also influenced by spatial factors such as the distance between people and the place. Yet the study went on to measure place dependence using scale items designed to rate people's sentimental assessment of their user-experience of a place. It examined nothing regarding this (unconscious) spatial experience or any spatial variables.

Several researchers have emphasised the associations between people's movements through spaces and their resulting place attachment. For example, Seamon (1980, 2014) explores how place attachment may arise out of everyday movements in the 'lifeworld'[16]: "many everyday movement patterns and places of rest are part of a habitual time-space lattice" (Seamon, 2014, p.13), people unconsciously "follow a more or less regular regimen of actions, experiences, situations and occasions all grounded in particular places and paths of movement among those places" (Seamon, 2014, p.13). This "habitual regularity" (Seamon, 2014, p.14) contributes to a person's identification in the lifeworld and sense of

[16] According to Seamon (1980), phenomenologists define 'lifeworld' as the world of 'natural attitude'. The latter refers to the unquestioned acceptance of the things and expressions of everyday life (Seamon, 1980). Lifeworld thus refers to "the taken-for-granted pattern and context of everyday life, by which the person routinely conducted his or her day-to-day existence without having to make it constantly and object of conscious attention" (Seamon, 1980, p.149)

continuity which, once disrupted, may cause feelings of emotional distress (Seamon, 1980, 2014). In this process, urban spaces also gain meaning through the everyday movements of people. Such unconsciously developed place attachment from everyday movements is largely spatially dependent because it is associated with spatial variables, such as the route and spatial extent of the movement, place of residence, and the distance between *place of residence* and the locations of various "place[s] of rest" (Seamon, 2014, p.13).

The associations between place attachment and people's movements through spaces have also been theorised in the mapping study that links the concepts of place attachment with home range (Brown et al., 2015, see the previous section for an explanation). For Brown et al. (2015), the boundary of an area (within a region) to which an individual would develop attachment should have much in common with her/his home range. Following this assumption, although not mentioned in their research, factors that determine people's home range should also have a significant influence on the size and geographical distributions of their 'areas of place attachment'. In fact, Brown et al. (2015) found that the size of the area of place attachment (or 'home range') was largely determined by place of residence (e.g., rural vs. urban; coastal area vs. non-coastal area), and varied among individuals working in different fields (e.g., farmers vs. conservation professionals). More specifically, farmers and rural residents identified significantly smaller areas of place attachment on average than other sampling groups, while conservation professionals mapped significantly larger areas (Brown et al., 2015). In other words, farmers might have a smaller home range than conservation professionals.

A similar idea is that proposed by Zia et al. (2014), which draws together the concepts of 'sense of place' and 'human ambit'. Similar to home range, 'ambit' is a term taken from biology that refers to an individual's movements through space over a specified period of time. Their findings further revealed a possible association between dimensions of people–place emotion and different purpose of each travel that constitute the 'ambit'. For example, they found people traversed the farthest distances away from home for social visits and the shortest for necessary trips to work and shopping (Zia et al., 2014).

As mentioned in Chapter Two, Lewicka (2013b) distinguishes two types of attachment: place inherited and place discovered. This typology applies to, and is of particular value for, the delineation of the emotional relationships between people and specific historic places within the context of city life. The place inherited dimension shares a common characteristic with place attachment that is formed along with everyday movements: unconsciousness. People's daily or weekly rhythms within urban historic spaces make up the unconscious (or less self-conscious) *experience-in-place*. It is the repetition of everyday movements which helps users dwelling and navigating in space, from which a highly emotional experience and familiarity with the historic places is generated. As *experience-in-place*, the historic environment (whether it involves the landmarks or less visible landscape elements of the past) is valued by residents through its functionality and everyday symbolism, rather than its historic or heritage value. On the other hand, people sometimes travel (maybe virtually) for some particular cultural, social, recreational purposes, or for other reasons, like the casual strolls of the *flâneur*, which contributes a more self-conscious way of forming relationships to places (Manzo, 2003) that corresponds to the place discovered dimension.

Unlike the unconscious *experience-in-place*, which may largely be influenced by spatial variables and very much in the first place prompted by spatial movements, the self-conscious process is primarily driven by human agency, social conditions of people and the unique attributes of the historic places that draw people's attention and which, conversely, shape people's movements. Interest in place history, for example, which is positively correlated with the place inherited dimension (Lewicka, 2013b), may motivate a person to do further research and reading about the history of a place and/or make planned visits. People would be more likely to do this if they were more active in consciously maintaining and developing their identity with the distinctive or symbolic qualities of places (Twigger-Ross & Uzzell, 1996). For such endeavours, historic places with distinguishing features and events associated with them are natural candidates for place attachment. Notably, interest in place history and historic knowledge also serve as measurements of cultural capital of an individual or a community, which may turn emotion (place attachment) into action (civic engagement) (Lewicka, 2005, 2013b).

Discerning the unconscious and self-conscious developmental process of attachments is crucial for understanding how historic places are experienced by different groups of people in their daily lives. It tells us not just what people are attached to or where these places are located and the ways in which they are appreciated, but also how people–place emotions may be shaped by the broader socio-political context of human society (Manzo, 2003, 2014; Manzo & Perkins, 2006). In Lewicka's (2013b) study, these two types of attachments tended to cluster with different groups of variables describing people's social and personality profiles, which relate to two fundamental modalities of human existence: *communion* and *agency*[17].

Customarily, it has been a methodological challenge to identify spatially located unconscious experiences of place using psychometrics and, as a result, this has been overlooked in the established measurements of place attachment. In comparison, the mapping approach that renders place attachment on maps enables the spatial–emotional relationship between people and places to be investigated using spatial analytics.

3.5 Summary

This chapter has brought together three connected, though seemingly independent, issues in place attachment research. In turn, it has highlighted the importance of understanding and researching place attachment for conservation and planning practices, reviewed the emerging mapping studies of place attachment, and underlined the little-researched spatial attributes of place attachment in the literature.

Understanding the emotional attachments people have to historic places is important because it may help us to understand why certain groups resist changes to the urban environment, and researching such attachments in advance of making planning decisions that might affect the historic environment is even more important as it may help us to circumvent disruptions to people's place attachments and thereby avoid subsequent negative psychological effects. Using

[17] For detailed discussions, see Lewicka (2013b)

a mapping method to spatially render people's attachments to historic places on maps is valuable for such a purpose. A mapping study usually builds on spatial operationalisation of place attachment and involves the use of PPGIS for data collection and performing spatial statistics to produce research outputs to which planners and decision-makers can refer. In so doing, it also provides an opportunity to explore the spatial attributes of place attachment – especially the spatial relationships between unconsciously developed attachments and people's everyday movements.

Therefore, building on the discussions in this chapter, the second aim of this research is to design and deploy a mapping approach to spatially visualise residents' attachment(s) to the historic environment, with the additional purpose of *examining the spatial attributes of their unconsciously developmental process*.

The next chapter presents the methodological approach adopted to address these aims and objectives and those set out in Chapter Two.

4. Chapter 4: Methodology

4.1 Introduction

The purpose of this chapter is to present the methodology and methods used to address the research questions outlined in Chapter One. The chapter begins by stating the rationale for using a mixed methods approach to develop a holistic understanding of urban residents' attachment to the historic environment they experience in their daily lives. The details of a *sequential explanatory mixed methods* (Creswell, 2009, 2015; Creswell & Plano Clark, 2018) design with built-in mapping are then outlined. The chapter goes on to explain the rationale for choosing Edinburgh as the case study area, and why members of local civic associations and followers of a Facebook group named Lost Edinburgh were selected as research samples. The integration of the quantitative and qualitative strands of the research, particularly in terms of sampling, is highlighted. The chapter then outlines the data collection procedures and analysis techniques involved in the quantitative and qualitative strands respectively, before ending with a discussion of the key ethical issues.

4.2 Methodological Choice

Extant research on place attachment has largely been quantitative. Quantitative studies in social sciences often follow logical positivism within which researchers hold that intangible social or psychological phenomena can be objectively measured. Measurement theory can then be tested through a 'falsificationism logic', best approached using statistical algorithms. Typical quantitative studies of place attachment either build or refine theoretical constructs of place attachment, like those mentioned in Chapter Two, or confirm or refute specific relational statements on how and how much a variable is associated with attachments to a specific place or places.

Some facets of place attachment can be better, and sometimes only, revealed using participants' descriptions, obtained from interviews and other qualitative tools. For example, qualitative approaches examining narrative texts and

discourses are more amenable than quantitative methods (Williams, 2014, p.97) when attempting to understand the facets of place attachment that do not readily lend themselves to psychometric measurement such as the memorial, experiential and sensorial processes. Some researchers even question the ability of some quantitative methods in producing deep understandings of people's values, perceptions and behaviours. For example, Wells (2015) criticises that surveys produce 'exceedingly thin depths of meaning' and as such may be a 'poor choice for trying to discern the reasons for people's values, perceptions and behaviours' (p.46-47).

Patterson and Williams (2005) argue that for scientific progress, the two methods (quantitative and qualitative) contribute to the evolution of place attachment theory in different ways with "synergistically complementary findings, entirely distinct but compatible insights, and competing or contradictory understandings" (p.376). In this sense, instead of criticising quantitative studies for only being able to capture a particularistic variance of the wide spectrum of place attachment, I used both quantitative measurements and qualitative enquires to pursue holistic understandings of attachments to the historic environment: a 'mixed method'.

The use of mixed methods in place attachment studies is not new. It can be found in literature published in the past decade (for example: Buffel et al., 2014; Devine-Wright & Howes, 2010; Lin & Lockwood, 2014a; Wells, 2017) and is viewed as intrinsically valuable. It could help researchers to more holistically capture the complex and multi-faceted nature of place attachment (von Wirth et al., 2016) than using either of them alone. Hernández et al. (2014) argue that such combinations improve the understanding of place attachment "when structured system[s] of data collection and appropriate strategies for exploiting the data are combined" (p.132). Lewicka (2011b) also argues that a "clever combination of quantitative and qualitative measures offers the most profound insights into people's relations with meaningful places" (p.221).

In this research, I collected both quantitative (close-ended) and qualitative (open-ended) data, integrated the two, and drew interpretations based on the

combined strengths of both statistical trends with stories and personal experiences to answer the research questions.

4.3 Mixed Methods Design

Amongst the various typologies of mixed-methods research design, an *explanatory sequential design*, as defined by Cresswell (2009, 2015) and his colleagues (Creswell & Plano Clark, 2018), was chosen. The design starts with the collection and analysis of quantitative data in the first strand, followed by the collection and analysis of qualitative data in order to further explain and/or expand on the quantitative findings. The qualitative strand is designed to follow-up the results of the quantitative strand. The primary intention of using this design was to "explain the mechanism through qualitative data and to shed light on why the quantitative results occurred and how they might be explained" (Creswell & Plano Clark, 2018, p.77). As such, the emphasis is on the qualitative strand due to its explanatory nature. An explanatory sequential design is also the most straight forward approach, and is regarded as having easily recognised stages to follow. It is therefore popular among researchers and graduate students who are new to considering the use of mixed-methods strategy (Creswell, 2009, 2015).

In this research, I started by designing a survey to collect cross-sectional quantitative data, and conducting statistical analyses of the data to answer the first group of research questions outlined in Chapter One (RQ1, RO2 and RQ3), re-stated below:

> RQ1 Why and in what ways do urban residents form attachment(s) to the historic environment both in their local neighbourhoods and the wider city in which they live?
>
> RQ2 What are the factors that influence an individual resident's attachment(s) to the historic environment?
>
> RQ3 How are attachments to the historic environment associated with (and/or different from) people's place attachments to their local neighbourhoods and the wider city in which they live?

Specifically, they were addressed by:

- Designing a scale to measure attachment(s) to the historic environment at two spatial scales (neighbourhood vs. city) – in particular examining whether it can be captured by the four dimensions identified (or hypothesised) in Chapter Two, which are intellectual, nostalgic, autobiographical and life-dependent)?

- Examining which sociodemographic factors are likely to significantly influence individual residents' attachment(s) to the historic environment positively or negatively, as (or against) those suggested in previous place attachment studies? Whether there is a 'place-scale effect' on such attachment(s) (locally vs. city-wide) or not, like on the more generally referred place attachment(s) at the neighbourhood and the city scales (e.g., Hidalgo & Hernández, 2001; Lewicka, 2010).

- Measuring residents' place attachment(s) to their local neighbourhoods and the wider city in which they live, and examined their associations with the sociodemographic variables. The important factors associated with these (more generally examined) attachment(s) were then compared with those for attachment(s) to the historic environment.

Embedded in this quantitative stage was a process of place attachment mapping which collected spatially referenced place attachment data to address the fourth research question outlined in Chapter One:

> RQ4 When attachments to the historic environment are directly identified in PPGIS using a mapping approach, what is the spatial expression of participants' responses?

and an additional question RQ5 following the objective ("*examining the spatial attributes of such attachments*") set out in Chapter Three,

> **RQ5** Are residents' attachments to the historic environment related (or not) to people's everyday movements?

These were approached by:

- Using '*special historic place*' following Brown and Raymond (2007) to spatially operationalise attachment to the historic environment and map the spatial distribution of historic places that urban residents feel are special (i.e., of emotional significance). Examining how individual resident's selections demonstrate commonalities?

- Using online PPGIS tool to collect spatial data.

- Investigating the spatial relationship between attachments to the historic environment mapped by participants and their everyday movements (measured by places that they use in their daily lives).

This led to the development of an EGIS (Emotional GIS) methodology. The idea of developing an EGIS started with the intention of applying the mapping approach to visualise place attachment to inform conservation and local development planning that would affect the historic environment (as discussed in Chapter Three). Through the research journey of this PhD, it has developed into a methodology for registering (collecting), displaying (visualising), and exploring place attachment data (performing spatial analysis). The data collection process, data analysis and resulting outputs, as well as future development, are discussed in the rest of this chapter and examined further in Chapter Six.

Then, semi-structured interviews were carried out to collect qualitative data and thematic coding were employed to analyse the data, in order to interrogate people's attachment to the historic environment in more depth:

> How do urban residents develop attachments to the historic environment or places in the ways (dimensions) confirmed by the quantitative findings? Are there any other dimensions?
>
> Apart from the sociodemographic factors, what are other factors that also influence residents' attachments to the historic environment or places (for example the cultural and social factors)?
>
> Why certain historic places are of exceptionally emotional significance? How does this relate to people's daily lives?

In so doing, the qualitative strand helped to:

> Add more detail to the quantitative and spatial findings of the context of places, personal stories and place meanings, bringing into life what the quantitative and spatial findings have suggested about the nature of attachments to the historic environment;
>
> Elaborate the quantitative and spatial results and support them in terms of their interpretation and validity.

Figure 4-1 visualises the sequential explanatory method designed for this research and how it was carried out. The instrument (questionnaire) design, sampling techniques, data collection and analysis procedures are explained in detail in the rest of this chapter.

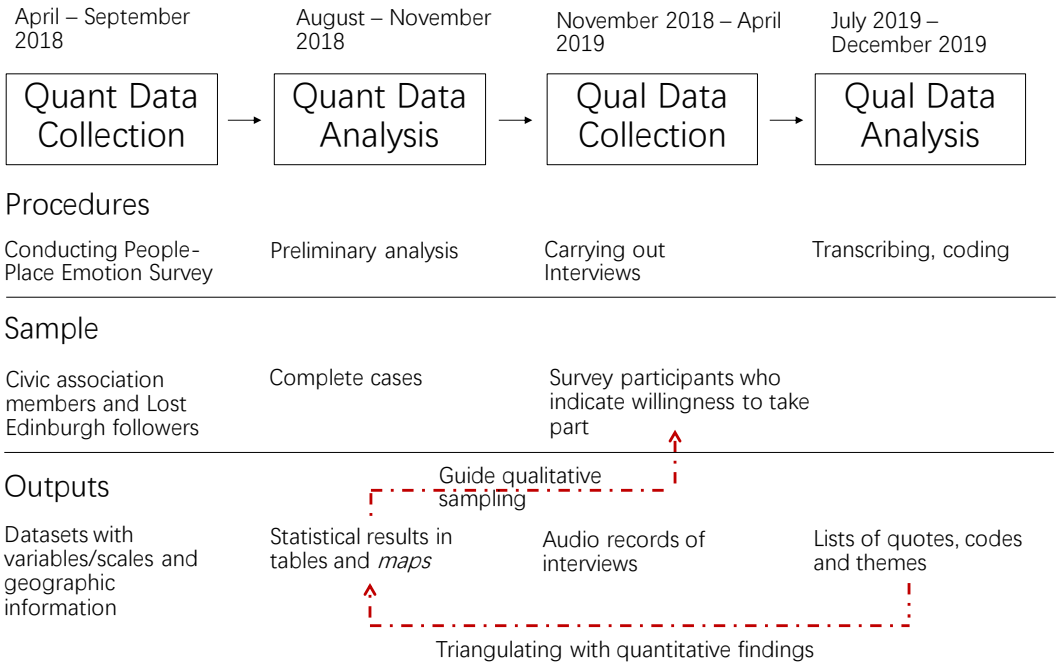


Figure 4-1 The Sequential Explanatory Mixed Methods Design and Research Process

4.4 Defining the Case of Edinburgh

Case study is usually known as a research strategy for qualitative research, but it is not essentially qualitative and can be based on either quantitative or qualitative evidence or any mixture of the two (Yin, 2018; Stake, 2008). A case study is arguably also "not a methodological choice but a choice of what is to be studied" (Stake, 2008, p.119).

Stake (2008) distinguishes between two common types of cases: intrinsic and instrumental. A case is intrinsic when the case itself is the prominent research interest, while in an instrumental occasion, a case is selected and examined to facilitate the understanding of an interesting issue or theory, in which the case

itself is of secondary importance (Stake, 2008). Since the purpose of this research is to make advances in understanding the place attachment phenomenon, the selection of an instrumental case(s) was required.

Flyvbjerg (2006) suggests that an atypical or extreme instrumental case can, in a strategic sense, better facilitate the study of a given phenomenon than a randomly selected case. According to his explanation, selecting an atypical case expands the opportunities of obtaining richer information with limited time and money (Flyvbjerg, 2006). In this research, I selected Edinburgh as the instrumental case to study for its distinguishing atypical characteristics. Edinburgh has a significant concentration of both built heritage and residential population in and around the city centre. Figures show that 75% of the buildings in the city had been listed and were in better condition than most other historic cities in the UK (EWH, 2017, p.12). Moreover, the proportion of residents living in inner suburban areas is the highest in Scotland and third outside London across the UK (The City of Edinburgh Council, 2013). These figures suggest that people living in Edinburgh are likely to have a higher chance to develop experiences within and emotional attachment to the historic environment due to their proximity to and everyday interaction with them.

Another distinguishing characteristic that makes Edinburgh an atypical instrumental case is its vibrant civil society and urban associational culture. Though few reports or studies can be found on how vibrant the civil society in Edinburgh has been, it should not be diminished because the distinct historic character and rich historic remains of Edinburgh which have been refined as a result of planning policies privileging conservation for decades-long (Madgin & Rodger, 2013) may never be created without the constant pressure from the civil society. The oldest architectural, conservation and urban planning monitoring organization in Edinburgh – The Cockburn Association (Edinburgh Civic Trust) – dates back nearly 150 years (Cockburn Association, 2019).

More compelling evidence may be Patrick Abercrombie's description of the challenging work faced by planners in the immediate post-war years to foist development and redevelopment plan on Edinburgh – "Nothing is so likely to arouse controversy and opposition as change or destruction of any of the ancient

human landmarks of this city (Edinburgh)" (Abercrombie and Plumstead, A Civic Survey 53, cited in Madgin & Roger, 2013, p.518).

4.5 Sampling Design

Two major issues confronting sampling design in mixed methods studies are: a) how to follow rigorous sampling schemes within each component of the mixed methods, and b) how to achieve integration between the two (Creswell, 2015).

Onwuegbuzie and Collins (2007) pointed out the false dichotomy that purposeful sampling is typically associated with qualitative research while probability sampling is linked to quantitative research. They argue that both purposeful sampling and probability sampling can be used in qualitative or quantitative research (Onwuegbuzie & Collins, 2007). It is the goal of the research rather than the method that should determine the sampling scheme (Onwuegbuzie & Collins, 2007). In a later publication, they also emphasised the issue of *interpretive consistency* – the consistency between the types of generalisations that can be formulated with the implementation of a sampling design – which researchers should uphold (Onwuegbuzie & Collins, 2017). Since the goals of my research are to obtain insights into a neglected aspect of the place attachment phenomenon, rather than generalising the quantitative findings (and qualitative findings) to the population from which a sample would be drawn, purposeful sampling was employed to both the quantitative and qualitative strands of the research. In a purposeful sampling design, the sample units are chosen because of their particular characteristics (e.g., sociodemographic characteristics or related to specific roles), which will enable detailed exploration and understanding of the central themes and questions (Ritchie et al., 2014).

When it comes to the integration of the two sampling schemes, a nested relationship between the qualitative sample and the quantitative sample was considered the most suitable (Creswell, 2015; Onwuegbuzie & Collins, 2007). The nested relationship means the individuals for the qualitative sample are a subset of the participants in the quantitative data. In my research, the sample for the qualitative strand was chosen from those who took part in the quantitative studies. It is the most suitable because it meets the developmental purpose of

collecting qualitative data to further explain and expand on the quantitative findings.

The purposeful sampling design for the quantitative stand and qualitative stand, and their integration are explained in the following sections in turn.

4.5.1 Sampling Scheme for the Quantitative Strand

Glaser (1978) points out that when adopting purposeful sampling, the researchers begin from somewhere they think will maximise the possibilities of obtaining enough data or more data on their research questions. Adopting this approach, this research followed criteria built upon two conclusive empirical findings in the existing place attachment literature to recruit survey participants to avoid the risks of shortness in data. These were: a) place attachment can motivate civic engagement, and b) place attachment is positively related to interest in place history and historical knowledge. Those who hold memberships of local civic associations and/or who are interested in local history are therefore likely to have emotional attachments to the historic environment, and thus would have more to say about the topic and be willing to take part in the survey.

Local civic associations in Edinburgh were identified as the sample groups in the first instance. The initial selection of the local civic associations only included the Cockburn Association and the Edinburgh Old Town Development Trust (EOTDT). The final list was extended by the inclusion of seven other local civic associations. They are the Broughton History Society, Dean Village Association, Grange Association Edinburgh, Inverleith Society, The Colinton Amenity Association, Portobello Amenity Society, and The Cramond Association. These local civic groups, excepting the Cockburn Association, are operated by residents and focus on issues in their immediate living environments. For example, the EOTDT is a residential association set up by local residents to help the development and preservation of the Edinburgh Old Town (EOTDT, 2019). The Medieval Old Town has been the central focus of conservation sectors and civic bodies, especially after Edinburgh won World Heritage Status in 2005. It is thus of particular interest to discover how the traditionally appreciated heritage is

emotionally significant to Edinburgh residents (for more information on EOTDT and these seven local civic groups, including the years when they found, the number of individual members at the time when they were approached for this research purpose, see Appendix A).

In contrast, the Cockburn Association, the oldest civic association in Edinburgh, which was officially founded on 15 June 1875, and named after the late Lord Henry Cockburn (1779-1854), has a city-wide focus. The Cockburn, as it is locally known, campaigns to protect and enhance the beauty of the whole of Edinburgh. It is viewed as the most influential civic association in Edinburgh today with more than 700 individual members and more than 50 affiliated street and amenity associations, community councils and other charitable organisations (Cockburn Association, 2019). As such, it was presumed to be the main source of the survey respondents.

In addition to these civic associations, an online social media interest group on Facebook called Lost Edinburgh was also included. Lost Edinburgh is a public account on Facebook "dedicated to sharing old photos showcasing the ever-changing face of Edinburgh, its history and its community throughout the centuries" (Lost Edinburgh, 2019). Followers share, comment and learn from the images and videos of Edinburgh's different places in the past, which are posted by like-minded individuals and which involve discussions on topics including buildings and places lost through demolition, obliteration or alteration in the course of urban growth, history of local families and people, as well as the living and working life of the past. These topics have made Lost Edinburgh an 'emotional community' where its members share collective attachments to the past and may "generate the social capital needed to mobilise against the further destruction of the past" (Gregory, 2015, p.45). Lost Edinburgh was thus deemed a good source to look at place attachment to the historic environment. Table 4-1 presents the two categories of sample organisations.

Table 4-1 Sample Sources Categories

Offline Civic Associations	Geographical Focus
Cockburn Association	Citywide
Broughton History Society	Locally focused
Dean Village Association	Locally focused
Edinburgh Old Town Development Trust	Locally focused
Grange Association Edinburgh	Locally focused
Inverleith Society	Locally focused
Portobello Amenity Society	Locally focused
The Colinton Amenity Association	Locally focused
The Cramond Association.	Locally focused
Online Interest Community	
Lost Edinburgh	Citywide

The sampling scheme adopted can be categorised as purposeful random sampling (Patton, 2002), as no members of those local civic associations and followers of Lost Edinburgh were eliminated, therefore had the possibilities of being randomly selected[18]. While such a sample does not generalise to the entire residential population in Edinburgh, it made internal generalisation on evidence obtained from a group of self-selected 'expert citizens' (or 'civil experts'), whose perceptions towards the historic environment are essential for understanding conservation and planning (Madgin et al., 2018; Wells, 2015, 2017).

4.5.2 Sampling Scheme for the Qualitative Strands

In an explanatory sequential mixed method design, it is quite common for researchers to use quantitative findings to set some predetermined criteria to select cases for the qualitative data collection (Creswell, 2005, 2009; Creswell & Plano Clark, 2018; Onwuegbuzie & Collins, 2007). For example, Twigger-Ross and Uzzell (1996) used semi-structured interviews to examine the role of place in the

[18] It should be recognised that some residents were members of more than one of those civic associations, and could also be followers of the Lost Edinburgh. Those who were in multiple groups might have a higher chance of being selected.

development process of residents' place identity, the samples of which were selected from previous research participants who took part in a survey research and demonstrated their levels of place attachment to a residential environment. In their study, the basic quantitative findings — the strength of people's attachment — became the criterion for recruiting interviewees. This enabled the full coverage of discussions on various developmental processes of identity that associate people with their environment among the highly attached, attached, non-attached and highly non-attached (Twigger-Ross & Uzzell, 1996). Such a sampling scheme is best defined as 'criterion sampling' and one of its major application is to identify cases from a quantitative questionnaire that meet certain predetermined criteria for in-depth follow-ups identifies cases from a quantitative questionnaire that meet certain predetermined criteria for in-depth follow-ups (Patton, 2002; Sandelowski, 2000). It allows the qualitative sample to include people that can be placed exactly in the wider representative patterns obtained in the quantitative analysis.

The selection of interview participants in my research also followed a criterion sampling scheme. Quantitative findings were used to guide the selection of interview participants to ensure that all the key constituencies of relevance to place attachment were covered. Within each of the key criteria, enough diversity was considered so that various perspectives and viewpoints of individuals were reflected. Specific considerations are explained before presenting the qualitative findings in Chapter Seven.

Analytic generalisation was claimed in this stage whereby findings were used to demonstrate how the theories or arguments grounded in literature were either challenged or supported, and thus could be generalised to similar situations (Yin, 2013).

4.5.3 A Sampling Design for the Discussions of Place Attachment and Civic Engagement

As argued in Chapter Three, the use of PPGIS in previous place attachment mapping studies lacks strategic considerations on domains of 'public' sampling and 'participation', which are viewed as the heart of PPGIS (Brown, 2012;

Schlossberg & Shuford, 2005). Since participatory nature of mapping should be recognised for its capability of challenge the dominant political and social geographies of power, I took an attempt to consider these issues by choosing members of local civic associations and Facebook followers of Lost Edinburgh in public sampling.

In the UK, local civic associations have been at the forefront of battling against the erosion of local heritage and identity. They have played proactive roles in urban planning and conservation through their constructive participation in mechanisms such as Conservation Areas Advisory Committees as well as disturbing involvements through local opposition against specific local development plans (Hewitt & Pendlebury, 2014). Within the local-state relationship context, they were recognised as "well placed to represent community views to local authorities and others" (English Heritage 2011 report *Heritage Counts*, cited in Craggs et al., 2015, p.374), strongly embedded within the politics of conservation, and fill the gap between the state and the 'lay citizen' in the participatory process of local governance (Hewitt & Pendlebury, 2014, see also Hewitt & Pendlebury, 2013). Many civic associations have "well-educated and networked membership of professionals" (often labelled as 'expert citizens'), with sustained commitments to civic actions over a considerable time period (Hewitt & Pendlebury, 2014, p.35). The professional expertise allows them to claim their views have authority (Hewitt & Pendlebury, 2014). Their interconnections with their local community councils, the city council and other influential bodies (Hewitt & Pendlebury, 2014) enable a sense of empowerment among community members (Manzo & Perkins, 2006).

Given the observed link between place attachment and civic engagement might work well with the mediation of social capital, local civic associations may be a good start if the EGIS is to demonstrate usefulness in facilitating civic engagement in planning and conservation. This issue is discussed in Chapter Six.

4.6 Quantitative Data Collection

4.6.1 Questionnaire Design

Questionnaire items were designed to collect quantitative (including spatial) data in the following aspects.

1) Dependent Variable: Attachment to the Historic Environment

A 12-item Likert-type **HA (Attachment to the historic environment) Scale** was designed to measure and capture the four hypothesised dimensions of residents' attachments to the historic environment which are intellectual, nostalgic, autobiographical and life-dependent. The HA Scale took a 5-point response format ranging from 1 (Strongly disagree) to 5 (Strongly agree) and was rated twice with regards to the two spatial levels (the neighbourhood level and the city level).

The wording of each item considered the following two sources. The first was items in existing place attachment scales measuring attachment to residential places (e.g., Hidalgo & Hernández, 2001; Lewicka, 2008), which were considered as relevant to the historic settings. The second was place-related studies and heritage literature that grounded the emotional connections between people and historic places using empirical evidence. For example, the item 'I like to learn about the place's past', measuring intellectual attachment, was based on the finding that residents' place attachment is positively related to their interest in history (Lewicka, 2008). Residents' statements presented in qualitative studies were also referred to.

2) Explanatory Variables[19]

Sociodemographic characteristics

In addition to 'standard' sociodemographic characteristics of gender, age, employment status, educational attainment, ethnicity, homeownership, length of residence, two more variables were obtained: a) whether respondents were born in Edinburgh, and b) their family history of living in Edinburgh (e.g., 'at least one of my grandparents was born in Edinburgh'; 'my father and/or my mother was born in Edinburgh'; 'I am the only generation in my family that was born in Edinburgh', etc.).

This categorisation was based upon previous work by Lewicka (2008). Her research, which was carried out in Poland and Ukraine, found that newcomers whose family do not have a history of living in the studied areas were more interested in the local history than those who have more firm roots in the area (Lewicka, 2008). Therefore, given this evidence of a positive association between place attachment and interest in place history for newcomers, it was expected that newcomers would demonstrate stronger intellectual attachment than those who have a family history of living in Edinburgh, while those who have a richer family history of living in Edinburgh should reasonably have stronger autobiographical attachment than newcomers.

Length of residence and homeownership were assumed to be the most important factors that are associated with attachment to the historic environment, since they are found to be significant predictors of place attachment to the neighbourhood settings (for a review see Lewicka, 2011b).

[19] I use 'explanatory variable' instead of 'predictor' to highlight that the purpose of the analyses in this research is not to use these (explanatory) variables to predict the dependent variable (attachment to the historic environment), but to explain the relationship between them.

Self-reported residential characteristics

Two unique characteristics of respondents' home environment (do you live in a listed building[20] or not?) and neighbourhood (do you live in a Conservation Area[21] or not?) were of particular relevance to the understanding of attachment to the historic environment. People's perceptions about whether they live in a listed building or a Conservation Area are proxy reflections of their knowledge of, and interests in, the historic attributes of their living environment. Those who believe they live in listed buildings and/or Conservation Areas are therefore assumed to have stronger intellectual attachment with the historic environment (as discussed in Chapter Two). Yet it should be noted that these two self-reported residential circumstances may not correctly reflect the relationship between interest in history and intellectual attachment, because knowing 'whether one lives in a listed building or a Conservation Area and developing intellectual attachment could be two irrelevant cognitive processes. People can also have such knowledge if they had once made a planning application.

3) Place Attachment to Local Neighbourhoods and Edinburgh

Place attachment was measured using a Likert-type scale comprised of 9 items (e.g., 'I am proud of this place'; 'It is like a part of myself'; 'I know it very well', etc.). This was rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree). The scale was tailored from the Place Attachment Scale designed by Lewicka. Permission to adapt and use the original scale was given by Professor Lewicka in 2017. The scale has been repeatedly tested in studies carried out in Poland and Ukraine and has demonstrated good internal reliability (e.g.,

[20] Listing provides statutory protection for buildings of 'special architectural or historic interest', as set out by law in the Planning Listed Buildings and Conservation Areas (Scotland) Act 1997 (HES, 2019c).

[21] A Conservation Area is an area of 'special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance' and are protected under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (HES, 2019a). Trees and other features such as designed gardens are all protected. Permission for even minor works may be needed in a Conservation Area (HES, 2020). There are 50 Conservation Areas by the end of 2020 (The City of Edinburgh Council, 2020).

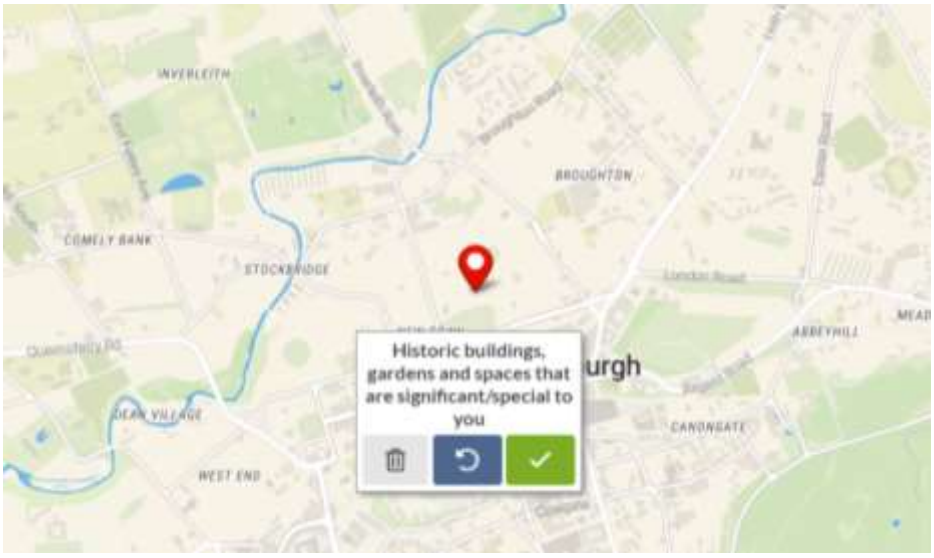
Lewicka, 2008, 2010). The scale items were rated by respondents separately with respect to their neighbourhoods and Edinburgh.

4) Spatially Referenced Data

Special historic place (SHP)

In order to ground place attachment to the urban historic environment on maps, I drew on Brown and Raymond's (2007) work which used 'special place' as the spatial operationalisation of place attachment. Identifying a 'special place' has achieved a certain degree of external validity (explained in Chapter Three). The method was also replicated by Lin and Lockwood (2014a). In my research, participants were requested to mark on the map any historic places that they believed were significant or special to them, and were then asked to name the place in a follow-up question. The mapping was done using the online PPGIS toolkit Maptionnaire where respondents could vary the map scale and more precisely locate a place using the 'zoom' function. To ensure the spatial variability of the identified historic places, participants were given the option to place pins on the map to identify the specific locations of historic buildings, streets, gardens or spaces. They were encouraged to indicate as many locations as they wanted. Figure 4-2 illustrates the process taken to complete the special historic place mapping.

Step 1, read the question and follow the instructions



Step 2, place the pin on the map and tick the '✔' button.

Figure 4-2 Process Taken to Complete the Special Historic Place Mapping

Daily life place (DLP)

In line with Seamon's work (1980), data were collected that could spatially reflect the everyday movements of the respondents. Participants were asked to identify any places or areas they visit as part of their daily life, such as where they work, socialise, go shopping, send children to school, buy a cup of coffee in the morning, commute, walk dogs, and so on. It was assumed that the spatial distribution of SHP would be associated with that of these daily life places (DLP).

Residential postcode

Participants were also asked to provide their residential postcode. Using postcode data, the survey data were linked to the SIMD[22] (Scottish Index of Multiple Deprivation) data to look into the association between degree of attachment to the historic environment and level of neighbourhood deprivation they experience. Livingston et al. (2010) found people are less likely to be attached to deprived areas than more affluent areas. A similar trend was also explored between attachment to the historic environment and neighbourhood deprivation.

The initial version of the questionnaire was submitted to an informal piloting among several PhD students in Urban Studies at the University of Glasgow. Changes were made following feedback on the order of questions and wording of some questionnaire items. All questionnaire items were reviewed multiple times by the author's supervision team. The full questionnaire is available in Appendix B.

4.6.2 People-Place Emotion Survey

The designed questionnaire was named the People-Place Emotion and was put on an online PPGIS mapping toolkit called Maptionnaire.

Maptionnaire is one of the leading PPGIS software packages and has been applied in many planning contexts, mostly in Finland but also internationally. The cloud-based software provides researchers with an easy-to-use window to combine mapping tasks and normal questionnaire items in an integrated survey. It also

[22] The SIMD is Scottish Government's standard approach to identify relative deprivation across 6,976 data zones in Scotland. It is used by local authorities, the Scottish government, the NHS and other government bodies across Scotland to support policy and funding decision-making that is associated with deprivation. SIMD looks at the extent to which a data zone is deprived across seven domains: income, employment, education, health, geographic access to services, crime and housing (Scottish Government, 2020). Through combining the seven domains into one weighted index, it ranks data zones from most deprived (ranked 1) to least deprived (ranked 6,976) (Scottish Government, 2020).

offers convenience and flexibility for survey participants, as it works on all types of devices from a Mac to a tablet.

Online PPGIS mapping was chosen because, unlike a paper map, which can only present a limited section of the city in a fixed scale, the online map enables people to move the map viewport, zoom in/out and search precisely for postcodes and/or the names of specific places. Moreover, it enables the data collection procedure to be more efficient in a limited time period and, in fact, is the best way to approach the Lost Edinburgh followers on Facebook.

Data collection started after the research ethics was approved in March 2018. Each potential local civic association, as well as the Lost Edinburgh group on Facebook, was contacted to obtain their permissions and seek their support to circulate the online survey to their members on the author's behalf. The aim and scope of the research were explained to staff (usually the chair or secretary) working for the local civic associations and the administrator of Lost Edinburgh through either email, phone calls or face to face meetings. The introduction letter on the research and the attached consent form used in this process are available in Appendix C.

The nine civic associations (listed in previous discussions of the quantitative sampling design) and the Lost Edinburgh group gave their permission. Members of these nine civic associations then received correspondence from their organisations inviting them to take part in the research following the link of the People-Place Emotion Survey enclosed in the correspondence. For lost Edinburgh followers, those who could have seen the survey invitations posted on the Lost Edinburgh by the administrator on 30 April 2018 and 10 May 2018 became potential research participants.

The People-Place Emotion Survey was closed by the end of September 2018. It had been visited over 1,900 times and received 541 responses with an estimated overall response rate of 28.4%.

4.6.3 Other Spatial Data

This research also used publicly accessible spatial data, specifically the shapefiles of Conservation Area boundaries shared by the City of Edinburgh Council Mapping Portal and the shapefiles of Data Zone[23] Boundaries 2011 published by the Scottish Government. The boundaries of Conservation Areas were included in the background map which was created to display the city-wide distribution of mapped SHP (Special Historic Places) in Chapter Six. It helped to reveal the spatial overlap between SHP and Conservation Areas in Edinburgh. The Data Zone Boundaries shapefile was used to create the border of Edinburgh in the background map. These two shapefiles were also used respectively in two later analyses which serve as examples of how EGIS methodology may facilitate place attachment research. In these two examples, Conservation Areas shapefile was used to examine if participants' answers to 'whether they live in a Conservation Area' matched the 'truth', while Data Zone shapefile was used to demonstrate neighbourhood deprivations across Edinburgh. They were explained in detail in Chapter Six.

4.7 Qualitative Data Collection

4.7.1 One-to-one Interviews

Interviews are one of the most commonly used data collection tools in qualitative research (Mason, 2002). Interviews can take various forms, but are broadly categorised into two types: one-to-one interviews/individual interviews and focus groups.

I considered individual interviews to be appropriate because they better fit the particular context of place attachment research and also had practical advantages. First and foremost, the individual interview was employed because, most of the time, people demonstrate their experience of place attachment through a 'narrative' life story which can be quite personal (these narratives

[23] Data zones are the key geography for the dissemination of small area statistics in Scotland. The data zone geography covers the whole of Scotland and nest within local authority boundaries. Scottish Government, 2004).

make up the evidence about autobiographically-developed attachment, presented in Chapter Seven). The types of questions asked sometimes generate ethical issues, such as when people share intimate information such as family history. It would not be appropriate to do this 'publicly' in a focus group. Second, individual interviews enable a deeper interactional exchange of dialogue between the researchers and the subjects (interview participants) because of the extended opportunity for conversation and the undivided attention of both participants. This can produce more insight into a respondent's personal thoughts, feelings, and world view (Burns, 1989). Third, compared to a focus group, researchers conducting one-to-one interviews play a less important role in the (interview) process and are therefore less likely to stumble into a greater degree of 'moderator bias' (Stewart & Shamdasani, 2014). Finally, an interview is easier to organise than a focus group, as there is more flexibility in scheduling and often require less travel by the participant.

A total number of 25 people were interviewed. They were among a subsample drawn from those survey participants who indicated their interests in participating in a follow-up interview following a criterion sampling scheme (as discussed in the sampling design section). This number was determined by the researcher's personal determination that a data saturation point was attained after the twentieth interview when the conversation began to offer no new questions, directions or insights. A data saturation point, in qualitative research, is defined as the point when no new information is likely to emerge or a feeling of redundancy and replication occurs (Guest, Bunce & Johnson, 2006; Mason, 2010). The selection criteria and an overview of the 25 interview participants are provided in Chapter Seven.

The interviews began in November 2018 after some preliminary analyses of the quantitative data had been completed and were all conducted by the end of April 2019.

All of the interviews were conducted face-to-face at places chosen by the interview participants. The majority took place in coffee shops located within the neighbourhoods that the interview participants lived or worked in. The interviews took a semi-structured format and lasted on average around 50

minutes. The shortest interview was about 30 minutes long and the longest interview was over two hours.

The interview schedule can be divided into two parts. First, it explored people's general experiences related to growing up (for those who were born in Edinburgh) or coming to live (for newcomers) in Edinburgh. Second, it examined more specifically attachments to particular historic places volunteered by participants.

4.8 Data Analysis

4.8.1 Computational Statistical Analysis

First, some descriptive statistics (percentages of categorical variable classes) were calculated for the explanatory variables.

Next, a conventional exploratory factor analysis (EFA) and an emergent exploratory bifactor analysis (EBFA) introduced by Jennrich and Bentler (2011, 2012) were in turn conducted on the responses to the 12-item HA Scale to examine the underlying dimensions of attachment to the historic environment. Factor scores for the conventional EFA solution to HA Scale were then computed and used in subsequent analyses in which different dimensions of attachment to the historic environment were studied as dependent variables in examining their associations with sociodemographic variables, and their relationships with residents' place attachment to the current neighbourhood and the city.

The initial research design was to test a reflective measurement theory of attachment to the historic environment (in which the latent construct causes the measured variables, see Hair Jr et al., 2014) using confirmatory factor analysis, so that a hypothesised four-dimensional theoretical model of attachment to the historic environment could be confirmed (see Figure 4-3). However, the *identification* issue was overlooked when each of the four latent constructs was designed to have only three indicators/measured variables in the overall model. A statistical model is *identified* if there is fewer unknown information than is known (Hair Jr et al., 2014). However, this was not the case for the

hypothesised model described above. In fact, this construct identification problem was an overlooked issue due to the lack of experience in survey design. In addition, the model-fit indices for the HA Scale neighbourhood responses analyses (CFI = 0.87; RMSEA = 0.14) were miles away from the acceptable levels of 0.95 (CFI) and 0.06 (RMSEA) suggested by Hu and Bentler (1999). So were those for the HA scale city responses analyses despite an improvement in CFI value (CFI = 0.94; RMSEA = 0.10). Therefore, given that the HA Scale is an original instrument and that the restrictive confirmatory approach failed to impose a theoretical framework on the data, the use of exploratory approaches for a well-fitted solution was tenable.

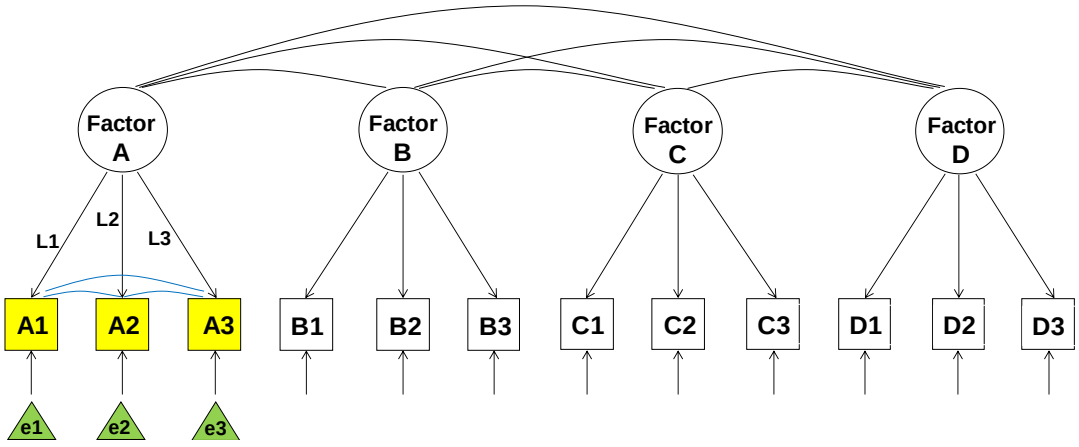


Figure 4-3 A Graphic Representation of a Four-construct Measurement Model with Each Latent Construct Indicated by Three Measured Variables

The following issues in relation to the direct use of factor scores in subsequent analyses were recognised. First, factor scores are sensitive to factor extraction and rotation methods used in factor analyses. The conventional EFA solution was chosen for factor score computation because it is conducive to the interpretation of further analyses. Second, the problematic issues with factor

score indeterminacy were recognised[24]. Third, factor scores were screened to check whether they were normally distributed.

All of the analyses were completed in the R statistical programming environment (R Development Core Team, 2019). All factor analyses were completed using the 'psych' (v 2.0.12) (Revelle, 2020) and 'GPArotation' (v 2014.11-1) (Bernaards & Jennrich, 2005) packages in R.

4.8.2 Mapping and Spatial Analysis

In order to display and analyse the spatial data, some preparatory work was completed initially. Each identified SHP (special historic place) was assigned a unique ID and was ascribed two profiles: a place profile, consisting of its geocoordinates (longitude and latitude), name and designation status, and a person profile, which comprised the socio-demographic profile of the participant who identified it, including their level of educational attainment and family history of living in Edinburgh. These two attributes are important because both of them were found to be statistically significant explanatory variables of attachment to the historic environment (see Chapter Five). The association between SHP selections and these two variables was therefore examined further. The designation status of each place was checked using the Designations Map Search developed by Historic Environment Scotland (HES)[25]. Table 4-2 illustrates a segment of the first five entries of the SHP Dataset created for the analysis.

The spatial distribution of SHP was then displayed on a series of maps using 'tmap' package (v 3.3-1) (Tennekes, 2018), the 'get_map' function in the

[24] A good discussion of factor score indeterminacy, as well as other issues related to the use of factor scores in regression can be found in DiStefano, Zhu and Mîndrilă (2009).

[25] Historic Environment Scotland (HES) is the leading public body "to investigate, care for and promote Scotland's historic environment" (HES, 2020). The Designations Map Search helps to "identify the designated asset" of a designation site by place, address, postcode or names/references of the designation site (HES, 2020).

'ggmap' package (v 3.0.0) (Kahle & Wickham, 2013), 'ggplot2' (v 3.2.1) (Wickham, 2016) and 'ggspatial' packages (v 1.1.5) (Dunnington, 2021) in R.

To examine the association of the spatial distribution of mapped SHPs with the spatial distribution of those mapped DLP locations, the SHP dataset was treated as a spatial point pattern dataset and submitted to spatial point process analysis. A spatial point pattern, such as the *SHP*, can be thought of as the realisation of an underlying spatial point process. It can thus be described by formulating an explicit mathematical model of the underlying process. If a model can be developed that fits the data well, the estimated values of the model's parameters provide summary statistics, which can be used to explain the underlying process that determines the spatial phenomenon being studied when they are related to scientific hypotheses (Diggle, 2014). Spatial point process modelling is widely covered in many statistics textbooks (e.g., Baddeley, Rubak & Turner, 2015; Diggle, 2014). It has been applied in the urban context for studies of social networks, employment, mobility, crime and health, but has been less used in environmental psychology. A detailed explanation of spatial point process analysis is presented in Chapter Six. All spatial point process analyses were carried out using the 'spatstat' package (v 2.0-1) (Baddeley et al., 2015) in R.

Table 4-2 A Segment of the First Five Entries in the SHP (Special Historic Place) Datafile

Place ID	Name	Longitude	Latitude	Designation	Respondent ID	Education	Family history of living in Edinburgh
102	Sighthill Drive	-3.281693	55.920460	None	12	First degree	Third generation
103	Siverknowes Parkway	-3.267510	55.971955	None	12	First degree	Third generation
104	Pennywell Road	-3.250065	55.970250	None	12	First degree	Third generation
45	Lauriston Castle	-3.285599	55.960348	Category A listed building, & Inventory of Gardens and Designed Landscapes	16	First degree	Second generation
46	Edinburgh Castle	-3.182602	55.948623	A group of category A, B, and C listed buildings, & Scheduled Monument	16	First degree	Second generation

The person profile of each place also includes gender, age, ethnicity and so on which are not shown in the table.

4.8.3 Thematic Analysis

Thematic analysis was employed to identify, analyse, and report themes within the qualitative interview data. A theme is defined as something that "captures something important about the data in relation to the research question, and represents some level of *patterned* response or meaning within the data set" (Braun & Clarke, 2006, p.82; italics in original).

Thematic analysis has several advantages including its 'flexibility'; that it "can usefully summarise key features of a large body of data"; that it can "highlight similarities and differences across the data set"; that it "can generate unanticipated insights" and "allows for social as well as psychological interpretations of data" (Braun & Clarke, 2006, p.97) – one of the aims of my research.

I took the analytic process described by Spencer et al. (2014) which, in a chronological sense, followed a number of key steps.

The first stage of the analysis was to familiarise myself with the data. I did this by transcribing the interview recordings myself. I also read and reviewed each transcript multiple times after they were completed. This was very time-consuming but was the "bedrock" (Braun & Clarke, 2006, p.87) for the rest of the analysis because it enabled a detailed understanding of the data coverage, as well as a preliminary 'sense' of the interesting and recurrent topics and issues across the data set that were relevant to the research questions.

The second stage was to produce an initial 'thematic framework' to organise the data. Materials with similar content or properties were sorted, grouped and ordered into a set of 'descriptive' themes, before a further level of reflective analysis was applied to develop explanatory accounts of the themes.

The next stage involved close coding of the data using NVivo software for qualitative data analysis. Coding, as Bryman (2012) explains: "entails reviewing transcripts …. and giving labels (names) to component parts that seem to be of

potential theoretical significance and/or appear to be particularly salient within the social worlds of those being studied" (p.568). Coding was carried out in a systematic way across all of the transcripts to ensure that all of the data were fully interrogated and explored. Through this process, the analytical framework was revised and adapted. An early version of the coding framework is provided in Appendix D.

An important feature of the thematic analysis in my research, which must be mentioned, was its 'semi-deductive' nature. The process involved both a theory-led approach to identifying answers to the research questions, drawing on the quantitative findings to enhance the analysis, as well as more bottom-up engagement with the data to identify common experiences and perceptions which emerged and were considered pertinent to the broader interests of the study. For example, the initially hypothesised dimensions of attachment to the historic environment confirmed in the quantitative analysis (e.g., the intellectual dimension) were set as predefined 'themes' to locate codes, ideas and cases in a series of related but independent categories.

4.9 Ethics

The research was subject to an ethical review by The University of Glasgow. Full ethical approval was granted by Colleague of Social Science's committee of Research Ethics at the University of Glasgow in March 2018.

4.9.1 Informed Consent

Denscombe (2002) states that "informed consent is a benchmark for social research ethics" (p.98). It is vital that participants are made fully aware of the aims of the research, what participation will involve for them, who is carrying out the research, and how the data will be used, especially with respect to confidentiality.

For the survey participants, such information was provided in a short introduction enclosed in the survey invitation and at the welcome page of the

online questionnaire. Participants indicated their consent by submitting completed (or partly completed) questionnaires.

For the interview subjects, although they might have already had an overview of the research from the survey, each of them was nevertheless presented with a Participant Information Sheet (PIS) and a consent form before the interview began. They were asked to read the PIS and, if content to continue, sign the consent form. They were also provided with opportunities to ask as much as they liked about the research. The PIS is available in Appendix E and the consent form in Appendix F.

Interviews were audio-recorded with the permission of the interviewee, and recordings and transcripts were stored securely in a password-secured folder to which only the researcher had access. The data were managed, and will be destroyed, according to the 2018 General Data Protection Regulation (GDPR).

Both direct and indirect attribution of quotes in the write-up of the qualitative findings were avoided through the use of pseudonyms. Other potentially identifiable characteristics were de-identified.

Although talking about place attachment is quite personal, it would rarely happen that a topic in the interview caused uncomfortable feelings to the interview participants. Despite the focus on emotion, it was not evident that the questions had any emotional, psychological, or education impacts on the research participants involved. Nor did it bear any obvious risk to the health and safety of the researcher.

4.9.2 The Use of Incentives

A free prize draw was used as an incentive to help motivate survey participation. Participants were invited to enter a prize draw to win one of three Marks & Spencer vouchers, each worth £50. The use of incentives can be problematic in the cases “where the subject is in a dependency relationship with the researcher, where the risks are particularly high, where the research is degrading” (Grant, 2015, p.365). For example, the use of incentives in race and

ethnicity research which may threaten people's dignity can exacerbate ethical problems. Fortunately, none of the cases above was involved. There was no dependency relationship between the survey participants.

4.10 Summary

This chapter has presented the research methodology. It started with a discussion on the advantages of employing a mixed methods strategy for investigating place attachment, using either a qualitative or a quantitative method alone. It then presented, in detail, the explanatory sequential mixed method design with a mapping component that this research followed. The chapter also explained the selection of Edinburgh as the instrumental case to study because of its atypical character, and why members of local civic associations and Lost Edinburgh followers were chosen for purposive sampling. The different instruments (questionnaire design), methods and procedures involved in collecting and analysing the quantitative and qualitative data were presented respectively. In addition, the approach to ethics taken in the design and delivery of this research was also explained and justified.

The following part of the thesis presents the empirical findings. This is divided into three chapters, which present and discuss the key research findings in turn from a quantitative, spatial and qualitative perspective. Chapter Five establishes a preliminary understanding of how urban residents' form attachment to the historic environment using quantitative data. Chapter Six visualises the spatially located attachment. And, finally, Chapter Seven foregrounds the unique emotions Edinburgh residents have with the city's dramatic historic environment using interview data, adding context, nuance and richness to the findings in Chapter Five and Chapter Six.

5. Chapter 5: Quantitative Analyses Part 1, Dimensions of Attachment to the Historic Environment and their Explanatory Variables

5.1 Introduction

This is the first of three chapters of research findings presented in this thesis. It presents quantified findings about residents' attachment to the historic environment they experienced in their daily lives from statistical analyses of the cross-sectional survey data collected via the People-Place Emotion Survey.

Following an overview of the characteristics of the samples analysed, quantitative findings presented in this chapter provide unique evidence about attachment to the historic environment regarding its: a) dimensions as measured by the designed HA (Attachment to the Historic Environment) Scale; b) associations with standard sociodemographic variables such as age, gender, educational attainment, employment status, and so on, as well as the two self-reported residential characteristics (listed in the questionnaire design section in the methodology chapter), namely 'living in a listed building or not' and 'living in a Conservation Area or not'; and c) relationships with the more usually discussed place attachment residents have with their current neighbourhoods and the city. The two spatial scales, the City and the Neighbourhood, were chosen to examine the place-scale effects. Themes that emerged which are in line with, as well as contrary to, other empirical findings seen in the literature, were then discussed.

The neighbourhood-level analysis is presented in greater detail. This was because the number of survey respondents with complete responses to all the variables addressing the neighbourhood level was twice as large than that at the city level. However, this does not mean that the results of the city-level analyses were not as valid as those at the neighbourhood level.

5.2 Analytical Samples

A total of 273 survey respondents with complete responses to all the variables addressing the neighbourhood level were included in analytical *Sample 1*. A subset of 133 of these respondents also provided complete responses to all the variables covering the city level were included in analytical *Sample 2*.

The numbers of female and male respondents were almost equal. Nearly two-thirds identified themselves as Scottish, followed by those who identified with other British making up one-fifth of the rest. There were notably high proportions of respondents in the oldest (65+ years) and the second oldest (55-64 years) age groups (and therefore a high proportion of retirees). A large majority have been educated to degree level or above. Over half reported that they had a family history of living in Edinburgh, more than the proportion of those who were born in the city. There was also a very small group of people (17) within the sample who were not born in Edinburgh but claimed to have a family history of living in Edinburgh. About 80 per cent claimed to own their homes outright or with a mortgage. Only about one fifth (20.51) thought they lived in a listed building, while slightly under a third (32.60%) believed they lived in a Conservation Area. Responses concerning the length of residence were dropped due to the large percentage of non-random missing data caused by an error when exporting the data from Maptionnaire.

The sociodemographic composition of *Sample 2* for the city-level analysis, summarised in Appendix G, is mostly consistent with that of *Sample 1* except that the proportion of newcomers was higher by nearly 10 per cent.

The sociodemographic composition of *Sample 1* (for the neighbourhood-level analysis) is summarised in Table 5-1.

Table 5-1 Sociodemographic Composition of Analytical *Sample 1* (*N* = 273)

Variable	Category	Percentage (%)
Gender	Female	50.55
	Male	49.45
Ethnicity	Scottish	64.84
	Other British	21.61
	Others	13.55
Age group (years)	18-34	11.36
	35-54	39.56
	55-64	26.01
	65+	23.08
Employment status	Working	55.68
	Not working (including the Retired)	44.32
Educational attainment	No degree	29.30
	First degree	30.77
	Higher degree	39.93
Born in Edinburgh	No	56.41
	Yes	43.59
Family history of living in	Newcomer	49.82
Edinburgh	First generation	10.62
	Second generation	15.04
	Third generation	24.18
Homeownership	Social or private rented	18.68
	Owned outright	46.52
	Owned with mortgage	34.80
Living in a listed building	No, or Do not know	79.49
	Yes	20.51
Living in a Conservation Area	No, or Do not know	67.40
	Yes	32.60

5.3 Dimensions of HA (Attachment to the Historic Environment)

This section presents the results of factor analyses of HA Scale responses at both the neighbourhood and city level. It first presents the results of conventional exploratory factor analyses (EFA) which reveal the underlying dimensions of attachment to the historic environment. More specifically, EFA results answers the question of whether attachment to the historic environment (HA) can be interpreted a multi-dimensional construct comprised of the four hypothesised dimensions: intellectual, nostalgic, autobiographical and life-dependent. Following a short reflection of the EFA results, it then discusses the use of an alternative bifactor structure to interpret HA and presents the results of exploratory bifactor analyses (EBFA).

5.3.1 Dimensions of Neighbourhood HA

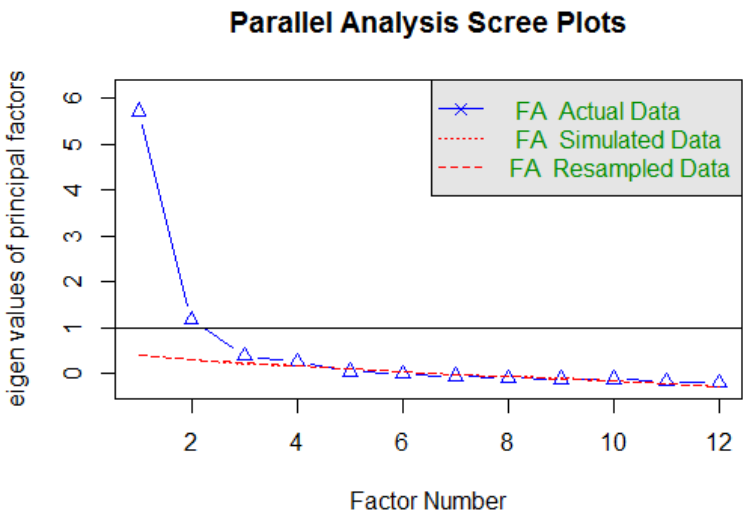
5.3.1.1 The Three-dimension Structure

A conventional exploratory factor analysis (EFA) using the minimum residual method (Harman & Jones, 1966) with oblique rotation was conducted first to examine the underlying dimensions of HA Scale neighbourhood-level responses. Finding the minimum residual solution is viewed as the best of the many ways of doing latent factor extraction (Revelle, 2009). Oblique rather than orthogonal rotation was used because the dimensions of HA (the extracted factors) are theoretically correlated.

Two well-recognised criteria for determining the factorability of a correlation were used to examine that of the HA scale responses. The Kaiser-Meyer-Olkin (KMO) test indicates the adequacy of the sample for factor analysis. The KMO statistic had an overall value of 0.91 and its values for individual items were all > 0.86, which is above the acceptable cut-off level of 0.5. Bartlett's test of sphericity (χ^2 [273] = 1,936, $p < 0.001$) indicated that correlations between items were sufficiently high enough for EFA.

Among the many methods that can be used to determine the number of factors to retain, Horn's (1965) parallel analysis was found to be the most accurate (Zwick & Velicer, 1986). (For an explanation of the rationale underlying parallel analysis, see Hayton, Allen & Scarpello, 2004). Parallel analysis suggested that at least a three-factor solution with a possible fourth factor could be considered, although the Eigenvalue of the simulated fourth factor (0.16) is only slightly smaller than the Eigenvalue of the actual fourth factor (0.26) (see Figure 5-1). Therefore, both the three- and four-factor solutions were examined. None of them met Thurstone's (1947) strict criteria for a 'simple structure'[26], but the three-factor solution, which explained 63% of the variance, yielded a better-defined construct than that returned by the four-factor solution and was thus retained despite having relatively poorer model-fit indices (see Table 5-2). Moreover, over-extraction occurred in the four-factor solution because a fourth factor represented the variance in one item (see Appendix H). Table 5-3 presents the results of the three-factor EFA using a direct 'oblimin' rotation. This is one of the most commonly used oblique rotation methods, although (e.g., 'promax' rotation) produced essentially the same pattern of factor loadings (see Appendix I).

[26] Thurstone (1947) introduced five principles of 'simple structure' that favour having each item loading perfectly onto one factor and not at all on any of the others.



The figure shows the Eigenvalues of the actual and simulated data in decreasing order. The point where the slope of the curve is levelling off indicates the number of factors that should be retained in factor analysis.

Figure 5-1 A Plot of Parallel Analysis Result of HA Scale Neighbourhood-level Responses (*Sample 1*, *N* = 273)

Table 5-2 Model Fit Indices of Three- and Four-factor EFA Solutions to HA Scale Neighbourhood-level Responses (Sample 1, *N* = 273)

EFA Solutions	RMSR	RMSEA with 90% Confidence Interval	TLI
Three-factor	0.03	0.09 (0.07 – 0.11)	0.92
Four-factor	0.02	0.05 (0.01 – 0.07)	0.98

Table 5-3 Three-factor EFA with Direct 'oblimin' Rotation of HA Scale Neighbourhood-level Responses (*Sample 1*, *N* = 273)

Items	Factor loadings			h^2 [27]
	Factor 1	Factor 2	Factor 3	
I am proud of living in my neighbourhood because it has a rich history and many historic assets	0.73	0.12	-0.06	0.62
I like to learn about my neighbourhood's past	0.72	-0.12	0.10	0.49
The historic places in my neighbourhood make the area	0.78	0.02	0.03	0.64
I like to wander around the historic places in my neighbourhood	0.83	-0.06	0.13	0.72
I miss the historic places that have been lost from my neighbourhood	0.23	0.11	0.69	0.74
I miss the way things used to be in my neighbourhood	-0.04	0.42	0.44	0.50
I associate the historic places in my neighbourhood with my own past	-0.02	0.74	0.20	0.68
I associate the historic places in my neighbourhood with my family's past	-0.13	0.81	0.09	0.62
I have a lot of memories associated with the historic places in my neighbourhood	0.12	0.84	0.04	0.81
I organise a lot of my life around using historic places in my neighbourhood	0.33	0.56	-0.14	0.55
I get a lot of satisfaction from living in and around the historic settings in my neighbourhood	0.76	0.15	0.05	0.70
I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood	0.27	0.51	0.09	0.44
Eigenvalues	3.48	3.06	0.96	
% of variance	29	26	8	
Cronbach's alpha	0.89	0.87	0.75[a]	

[a] The two items loaded on factor 3 had an adequate Spearman-Brown coefficient value of 0.86, which was suggested by Eisinga, Grotenhuis and Pelzer (2013) to be a more appropriate test of reliability for two-item measures

[27] h^2 stands for communality, which is the proportion of variance explained by the extracted factors. Higher communality indicates that more of the variance in the item has been extracted by the factor solution.

Factor 1 explained 29% of the variance. It consisted of five items relating to the 'intellectual' dimension of HA, which is derived from people's interests in the history and their appreciation of the historical associations of the historic environment. The five items demonstrated high internal reliability, measured by Cronbach's alpha (0.89). Factor 2 explained 26% of the variance. This factor reflected the sense of 'autobiographical' attachment in association with the historic environment. The highly loaded (> 0.4) items on it indicate the extent to which historic environment and places are essential components of the ensembles of people's daily lives, their memories of their life journeys and those of their families. These items also had high internal reliability (0.88). Factor 3 accounted for a further 8% of the variance and was made up of two items denoting the 'nostalgic' dimension of HA which is attachment caused by a longing or yearning for the past. The two items had an adequate Cronbach's reliability (0.75) and a high Spearman-Brown coefficient (0.86).

However, there were problems with the discriminant validity of the three-factor EFA. First, the item 'I miss the way things used to be in my neighbourhood' had a cross-loading on factor 2 (0.42) that was almost equal to its primary loading (0.44). Second, there were notably high positive correlations between factor 2 (the autobiographical dimension) and factor 1 (the intellectual dimension) (0.55), which made it difficult to interpret the construct (see Table 5-4). Third, only 44% of the variance of the item 'I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood' was explained by the three factors. These problems could not be solved by simply removing those problematic items from the analyses. In fact, all these issues suggested that a bifactor solution might fit the data better.

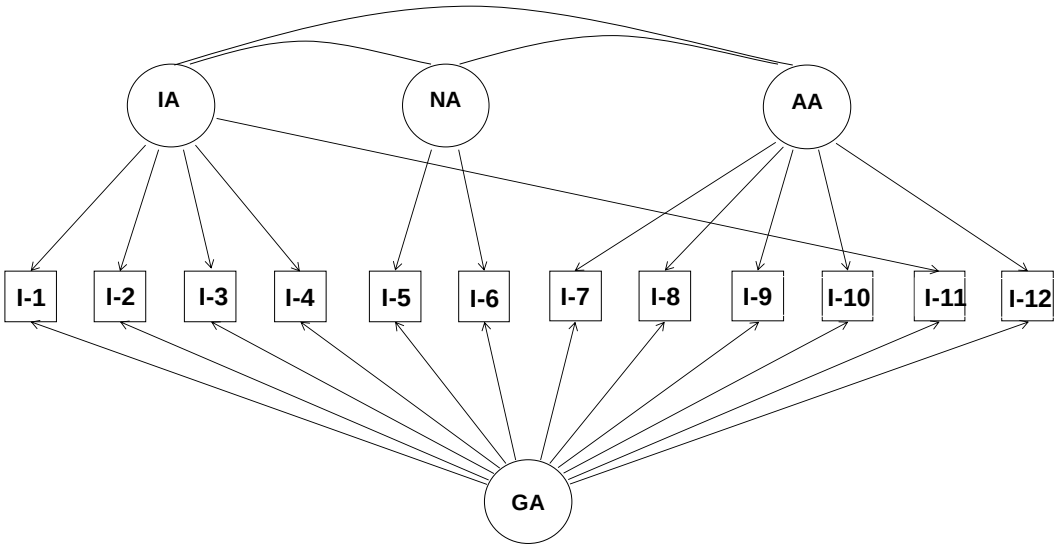
Table 5-4 Factor Structure Matrix of Three-factor EFA of Neighbourhood HA

EFA Factors	Inter-factor correlations		
	Factor 1 Intellectual attachment	Factor 2 Autobiographical attachment	Factor 3 Nostalgic attachment
Factor 1 Intellectual attachment	1.00	0.55	0.31
Factor 2 Autobiographical attachment		1.00	0.42
Factor 3 Nostalgic attachment			1.00

5.3.1.2 The Bifactor Structure

Bifactor analysis was introduced over 80 years ago (e.g., Holzinger & Harman, 1938; Holzinger & Swineford, 1937), but has only recently become adopted as an alternative to modelling multidimensionality of scale responses.

The assumption of this analysis is that the responses to the HA scale are directly influenced by a general factor alongside more narrowly defined subdomains. It was a general factor like this that caused the correlations between the extracted factors seen in the EFA results (see Figure 5-2). Compared to the correlated first-order factor structure, the higher-order factor structure and the single-factor structure which have been widely applied, bifactor structure appears not to have been discussed in place attachment studies. If the HA scale responses do come from a bifactor structure, a bifactor solution should more accurately reflect the nature of HA and may consequently add a viable conceptualisation of place attachment phenomenon to the 'family' of place attachment measures.



IA, NA and AA represent the three extracted EFA factors (IA, intellectual HA; NA, nostalgic HA; AA, autobiographical HA). GA refers to a general dimension of HA. I-n (n = 1:12) refers to the 12 HA scale items. The arrows connect IA, NA or AA to their primary loading items.

Figure 5-2 A Graphic Representation of a Bifactor Structure of HA Scale Neighbourhood-level Responses Building on the EFA Result

One common approach to attaining a bifactor structure in EFA is the Schmid-Leiman (SL) transformation (Schmid & Leiman, 1957), which converts the correlated first-order EFA solution into a second-order solution with a proportionality constraint, which can then be orthogonalised into a four-factor exploratory bifactor solution. However, one of the problems with this SL approach is that it yields a bifactor structure with loadings transformed from those of a higher-order EFA solution. This means that it is not a true bifactor model (e.g., Dombrowski et al., 2019; Mansolf & Reise, 2016). For a bifactor model with an SL transformation procedure, the general factor has no direct influence on the measured items. The general factor functions as a second-order factor (see Figure 5-3). It only explains what is in common with the first-order factors. In contrast, in a true bifactor model, the general factor and the group factors are all treated as first-order factors. The SL approach may therefore produce false evidence of bifactor structures.

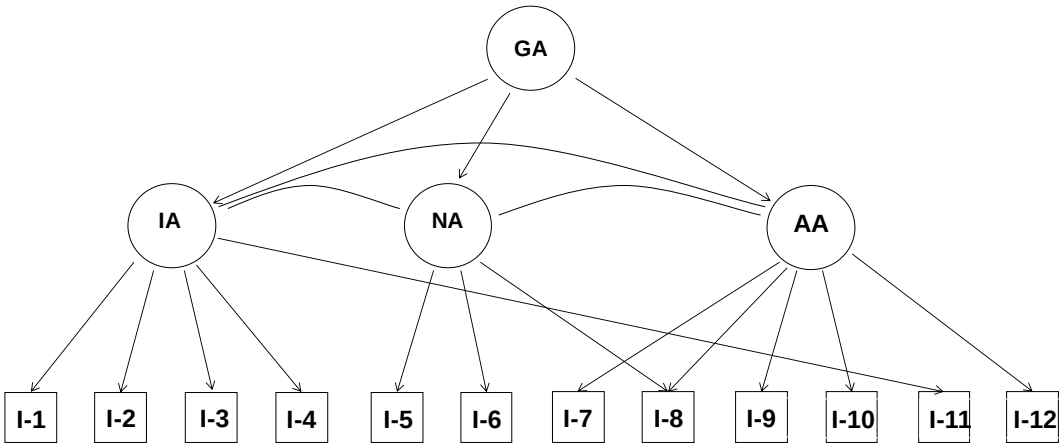


Figure 5-3 A Graphic Representation of an SL Bifactor Structure of HA Scale Neighbourhood-level Responses Building on the EFA Result

An alternative is Jennrich and Bentler's (2011, 2012) approach to exploratory bifactor analysis (EBFA) which runs an EFA with bifactor rotation criterion. Their approach allows items to load directly on the general factor (the first factor to be extracted in the analysis) while having a cluster pattern of their loadings on the remaining group factors (Jennrich & Bentler, 2011, 2012). In this EBFA solution, the general factor explains what is in common with all the measured items. The group factors account for the residual variances shared by specific subsets of the measured items. The group factors are orthogonal to the general factor. A general factor retrieved from an EBFA solution is thus a more precise measurement of general place attachment than the general factor in a second-order factor model or the only factor yielded in a single-dimension EFA solution.

Jennrich and Bentler's EBFA approach usually requires researchers to extract one additional factor to the number of factors in a commensurate EFA (Dombrowski et al., 2019; Beaujean, 2013). Table 5-5 presents the results of a four-factor EBFA analysis of HA scale neighbourhood-level responses. It can be seen that after a general factor was extracted, the cluster pattern of group factor loadings revealed a slightly different structure from that retrieved from the three-factor EFA. The general factor, labelled 'general' attachment, had a high Eigenvalue (5.65) and explained nearly half (47%) of the total variance. Meanwhile, eight items had meaningful loadings on their most relevant group

factors which jointly accounted for 19% of the variance. The three group factors, in turn, denoted the autobiographical, nostalgic and intellectual attachments, which are in constant with those extracted from the three-factor EFA. They represented domains (e.g., intellectual attachment) that would explain individual differences in the HA over the general factor (Dombrowski et al., 2019). Two items had insignificant cross-loadings across all the three group factors which indicates that they can be viewed as *pure* indicators of the general factor. The factor denoting intellectual attachment had an item ('I am proud of living in my neighbourhood because it has a rich history and many historic assets') with an unignorable negative loading (-0.27). This was also the case for the factor denoting autobiographical attachment which had an item ('I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood') with a negative loading (-0.33). Since neither of the two items was worded negatively, these negative loadings suggest that they could have measured some other subdomains of HA.

The highest, and the only, positive correlation between group factors was found between factor 2 (nostalgic HA) and factor 1 (autobiographical HA) (see Table 5-6).

While Jennrich and Bentler's EBFA offered a different pattern of the specific domains of HA by separating a primary trait (the general factor), the SL approach produced three group factors with a more complex structure that is identical to that returned by the three-factor EFA (see Table 5-7). This is explained by the primary trait being forced to be in specific domains in the correlated first-order factor model, on which the SL results are built.

Table 5-5 Four-factor Jennrich and Bentler's EBFA of HA Scale Neighbourhood-level Responses (*Sample 1*, *N* = 273)

Items	Bifactor Rotated Factor Loadings				h^2
	General factor	Group factor 1	Group factor 2	Group factor 3	
I am proud of living in my neighbourhood because it has a rich history and many historic assets	0.77	-0.27	0.01	-0.02	0.66
I like to learn about my neighbourhood's past	0.60	-0.06	-0.06	0.38	0.53
The historic places in my neighbourhood make the area	0.74	-0.14	-0.04	0.20	0.63
I like to wander around the historic places in my neighbourhood	0.76	-0.04	-0.05	0.45	0.81
I miss the historic places that have been lost from my neighbourhood	0.58	0.07	0.41	0.22	0.55
I miss the way things used to be in my neighbourhood	0.51	0.00	0.75	-0.05	0.83
I associate the historic places in my neighbourhood with my own past	0.65	0.54	0.07	0.06	0.74
I associate the historic places in my neighbourhood with my family's past	0.57	0.61	-0.02	-0.02	0.69
I have a lot of memories associated with the historic places in my neighbourhood	0.79	0.39	-0.06	-0.14	0.80
I organise a lot of my life around using historic places in my neighbourhood	0.71	0.13	-0.10	-0.14	0.55
I get a lot of satisfaction from living in and around the historic settings in my neighbourhood	0.82	-0.19	-0.05	0.03	0.72
I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood	0.66	-0.06	0.06	-0.33	0.55
Eigenvalues	5.65	1.00	0.77	0.61	
% of variance	47	8	6	5	

Table 5-6 Factor Structure Matrix of the Four-factor EBFA of Neighbourhood HA

EBFA Factors		**Inter-factor Correlations**		
	General factor	Group factor 1	Group factor 2	Group factor 3
General factor	1.00	0.00	0.00	0.00
Group factor 1		1.00	0.38	-0.24
Group factor 2			1.00	-0.12
Group factor 3				1.00

Table 5-7 Factor Pattern of HA Scale Neighbourhood-level Responses Revealed by EBFA with SL Transformation (*Sample 1*, *N* = 273)

Factor loadings less than 0.2 were not displayed in R output. The structure of the three group factors is the same as that of the three-factor EFA model.

Items	**SL Transformed Factor Loadings**				h^2
	General factor	Group factor 1	Group factor 2	Group factor 3	
I am proud of living in my neighbourhood because it has a rich history and many historic assets	0.54	0.56			0.62
I like to learn about my neighbourhood's past	0.41	0.56			0.49
The historic places in my neighbourhood make the area	0.53	0.60			0.64
I like to wander around the historic places in my neighbourhood	0.54	0.64			0.72
I miss the historic places that have been lost from my neighbourhood	0.58			0.60	0.74
I miss the way things used to be in my neighbourhood	0.55		0.21	0.39	0.50
I associate the historic places in my neighbourhood with my own past	0.72		0.37		0.68
I associate the historic places in my neighbourhood with my family's past	0.66		0.41		0.62
I have a lot of memories associated with the historic places in my neighbourhood	0.79		0.43		0.81
I organise a lot of my life around using historic places in my neighbourhood	0.63	0.25	0.28		0.55
I get a lot of satisfaction from living in and around the historic settings in my neighbourhood	0.59	0.59			0.70
I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood	0.66	0.21	0.26		0.44

5.3.2 Dimensions of City HA

Data analyses of the HA scale city-level responses followed the same procedure and yielded slightly different results from those attained from the neighbourhood-level analysis.

First, a four-factor conventional EFA solution using the minimum residual method with oblique rotation yielded a simple structure that was very close to that envisaged in the initial hypothesis. The results are shown in Table 5-8. The four factors in turn reflected the autobiographical, intellectual, nostalgic and life-dependent (historic environment is used and experienced as an essential part of urban life, Chapter Two) dimensions with respect to their eigenvalues (2.68, 2.62, 1.17, and 1.19), together explaining 74% of the total variance. The model had good indices for goodness of fit (RMSR = 0.02, RMSEA = 0.07, TLI = 0.97). However, the correlations among the extracted factors (ranging from 0.40 to 0.71, see Table 5-9) were generally even higher than those from the neighbourhood-level analysis (ranging from 0.31 to 0.55), which again was possibly underlain by a bifactor structure.

A five-factor (four group factors) Jennrich and Bentler's EBFA was susceptible to factor collapse, so a four-factor (three group factors) solution was retained instead. Table 5-10 presents the results of a four-factor EBFA analysis of city HA scale responses. The general factor, just like that for the neighbourhood level, had a very large Eigenvalue (6.11) and explained 51% of the total variance. Nine items had meaningful loadings on their most relevant group factors which represented the autobiographical, nostalgic and intellectual dimensions of HA. Three items had insignificant cross-loadings across all three group factors. As in the neighbourhood-level analysis, the only positive correlation among group factors was found between factor 2 (the nostalgic dimension) and factor 1 (the autobiographical dimension) (correlation coefficient = 0.41, see Table 5-11).

These findings revealed that a place-scale effect was not evident in term of how it may affect the ways in which people are attached to the historic environment. At both the neighbourhood level and the city level, HA can be accounted for by a multi-dimensional structure comprised of at least three out of the four

hypothesised HA dimensions: intellectual, autobiographical and nostalgic. Meanwhile, the strong correlations among these three dimensions imply the possible existence of a general factor and HA Scale responses might be better explained by a bifactor structure, which challenges current conceptualisation of place attachment concept. The bifactor analysis findings are discussed further in the discussion section in this chapter.

Table 5-8 Four-factor EFA of HA Scale City-level Responses (*Sample 2*, *N* = 133)

Items	Oblique Rotated Factor Loadings				h^2
	Factor 2	Factor 1	Factor 3	Factor 4	
I am proud of living in Edinburgh because it has a rich history and many historic assets	0.20	0.74	-0.08	0.06	0.72
I like to learn about the city's past	-0.06	0.86	0.07	-0.05	0.69
The historic places in Edinburgh make the city	0.02	0.67	0.13	0.10	0.66
I like to wander around the historic places in the city	-0.02	0.60	0.05	0.29	0.72
I miss the historic places that have been lost from the city	0.10	0.20	0.54	0.10	0.62
I miss the way things used to be in the city	0.02	0.01	0.96	0.03	0.94
I associate the historic places in the city with my own past	0.98	0.09	0.00	-0.06	0.97
I associate the historic places in the city with my family's past	0.87	-0.10	0.05	-0.02	0.73
I have a lot of memories associated with the historic places in the city	0.73	0.01	0.03	0.23	0.78
I organise a lot of my life around using historic places in the city	0.13	0.09	0.34	0.54	0.60
I get a lot of satisfaction from living in and around the historic settings in the city	-0.01	0.16	0.04	0.83	0.86
I would not swap my life in and around the historic places of Edinburgh for one in any other city	0.23	0.11	0.13	0.48	0.63
Eigenvalues	2.68	2.62	1.71	1.91	
% of variance	22	22	14	16	
Cronbach's alpha	0.92	0.89	0.83*	0.84	

** Spearman-Brown coefficient was adequate (0.91) when doubling the test.*

Table 5-9 Factor Structure Matrix of the Four-factor EFA of City HA

EFA Factors		**Inter-factor Correlations**		
	Factor 2	Factor 1	Factor 3	Factor 4
Factor 2	1.00	0.41	0.62	0.48
Factor 1		1.00	0.42	0.71
Factor 3			1.00	0.42
Factor 4				1.00

Table 5-10 Four-factor Jennrich and Bentler's EBFA of HA Scale City-level Responses (*Sample 2*, *N* = 133)

Items	Bifactor Rotated Factor Loadings				h^2
	General factor	Group factor 1	Group factor 2	Group factor 3	
I am proud of living in Edinburgh because it has a rich history and many historic assets	0.76	0.11	-0.11	0.37	0.72
I like to learn about the city's past	0.69	-0.08	0.04	0.45	0.69
The historic places in Edinburgh make the city	0.74	-0.03	0.07	0.32	0.66
I like to wander around the historic places in the city	0.80	-0.09	-0.03	0.24	0.72
I miss the historic places that have been lost from the city	0.66	0.05	0.41	0.07	0.62
I miss the way things used to be in the city	0.58	0.00	0.77	-0.01	0.94
I associate the historic places in the city with my own past	0.65	0.75	-0.01	0.05	0.97
I associate the historic places in the city with my family's past	0.49	0.67	0.04	-0.06	0.73
I have a lot of memories associated with the historic places in the city	0.71	0.52	-0.02	-0.06	0.78
I organise a lot of my life around using historic places in the city	0.72	0.01	0.18	-0.19	0.60
I get a lot of satisfaction from living in and around the historic settings in the city	0.89	-0.15	-0.17	-0.12	0.86
I would not swap my life in and around the historic places of Edinburgh for one in any other city	0.78	0.09	0.02	-0.07	0.63
Eigenvalues	6.11	1.36	0.87	0.58	N/A
% of variance	51	11	7	5	N/A

Table 5-11 Factor Structure Matrix of the Four-factor EBFA of City HA

EBFA Factors		**Inter-factor correlations**		
	General factor	Group factor 1	Group factor 2	Group factor 3
General factor	1.00	0.00	0.00	0.00
Group factor 1		1.00	0.41	-0.21
Group factor 2			1.00	-0.13
Group factor 3				1.00

5.4 Associations of Attachment to the Historic Environment with the Explanatory Variables

Many place attachment studies use relatively simple, unrefined summed scores as an index of individuals' placements on the factor distribution, in which all items loaded on a factor are given equal weight regardless of their loading values. However, such a method may not accurately reproduce the correlations between factors (DiStefano, Zhu & Mîndrilă, 2009), although it does preserve the variation in the original data. In this respect, regression-based factor scores were calculated for each of the extracted EFA factors of HA scale responses. A high positive score indicated greater attachment.

The skewness and kurtosis[28] of the factor scores were mostly well within a tolerable range to justify the assumption of a normal distribution (see Table 5-12). This suggested the data should be suitable for parametric statistical analyses. Levene's test for HA factor scores revealed similar variances in the different groups of people (e.g., those with first-degree qualification, a higher-degree, those with no degree-level qualifications), suggesting that conducting basic one-way ANOVAs on these variables is a suitable approach.

Table 5-12 Skewness and Kurtosis of HA Factor Scores

Neighbourhood HA Factors	Skew	Kurtosis
Factor 1. Intellectual HA	-0.76	0.52
Factor 2. Autobiographical HA	0.22	-0.63
Factor 3. Nostalgic HA	-0.03	-0.43
City HA Factors		
Factor 1. Intellectual HA	-1.88	5.94
Factor 2. Autobiographical HA	0.14	-1.01
Factor 3. Nostalgic HA	0.04	-0.99
Factor 4. Life dependent	-1.15	1.33

[28] Values of skewness and kurtosis describe the shape of the distribution (compared to a normal distribution). Skewness is a measure of the symmetry of a distribution. If the skewness is between -0.5 and 0.5, the data are fairly symmetrical. Values between -1 and – 0.5 or between 0.5 and 1, indicate moderate skewness. Values less than -1 or greater than 1 imply highly skewed data. Kurtosis is a measure of the proportion of the observations in the tails of the distribution.

The associations of the sociodemographic variables with different HA dimensions were examined using unpaired-sample *t*-tests (for dichotomous categorical variables, such as 'born in Edinburgh or not') or a combination of one-way ANOVA and post hoc analyses (for variables with three or more categories, for instance, educational attainment, which has three levels: no degree, first-degree and higher-degree). Mean scores of the different categories for each variable were then calculated, compared and checked to see whether differences were statistically significant. The full results of the unpaired-sample *t*-test and ANOVA are presented in Table 5-14, Table 5-15 and Table 5-16.

5.4.1 Associations of Attachment to the Historic Environment with the Explanatory Variables at the Neighbourhood Level

For the neighbourhood level analyses, none of the three HA dimensions (intellectual, nostalgic and autobiographical) demonstrated significant mean differences between men and women, employed people and those who were not working (including the retirees), and between homeowners and renters. There was no compelling evidence of a significant age effect on any of the HA dimensions either.

One-way ANOVA revealed significant effects of educational attainment on two of the three HA dimensions: intellectual dimension ($F [2,270] = 3.564$, $p = 0.030$) and autobiographical dimension ($F (2,270) = 4.202$, $p < 0.016$). A Tukey HSD test further revealed that people with higher-degree qualifications demonstrated significantly greater intellectual HA than those with on degree-level qualifications, while deeper autobiographical HA was found among the latter than among degree qualification holders (including both first- and higher-degree qualification holders). No significant differences were found between people with first- and higher-degrees.

Effects of family history were evident on autobiographical HA ($F [3,269] = 10.12$, $p < 0.001$) and nostalgic HA ($F [3,269] = 5.373$, $p = 0.001$). For the two dimensions, significant mean differences were observed between the newcomers (those who reported that they had no family history of living in Edinburgh) and those who claimed to be second- and third-generation Edinburgh residents.

Tukey HSD test results did not reveal any significant mean differences between the latter. Specifically, second- and third-generation Edinburgh residents had constantly deeper autobiographical HA and stronger nostalgic HA than the newcomers. Similarly, people who were born in Edinburgh tended to have significantly deeper autobiographical and nostalgic HAs than those who were not born in the city.

People who thought they lived in a Conservation Area or in a listed building tended to have a higher level of intellectual HA than those who lived elsewhere. Meanwhile, people who thought they lived in a Conservation Area were more likely to have stronger autobiographical HA than those who did not.

The effects of education on autobiographical HA could have been mixed in with the effects of family history, due to a character of the sample that the proportion of newcomers among degree-level qualification holders is much bigger than that among those who were not educated to degree level in both *Simple 1* (neighbourhood level) and *Sample 2* (city level) (see

Table **5-13**). In fact, these two variables (family history and educational attainment) were significantly interdependent (χ^2 [3] = 31.799, p < 0.001 for *Sample 1*, and χ^2 [1] = 17.672, p < 0.001 for *Sample 2*)[29]. The nonparallel lines in the interaction plots at the neighbourhood level shown in Figure 5-4 suggested the relationship between educational attainment and autobiographical HA might depend on family history under such circumstances. Two-way ANOVAs were then carried out to examine the statistical significance of possible interaction. No statistically significant interactions between the effects of educational attainment and family history on autobiographical HA was found at the neighbourhood level (F [7, 265] = 1.648, p = 0.179) or city level (F [3, 129] = 0.026, p = 0.871).

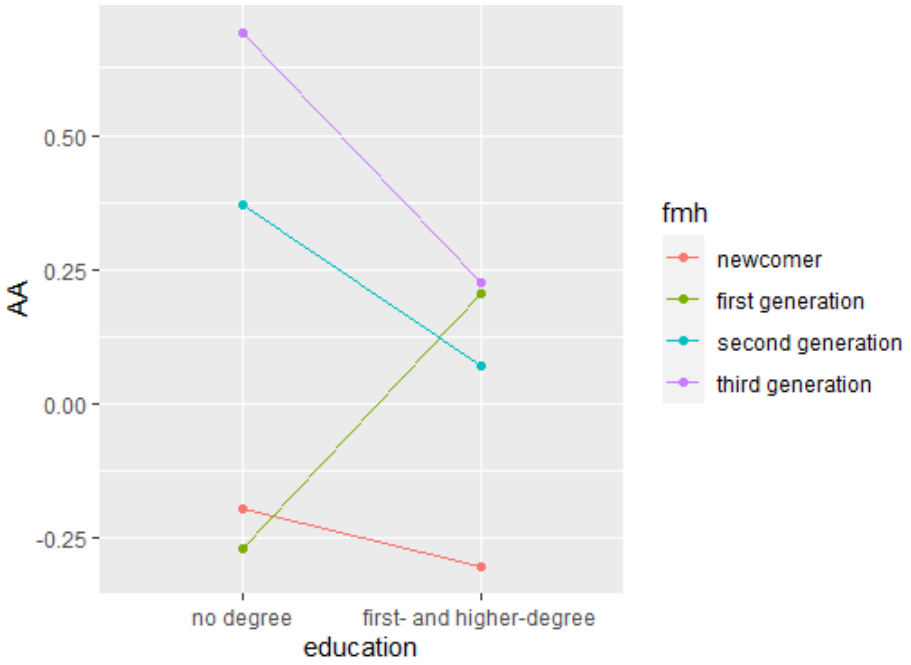
[29] Family history behaved more like a confounding factor, on this occasion, although theoretically it should not have any influence on educational attainment. A confounding factor is a variable that influences both the dependent variable and independent variable, causing a mixing of effects (Hair Jr *et al.*, 2014).

Table 5-13 Contingency Table of Educational Attainment and Family History

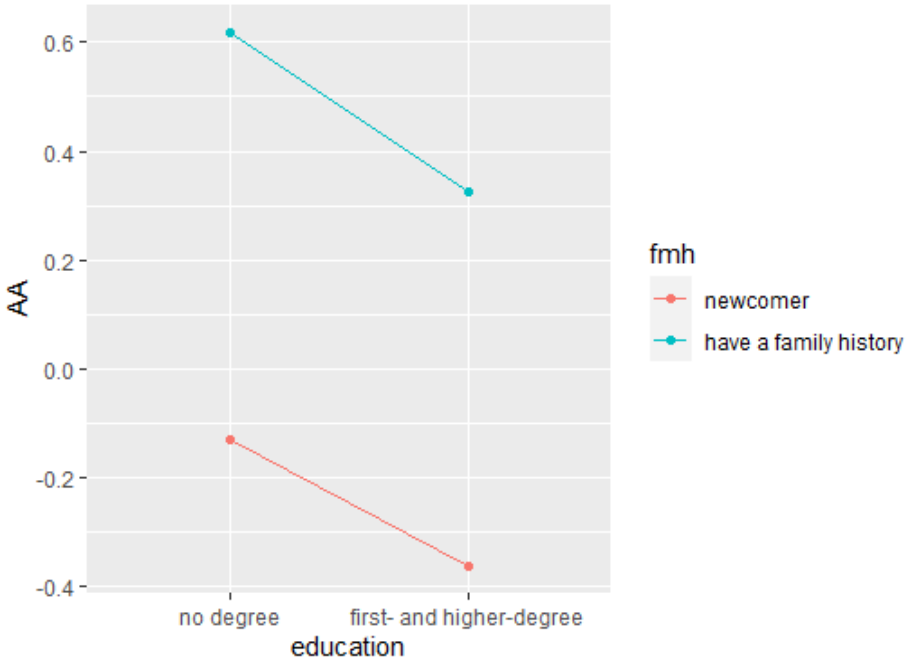
	No degree	First- and higher degree
Neighbourhood level (*Sample 1*, *N* = 273)		
Newcomer	22	115
1st-, 2nd- and 3rd-generation Edinburgh residents	58	78
City level (*Sample 2*, *N* = 133)		
Newcomer	11	67
1st-, 2nd- and 3rd-generation Edinburgh residents	27	28

5.4.2 Associations of Attachment to the Historic Environment with the Explanatory Variables at the City Level

The associations of the sociodemographic variables with city HA dimensions differed in five major ways from those observed at the neighbourhood-level analysis. First, there were gender differences in several HA dimensions, where women demonstrated stronger attachments. Second, people not working (including the retirees) tended to have stronger nostalgic HA than those in employment. Third, there was no evidence of any associations between greater intellectual HA and degree-level educational attainment. Fourth, unexpectedly, people with a degree-level qualification tended to have weaker nostalgic HA. Fifth, living in a Conservation Area and/or a listed building was not found to be associated with greater intellectual HA. The full results of these analyses are presented in Appendix J.



Neighbourhood level



City level

AA, autobiographical HA; fmh, family history.

Figure 5-4 Interaction Plots of Relationship between Educational Attainment and Autobiographical HA Depending on Family History

Table 5-14 Mean Differences of Neighbourhood HA Factor Scores between Categories within Each Dichotomous Variable (Unpaired t-test) (*Sample 1*, *N* = 273)

Variables		HA Dimensions		
		Intellectual	**Autobiographical**	**Nostalgic**
		M, SD	M, SD	M, SD
Gender	Female (n = 138)	0.111, 0.94	0.063, 0.91	-0.017, 0.82
	Male (n = 135)	-0.113, 0.95	-0.065, 0.99	0.017, 0.89
	95% CI for mean difference	-0.002, 0.449	-0.099, 0.355	-0.238, 0.171
	t	1.948	1.113	-0.323
	p	0.052.	0.267	0.747
Employment Status	Employed (n = 152)	-0.023, 0.96	-0.018, 0.96	0.029. 0.84
	Not working (n = 121)	0.029, 0.95	0.023, 0.95	-0.036, 0.88
	95% CI for mean difference	-0.280, 0.177	-0.270, 0.187	-0.142, 0.271
	t	-0.445	-0.357	0.614
	p	0.657	0.721	0.540

[**Table 5-14** continued]

Variables		**HA Dimensions**		
		Intellectual	**Autobiographical**	**Nostalgic**
		M, SD	**M, SD**	**M, SD**
Born in Edinburgh	No (n = 154)	0.077, 0.98	**-0.204, 0.90**	**-0.164, 0.86**
	Yes (n = 119)	-0.099, 0.91	**0.265, 0.95**	**0.212, 0.80**
	95% CI for mean difference	-0.050, 0.402	**-0.693, -0.245**	**-0.575, -0.177**
	t	1.533	-4.128	-3.714
	p	0.126	**0.000**	**0.000**
Lives in a Listed Building	No or Do not know (n = 217)	**-0.097, 0.95**	-0.044, 0.94	0.015, 0.86
(perceived)	Yes (n = 56)	**0.376, 0.87**	0.171, 0.96	-0.059, 0.85
	95% CI for mean difference	**-0.738, -0.209**	-0.512, 0.071	-0.180, 0.327
	t	-3.560	-1.495	0.578
	p	**0.001**	0.139	0.565
Lives in a Conservation	No or Do not know (n = 184)	**-0.139, 0.99**	**-0.118, 0.93**	0.015, 0.83
Area (perceived)	Yes (n = 89)	**0.286, 0.79**	**0.243, 0.95**	-0.032, 0.92
	95% CI for mean difference	**-0.644, -0.206**	**-0.612, -0.121**	-0.180, 0.275
	t	-3.819	-2.964	0.409
	p	**0.000**	**0.003**	0.683

Table 5-15 Effects of Explanatory Variables (with More Than Two Categories) on Neighbourhood HA (One-way ANOVA) (*Sample* 1, *N* = 273)

Variables	**HA Dimensions**					
	Intellectual		**Autobiographical**		**Nostalgic**	
	F	p	F	p	F	p
Age	2.547	0.056.	1.618	0.185	0.159	0.924
Homeownership	0.561	0.571	0.553	0.576	0.798	0.451
Educational attainment	**3.564**	**0.030**	**4.202**	**0.016**	1.150	0.318
Family history	0.744	0.527	**10.12**	**0.000**	**5.373**	**0.001**

Table 5-16 Mean Differences of Neighbourhood HA Factor Scores among Categories of Variables Demonstrated Statistical Significance in the One-way ANOVA (Tukey Test) (*Sample 1*, *N* = 273)

Variables		**HA Dimensions**					
		Intellectual		**Autobiographical**		**Nostalgic**	
		95% CI for Mean Difference	p	95% CI for Mean Difference	p	95% CI for Mean Difference	p
Educational attainment	First- vs. No degree	0.244 (-0.103, 0.591)	0.224	**-0.382 (-0.728, -0.036)**	**0.027**	-0.199 (-0.514, 0.116)	0.299
	Higher- vs. No degree	**0.369 (0.042, 0.696)**	**0.023**	**-0.345 (-0.671, -0.018)**	**0.036**	-0.133 (-0.431, 0.164)	0.541
	Higher- vs. First-degree	0.125 (-0.198, 0.448)	0.633	0.037 (-0.284, 0.359)	0.960	0.066 (-0.227, 0.359)	0.858
Family history	1st-generation vs. Newcomer	-0.133 (-0.637, 0.371)	0.904	0.361 (-0.118, 0.840)	0.210	0.354 (-0.088, 0.797)	0.165
	2nd-generation vs. Newcomer	-0.208 (-0.647, 0.231)	0.612	**0.532 (0.114, 0.949)**	**0.006**	**0.483 (0.098, 0.868)**	**0.007**
	3rd-generation vs. Newcomer	0.039 (-0.331, 0.408)	0.993	**0.696 (0.345, 1.047)**	**0.000**	**0.366 (0.042, 0.691)**	**0.020**
	2nd- vs. 1st-generation	-0.075 (-0.673, 0.523)	0.988	0.171 (-0.398, 0.739)	0.865	0.128 (-0.396, 0.654)	0.921
	3rd- vs. 1st-generation	0.172 (-0.378, 0.721)	0.851	0.335 (-0.187, 0.857)	0.348	0.012 (-0.470, 0.494)	1.000
	3rd- vs. 2nd-generation	0.247 (-0.244, 0.737)	0.563	0.164 (-0.302, 0.630)	0.799	-0.117 (-0.547, 0.313)	0.896

5.5 Relationships between HA and PA

5.5.1 The Correlations

For the neighbourhood-level analyses, all three HA dimensions were significantly positively correlated with PA, with a strong relationship between intellectual HA and PA (Pearson correlation coefficient of $r = 0.657$, $p < 0.001$), a moderate relationship between Autobiographical HA and PA ($r = 0.553$, $p < 0.001$) and a weak relationship between Nostalgic HA and PA ($r = 0.230$, $p < 0.001$).

The city-level analyses yielded very similar results. An even stronger positive relationship was found between intellectual HA and PA compared with that at the neighbourhood level ($r = 0.692$, $p < 0.001$).

Nevertheless, these correlations are unable to confirm any causal effects. A deeper emotional bond with the overall neighbourhood could have caused the stronger intellectual attachment to the historic environment, but, it might also be the case that the direction of causality between these factors was the reverse.

5.5.2 The Differences

As a particular type of place attachment, HA differs from PA in terms of the content of its explanatory variables. Three notable differences were observed in this research (see Table 5-17). First, at the neighbourhood level, while no significant associations of HA dimensions with homeownership were found, people who owned a house or flat outright showed deeper PA than renters, which was consistent with various previous place attachment studies (e.g., Bolan, 1997; Brown et al., 2003, 2004; Mesch & Manor, 1998; Ringel & Finkelstein, 1991). Meanwhile, at the city level, no significant associations of PA with homeownership were found. Second, educational attainment did not influence PA either at the neighbourhood level or at the city level. Third, being born in Edinburgh and having a family history of living in Edinburgh only led to stronger PA at the city level, whereas they were associated with deeper

autobiographical HA and stronger nostalgic HA at both the neighbourhood and the city levels.

Table 5-17 Associations of Sociodemographic Variables with PA (Bivariate Analysis, *Sample 1*, *N* = 273)

Variables		PA	
		Neighbourhood	City
Age group (years)	35 – 54		**-3.366***
	55 – 64		-0.461
	65 +		-1.483
Homeownership:	owned outright	**3.611*****	
	mortgage payer	2.034	
Born in Edinburgh			**2.595***
With a family history			**2.427***
Lives in a listed building		**2.660****	
Lives in a Conservation Area		**2.797****	

*** P < 0.001, ** p < 0.01, * p < 0.05

Only statistically significant variables were presented.

5.5.3 PA As a Mediator

As considered at the questionnaire design stage, the relationship between living in a Conservation Area and intellectual HA can be a false one. This was also suggested by the finding that the relationship was only found to be significant at the neighbourhood level. It could be that the relationship was either moderated by the spatial scale (neighbourhood vs. city) or mediated by other variables. PA was treated as a mediator in this section, for which reason a mediation analysis following Baron and Kenny's (1986) four steps was undertaken. That said: people would become intellectually attached to the historic environment of their current neighbourhood through developing an attachment to the neighbourhood in general.

This effect completely disappeared when controlling for PA (see Table 5-18), which indicates that PA might be a mediator that explained the underlying mechanisms of the relationship between living in a Conservation Area and HA. The significance of these indirect effects was formally tested using a bootstrapping method (Bollen & Stine, 1990). The results, shown in Table 5-19, confirmed the significant effect of PA on the relationship between living in a Conservation Area and stronger HA (ACME = 0.039, $p < 0.001$) with a direct effect of living in a Conservation Area (ADE = 0.167, $p = 0.040$) and significant total effect (0.206, $p = 0.020$).

Table 5-18 Effects of Living in a Conservation Area on Intellectual HA to the Neighbourhood when Controlling for PA (*Sample 1*, *N* = 273)

	Intellectual HA
When controlling for PA	
PA	0.092***
lives in a Conservation Area	0.167
$R^2 = 0.49$	

*** P<0.001

Table 5-19 Significance Test for Mediation Effects of PA on the Relationship between Living in a Conservation Area and Intellectual HA (*Sample 1*, *N* = 273)

Mediation effect of PA	
ACME (Average Causal Mediation Effects)	0.039***
ADE (Average Direct Effects)	0.167*
Total effect	0.206*

*** P<0.001, * p<0.05

5.6 Discussion

This chapter has presented quantitative findings of attachment to the historic environment. It has explored the dimensions of, and the sociodemographic variables that influence, attachment to the historic environment at the

neighbourhood and city levels, as well as the relationships between this type of attachment and the more generally enquired place attachment that people have to their current neighbourhood and city. The key emerging themes and how they relate to the current state of knowledge are discussed below.

5.6.1 HA Dimensions and Dimensionality of Place Attachment Concept

EFA (Exploratory Factor Analysis) results confirmed that HA comprises at least three dimensions — intellectual, autobiographical and nostalgic — which were retained in both the neighbourhood- and city-level analyses, in which they explained a large proportion of the variance. The high correlations between these dimensions indicated that they are not independent of each other. Personal associations with historic places (autobiographical attachment) may be associated with happy times in the past for which a person feels nostalgic. A person may only develop interests in the history of places that he/she has visited.

The differentiated factor structures of HA in the neighbourhood- and city-level analyses were not sufficient to suggest a difference between neighbourhood HA and city HA. The difference could be caused by the dramatic change in the size of the analytic samples (from 273 to 133), rather than variances reflecting different ways in which people use, value and feel the historic environments of their neighbourhoods and the city. One question to raise is if this 'fourth factor' did reflect an additional HA dimension (the life-dependent dimension), why it was only observed on the city level. In the worst scenario, such change could also be a sign of a lack of external validity for the HA Scale since it was the first one designed to measure attachment to the historic environment. To address these issues, the HA Scale should be refined and further tested in various settings in future research.

Applying an EBFA (Exploratory Bifactor Analysis) solution to HA scale responses revealed that HA can be interpreted as univocal indicators of a single latent variable despite the multidimensionality. This finding, together with those strong correlations between HA dimensions, feed into the long-running and very

fundamental debate in place attachment research about whether "those dimensions [are] of the same underlying attachment construct, or, different modes of experiencing the environment", as Williams and Roggenbuck (1989) put it more than 30 years ago.

Researchers usually declare a pre-defined theoretical structure when measuring attachment that is either conceived of place attachment as a unidimensional or a multidimensional concept. They then use corresponding scales (unidimensional or multidimensional scales) and techniques (usually EFA or CFA) to measure and quantify the dimensions and intensities of attachment. Place attachment scales are a class of psychological measure. As in many other fields that involve the application of psychological measures, scale responses are arguably consistent with both unidimensional and multidimensional latent structures (Reise, Moore & Haviland, 2010). On the one hand, EFAs of multidimensional place attachment scale responses sometimes reveal evidence of unidimensionality with a relatively large first Eigenvalue that explains more than half of the variation in the data. For example, Scannell and Gifford's (2010b) study measured two dimensions of place attachment (natural and civic), the first Eigenvalue of their two-factor EFA taking a value of 4.46 and explaining 59% of the variances. It seems that the multidimensional scale responses can be well explained by a single factor solution. On the other hand, unidimensional scale responses are sometimes better explained by a two-factor solution than by a single-factor solution. For example, for PA scale responses in this research, a two-factor EFA solution was better than a single-factor EFA solution[30]. This is because, first, the parallel analysis suggested that a two-factor solution would be better than a single-factor solution (see Figure 5-5). Second, the two-factor EFA had much better model fit indices (RMSR = 0.03, RMSEA = 0.07, TLI = 0.95) than those of the single factor EFA (RMSR = 0.06, RMSEA = 0.11, TLI = 0.90). Finally, the single-factor EFA leftover half (51%) of the variance unexplained whereas the two-factor EFA could account 55% of the variance with the inclusion of the second

[30] The 9-item PA scale used in my research was tailored from Lewicka's (2008) 12-item Place Attachment Scale which is a single-dimension scale, according to her (e.g., Lewicka, 2008, 2010), had been tested in many of her and her colleagues' studies carried out in Poland and in Ukraine. Yet it should be notified that three negative worded items were dropped when it was adapted in my research, which might have caused some distortions of the Scale's validity (discussed further as limitations in the conclusion chapter).

Eigenvalue of 2.15. These lines of evidence suggested that data in the 'real world' often do not match the pre-defined theory/structure. In cases where place attachment was treated and measured as a unidimensional concept, the data may demonstrate multidimensionality. On the occasions when it has been defined and measured as a multidimensional concept, the data tend to be univocal. However, in the place attachment literature, there are only a few works that present information about the Eigenvalues and/or the percentage of variance explained when reporting EFA results. Furthermore, they fail to reflect on the mismatch between the data and the theory. These further raised questions when such factor structures are considered for theoretical interest (i.e., "to represent the structure of a psychological domain", Bonifay, Lane & Reise, 2017, p.184) — do the uni- and multi-dimensional conceptual structures accurately reflect the nature of place attachment? Could they have distorted the *true* nature of place attachment phenomena?

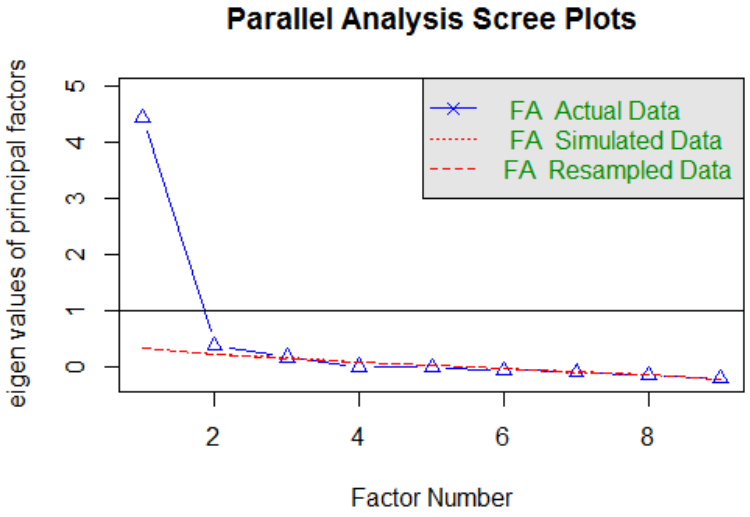


Figure 5-5 A Plot of Parallel Analysis Results of PA Scale Neighbourhood-level Responses (Sample 1, *N* = 273)

This research does not seek to leverage a bifactor structure to define the conceptual structure of place attachment, but instead tries to raise some provocative questions for researchers to consider. A bifactor structure, argues Reise (2010) "appears best suited for the psychometric analysis of those assessment instruments where the researcher expects a response to primarily

reflect a strong common trait, but there is multidimensionality caused by well-defined clusters of items from diverse subdomains" (p.692). However, will it really better represent the underlying structure of place attachment scale responses? Is the bifactor model an alternative to the currently used uni- or multi-dimensional structure? Where would it lead place attachment theory? Of course, there are difficulties of interpretation and validity with the bifactor model, but a discussion of these issues is not the focus of this research on place attachment. For detailed discussions, see Bonifay, Lane and Reise (2017) and Rodriguez, Reise and Haviland (2016a,b).

5.6.2 HA Dimensions and Sociodemographic Variables

5.6.2.1 The Nonsignificant Association of Neighbourhood HA Dimensions with Homeownership

The relationships between HA and some sociodemographic variables emerged as important findings. One was the statistically nonsignificant association of neighbourhood HA dimensions with homeownership. This result stood out because homeownership was, conversely, found to be a significant factor influencing neighbourhood PA (place attachment to the neighbourhood in general), which corroborated the findings of previous studies of place attachment to neighbourhood settings (e.g., Bolan, 1997; Brown et al., 2003, 2004; Mesch & Manor, 1998; Ringel & Finkelstein, 1991). As such, it raised a thought-provoking question about what makes neighbourhood HA different from PA. One possible explanation involves the different perceptions people might have when they see their living environments as their 'possessions'. Belk (1992) discussed a range of 'object attachments', from attachments to individual possessions, such as pets, home, children and spouses, to those of collective possessions, for instance, public buildings, institutions and collective/social memories. Seen in this framework, places are a different type of possession of which people may claim ownership and to which they may become attached: "to be attached to certain of our surroundings is to make them a part of our extended self, making them a part of our extended self" (Belk, 1992, p.38). For most people, historic environments specifically refer to those made up of high-profile public buildings (e.g., churches), 'very old' streets or places, and the

targets of conservationists' efforts, which form the 'vocabulary' of a neighbourhood's cultural identity (a collectively defined term). Whereas, the overall environment of the neighbourhood where they have invested money to buy a house and spent time to live is often viewed as their 'home' (an individually defined experience) where they can find a 'sense of comfort, relaxation and self-affirmation'[31] (Manzo, 2005; see also Moore, 2000). It is more difficult to claim the stewardship of a public historic place than to develop a sense of ownership of somewhere regarded as 'home'. In this respect, it is plausible that homeownership affects attachment to the neighbourhood as a perceived individual possession but is of less relevance in determining the attachments to historic environments as collective possessions.

5.6.2.2 Intellectual HA and Living in a Conservation Area

The mediation effect of PA on the relationship between living in a Conservation Area and the stronger intellectual HA observed at the neighbourhood level was another striking finding. It highlights the significance of considering aspects of the emotional significance of the historic environment beyond its direct heritage effects such as its contribution to the quality of the built environment of the neighbourhood and its identity that lead to people valuing and developing attachments to it, even if they do not live in a designated historic area. It could be the social benefits of living in communities operating within such areas, which are known as the 'policy effect' of Conservation Area designation (Ahlfeldt et al., 2017), affect the development of intellectual HA. For example, policy encourages community cohesion and sense of control by removing the uncertainty about future changes in the character of the locations. On some occasions, such heritage and policy effects would have economic consequences in the form of increased house prices (Ahlfeldt et al., 2017), which is another reason why people may value the historic assets of a Conservation Area. However, people's self-reported answers about whether they live in a Conservation Area do not always match with the reality (revealed in Chapter Six). Examining the relationship between whether people truly live in a Conservation Area and their level of intellectual HA and PA may reveal different

[31] The word 'home' has been used metaphorically as "an abstract signifier of a wide set of associations and meanings" (Moore, 2000, p 208).

explanations, and provide more nuanced or even entirely novel insights into the complexity of the processes by which HA develops. Such an analysis was facilitated by the spatial data and findings presented in Chapter Six.

5.6.2.3 Associations of Intellectual HA and Autobiographical HA with Educational Attainment at the Neighbourhood Level

Another important finding was the converse 'shapes' of the relationships between intellectual HA and educational attainment on the one hand, and autobiographical HA and educational attainment on the other, found at the neighbourhood level. The relationships between the two HA dimensions and educational attainment are easy to understand as they were largely in line with previous findings. The development of strong intellectual HA at the neighbourhood level might be the results of deep interests in and knowledge of local history which are positively related to greater educational attainment (observed in Lewicka's study conducted in Lviv, Ukraine, and Wroclaw, Poland, at the city-level, Lewicka, 2008). Meanwhile, people with higher educational attainment also tended to be more mobile and hence have less-developed autobiographical connections with places in their localities (Hummon, 1992; Lewicka, 2013b). In fact, the negative association of weaker autobiographical attachment with degree-level education was also observed at the city level. However, it is more important to recognise the contrasting 'shapes' of the relationships, which is crucial to understanding the nature and developmental process of HA. The two dimensions of HA (intellectual and autobiographical) are comparable to the terminology developed by Hummon (1992) (everyday and ideological) and Lewicka (2013b) (place inherited and place discovered) who made similar arguments about how the 'types' of place attachment may relate to educational attainment in different ways. As discussed in Chapter Three, the two dimensions may also relate to the self-conscious and unconscious processes by which attachment develops, which may also be helpful in interpreting the map and spatial findings (discussed in Chapter Six).

5.6.2.4 Neighbourhood HA Compared with City HA

Convincing differences between neighbourhood HA and city HA were demonstrated through their varied associations with the sociodemographic variables, which yielded invaluable insights into the nature of HA. First, living in a Conservation Area was found not to affect intellectual HA at the city level. This finding suggested that it was common for Edinburgh people to appreciate the city's rich and distinctive built heritage that makes a significant contribution to the high quality of life in the city. Conversely, the values of the historic assets of a neighbourhood would be more appreciated by people who thought they lived in a Conservation Area (although indirectly). To probe in greater depth, neighbourhoods located in Conservation Areas usually have richer, better maintained and more distinguished historic assets to define and identify than those in non-designated areas. As discussed previously, there are also noticeable heritage, policy and economic effects in Conservation Areas. These features make it relatively easy for people living in such neighbourhoods to develop a higher degree of awareness of local historic environment than those living in areas perceived to be less historic or where the historic assets are more difficult to spot and appreciate. Second, these differences shed light on how the spatial scale can act as the "moderator of the relationship between place attachment and psychological processes that lead to attachment" (Lewicka, 2010, p.48). One hypothetical process that spatial scale moderates is the cognitive process that leads to the development of intellectual HA. Cities are usually represented in people's minds as entities with relatively clear-cut boundaries and physical symbols (e.g., historic buildings, monuments, or an old town centre), the meanings of which are usually known to their residents and therefore more widely shared than those of neighbourhoods whose boundaries are psychologically more blurred than those of cities (Galster, 2001) and whose identity may be more embedded in their social reputations than their physical representations. Third, this further explains and is supported by the observed associations (only at the neighbourhood level) between greater intellectual HA and degree-level educational attainment. This suggests that a person must have the skills and knowledge to boost attachment to her/his neighbourhood's historic environment. In this respect, the development of intellectual HA can be more inclusive at the city level than at the neighbourhood level. Fourth,

understanding the effects of different spatial scales (in this case, the neighbourhood and the city) on HA development have policy implications. For example, community-led conservation initiatives may consider their educational role alongside their social inclusion and empowerment agendas. However, spatial difference is an underexplored topic in place attachment literature and even fewer studies have addressed the topic in the context of place attachment at these two spatial levels (e.g., Casakin, Hernández & Ruiz, 2015; Hernández et al., 2007; Hidalgo & Hernández, 2001; Lewicka, 2010).

5.7 Summary

Overall, the quantitative findings presented in this chapter provide an overview of the ways in which urban residents form the attachment to the historic environment (HA) they experience in their daily lives, both locally and city-wide. They offer solid empirical evidence of the dimensions of HA (intellectual, autobiographical and nostalgic) and their corresponding sociodemographic predictors. The findings also reveal the specialness of HA (particularly its intellectual dimension) compared with the more generally studied place attachment to the neighbourhood and city (referred to as PA in this section), specifically when considering the different explanatory variables at the two spatial levels. There were also high correlations between the two (HA and PA). In addition, noticeable differences between HAs at the neighbourhood and city levels were evident because they also had distinct sets of associations with the sociodemographic variables.

Apart from these important and inspiring findings, there were findings of minor importance and anomalous findings which might be 'artefacts' arising from some process of the analyses. An example of the former is the associations of weak intellectual attachment among the youngest age group observed at the city level. An anomalous finding refers to, on the other hand, a result that is contrary to what is known, or an unusual relationship observed between variables — for example the gender differences observed in the autobiographical HA at the city level or the associations of weak life-dependent HA with

homeowners at the city level[32]. These findings, although statistically significant, complied with no previous evidence in place attachment literature. They might reflect only chance occurrences and the idiosyncrasies of the dataset, or there might be other moderator or mediator variables that were not included in the analyses. As such, they did not, in my judgement, provide deep insights. More research is needed. After all, the ability to perform a statistical analysis is no guarantee that it will produce meaningful findings.

The three-dimensional structure provided an operational concept of HA but may not reflect the full spectrum of the phenomenon and so should not be considered as an all-encompassing model. The associations between HA dimensions and sociodemographic variables, as discussed in Section 5.6, offered hints about the ways in which HA develops, but did not provide many deep or substantive insights. There are many other dimensions, factors and their causal relationships with HA that should be addressed in future research. These include cultural and social issues that may not be readily quantified or that are more approachable from a qualitative perspective. Some of these are discussed in the qualitative research findings chapter (Chapter Seven). They, together with the quantitative findings presented in this chapter, enable a comprehensive understanding of HA. In addition, as mentioned in the sampling design section, the sampling design, data from this particular group of people cannot be generalised to the population of Edinburgh as a whole. Once again, however, in conjunction with the qualitative interviews, they offer deep insights into the HA typical of a group of 'expert citizens', understanding which, as Madgin et al. (2018) suggest, "will necessitate a broader consideration of how to manage the future of historic spaces" (p.596).

[32] The two-way ANOVA did not reveal any significant interactions between education and family history.

6. Chapter 6: Quantitative Analyses Part 2, Attachment to the Historic Environment on Maps, Spatial Analysis and EGIS

The major part of the content presented in this Chapter has been published as a book chapter, entitled 'Building EGIS (Emotional Geographic Information Systems): a spatial investigation of place attachment for urban historic environments in Edinburgh' in Madgin and Lesh's (2021) edited book *People-oriented methodologies for heritage conservation: Exploring emotional attachments to historic urban places* (London: Routledge).

6.1 Introduction

This is the second research findings chapter in this thesis. It spatially interrogates attachment to the historic environment using spatial data collected from the People-Place Emotion Survey. It first creates maps of SHP (special historic place) distribution to spatially access historic places to which people form emotional attachments. It then concerns with the spatial point process analysis taken to explore the effect of DLP (daily life place) distribution on SHP distribution. Here, the methodological aspects of spatial point process analysis are also introduced and explained in detail, since it was used for the first time (to the author's knowledge) in place attachment research. The chapter then explains an EGIS methodology proposed by the author, which has been developed by building on online PPGIS (Public Participation GIS) mapping, whereby spatially referenced emotional data are collected via map-based survey, interrogated by spatial analysis and made visually explicit with maps. Finally, the last section discusses the emerging themes from the mapping and spatial point process analysis results, the future of place attachment mapping as well as the opportunities for using EGIS as part of public participation and urban development initiatives.

6.2 Attachment to the Historic Environment on Maps

Overall, 427 SHP (special historic places) and 710 DLP (daily life places) were mapped by 135 respondents. Each respondent mapped at least one SHP and one DLP. The average number of SHP mapped per resident is 3.16, and 5.26 for DLP. The sociodemographic composition of this sample is summarised in Table 6-1, which allows a comparison of its make-up with the larger questionnaire sample (e.g., *Sample 1*). Overall, the characteristics of this sample appeared to be very similar to *Sample 1*, apart from two slight differences, that is, unlike *Sample 1*, this sample was comprised of more male than female, and more newcomers to Edinburgh than those who reported that they had a family history of living in the city. Other characteristics including age, educational attainment and homeownership demonstrated more or less the same trend as those of *Sample 1*. For example, a large majority of respondents reported degree-level education and claimed homeownership either outright or with a mortgage.

Table 6-1 Sociodemographic Composition of Analytical Sample for Mapping (*N* = 135) and the Average Number of SHP (Special Historic Place) and DLP (Daily Life Place) Identified per Person per Category for Each Variable

Sociodemographic characteristics			**The average number of SHP and DLP identified per person per category***	
Variables	Category	Percentage (%)	SHP	DLP
gender	Female	(65) 48.15	(239) 3.68	(374) 5.45
	Male	(70) 51.85	(188) 2.69	(336) 4.80
Age	18-34	(20) 14.81	(85) 4.25	(149) 7.45
	35-54	(50) 37.04	(151) 3.02	(263) 5.26
	55-64	(37) 27.41	(110) 2.97	(169) 4.57
	65+	(28) 20.74	(81) 2.88	(129) 4.61
Homeownership	Social or private rented	(42)21.65	(78) 1.86	(122) 2.90
	Owned	(152) 78.35	(349) 2.30	(588) 3.87
Educational attainment	Non degree	(39) 28.89	(104) 2.67	(169) 4.33
	Degree	(96) 71.11	(323) 4.68	(541) 5.35
Family history	Newcomer	(75) 55.56	(265) 3.53	(423) 5.64
	First-, second-, and third generation)	(60) 44.44	(162) 2.70	(287) 4.78
Total		135	(427) 3.16	(710) 5.26

* Different people might identify the same places.

The average number of SHP and DLP identified per person for the categories of the sociodemographic variables are also calculated and presented in Table 6-1 as shown in the last two columns. The average number of SHP and DLP identified per person is larger for women than for men, for homeowners than for renters, for newcomers than for those who reported family history, and is particularly larger for people who claimed degree level education than for those who did not. Young people aged between 18-34 tended to identify much more SHP and DLP than those in other age groups.

Of the 427 SHP, 194 historic places including individual buildings, groups of buildings, green spaces, streets and areas were mentioned. An alphabetically ordered list of these 194 places was created (see Appendix K). Over 60% (119) of

these historic places had been listed, scheduled[33] or selected for the Inventory of Gardens and Designed Landscapes[34] (see Table 6-2).

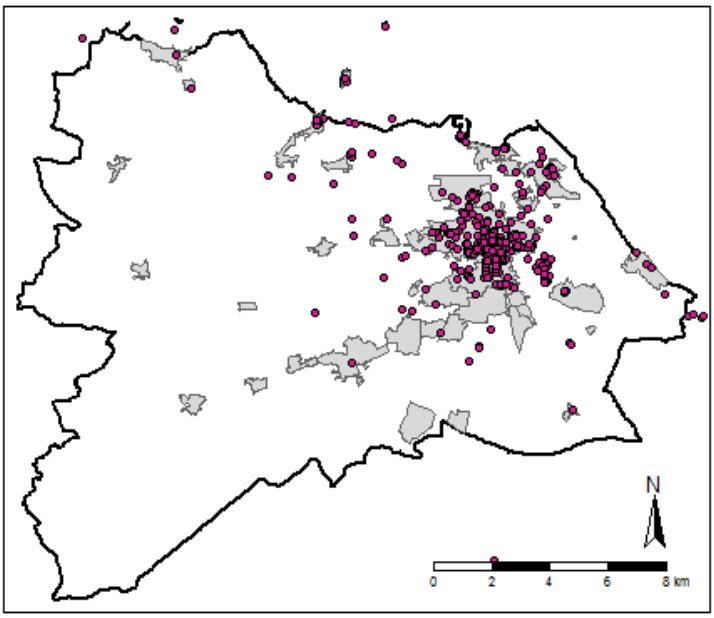
Table 6-2 Designation Status of Identified SHP (Special Historic Places)

Designation categories	Frequency
Inventory of Gardens and Designed Landscapes	9
category A listed building	70
a group of category A listed buildings	1
a group of category A and category B listed buildings	1
a group of category A, category B and category C listed buildings	1
category A listed building, & Inventory of Gardens and Designed Landscapes	3
a group of category A, category B and category C listed buildings, & Scheduled Monument	1
category B listed building	22
a group of category B listed buildings	2
a group of category B and category C listed buildings	1
category C listed building	2
a group of category C listed buildings	2
Scheduled Monument	3
Scheduled Monument, & Inventory of Gardens and Designed Landscapes	1
Total	119

Figure 6-1 shows the spatial distribution of the 427 SHP in Edinburgh which reveals an aggregation of SHP towards the city centre. Figure 6-2 displays the spatial distribution of SHP within an area of central Edinburgh. A visual inspection suggests that places with a relatively higher density of SHP were gardens, parks and large green open spaces. Many of these places are also popular visitor attractions, such as the Royal Botanic Garden, Holyrood Park and Calton Hill. Table 6-3 lists the ten most frequently identified historic places.

[33] HES maintains a schedule of monuments of national importance. Scheduling is the process of adding monuments to this list. Scheduling is not the same as listing and uses different legislation (HES, 2019b).

[34] Scotland has an Inventory of Gardens and Designed Landscapes which is a list of its gardens and designed landscapes which are of national importance. Sites included in the Inventory do not have the statutory protection as listed buildings or scheduled monuments do (HES, 2019d).



Areas shaded in grey are Conservation Areas. The boundary of Edinburgh was defined by its 597 Data Zone areas. Source of polygon shapefile of Data Zone: Copyright Scottish Government, contains Ordnance Survey data © Crown copyright and database right (2019). Source of polygon shapefile of Conservation Areas: Copyright City of Edinburgh Council, contains Ordnance Survey data © Crown copyright and database right (2019).

Figure 6-1 Spatial Distribution of SHP (Special Historic Place)

Source of the background map: Google (n.d.). Roadmap of central Edinburgh, zoom level = 14, Retrieved 11, November 2019, using 'ggmap' package (Kahle & Wickham, 2013) in R.

Figure 6-2 Spatial Distribution of SHP (special historic place) in Central Edinburgh

Table 6-3 Ten Most Frequently Identified Historic Places

Rank	Place name	Frequency
1	Edinburgh Castle	38
2	Royal Botanic Gardens	21
3	Holyrood Park	18
4	Calton Hill	13
5	National Museum of Scotland	15
6	Princes Street Garden	9
7	The Meadows	8
8	Palace of Holyroodhouse	7
9	The New Town	7
10	Arthur's Seat	6
Total		142

6.3 The Association of the Spatial Distribution of SHPs (Special Historic Place) with that of DLPs (Daily Life Place)

6.3.1 Spatial Point Process Modelling: Explaining the Methods

As stated in the methodology chapter, spatial point process analysis was applied to examine the association of the spatial distribution of SHPs (special historic place) with that of DLPs (daily life place). As a first trail of applying spatial point analysis in place attachment research, some detailed and essential methodological aspects to consider when doing spatial point pattern analysis and spatial point process modelling is introduced first.

6.3.1.1 Spatial Point Pattern

A dataset "in the form of a set of points irregularly distributed within a region of space", such as the SHP dataset, is called a spatial point pattern dataset (Diggle, 2014, p.1). The locations of the points, for example the SHP, are referred to as *events*, to distinguish them from any random points of the area in question (Diggle, 2014). The region of space, usually a pre-defined spatial area or study area, for example the city of Edinburgh in this research, is called the *sampling window [W]* wherein the *events* (SHP) are observed. The DLP dataset can also be viewed as a spatial data point pattern dataset. Each DLP is an *event* observed in Edinburgh which is the *sampling window*.

A spatial point pattern can also be characterised using a variety of functional summary statistics describing its first- and second-order properties. First-order properties are concerned with the variation of the density of events across the study area. Second-order properties concern the connections between points. The former is usually addressed by density-based analyses such as quadrat density or kernel density. The latter is often examined using distance-based approaches like nearest neighbour analysis or Ripley's *K*-function.

6.3.1.2 Spatial Distribution of SHP: the Inhomogeneous Poisson Process Assumption

A spatial point pattern can be thought of as the realisation of an underlying spatial point process: "in the simplest case, a spatial point process X is a finite random subset of a given bounded region S, and a realization of such a process is a spatial point pattern $x = \{x_1, \ldots, x_n\}$ of $n \geqslant 0$ points contained in S" (Moller & Waagepetersen, 2008, p.647). As stated previously in the methodology chapter, a spatial point pattern can thus be described by formulating an explicit mathematical model of the underlying process. If a model can be developed that fits the data well, the estimated values of the model's parameters provide summary statistics which can be used to explain the underlying process that determines the spatial phenomenon being studied when they are related to scientific hypotheses (Diggle, 2014).

A widely employed point process model that has been found to be adequate (but not necessary) in most studies is the inhomogeneous Poisson process model which implies that the point distribution has a preference for spatial location and depends on external factors[35]. This model provides the opportunities to examine the association of the point distribution with a (set of) possible spatial covariates (i.e., a function of spatial location) and was therefore employed in this research to examine the association of SHP distribution with DLP distribution.

The point process model is often specified mathematically by making use of point intensity, which can be distinguished from the observed point density but is also an index of the average number of points per unit area. The simplest and

[35] It is important to highlight the difference between point process statistics and the regression analysis performed in the previous chapter which generally assumes that the disturbances are normally distributed. It considers revealing the stochastic nature of point patterns (the stochastic correlation between points – events). Two issues must be taken into account: homogeneity/inhomogeneity and dependence/independence. The former concerns whether spatial point distribution depends on external factors or not, while the latter refers to whether there are interpoint interactions between the points in a point pattern. Understanding and defining the stochastic nature of point patterns is important because it determines the model selection.

most popular parametric model[36] for the dependence of an inhomogeneous Poisson point process *Y* on a single spatial covariate *X* is the log-linear model which is often specified as the following equation:

$$\lambda(u) = exp.(\theta\, Z(u))$$

where *λ(u)* refers to the estimated point intensity at any spatial location *u*, $u \in W$, exp. is the log-linear intensity function to be determined and *Z(u)* is the value of the spatial covariate *X* at location *u*. The model is in analogy to a simple logistic regression model, where *λ(u)* would be the dependent variable, *Z(u)* be the independent variable and *θ* be the regression coefficient.

In this research, using the language of spatial point process, the SHP distribution was assumed to follow an inhomogeneous Poisson process with an intensity function depending on a spatial covariate which is the density of DLP. An inhomogeneous Poisson process model with a log-linear intensity function taking the form of the above-presented equation was fit into the SHP data, where *λ(u)* is the estimated intensity of SHP at *u* while *Z(u)* is the varying density of DLP available at *u* calculated based on kernel estimation. The resulting raster image serving as the value of *Z(u)* is shown in Figure 6-3. The length unit for scale values was rescaled to kilometres. The model is denoted as M1 model. Cartesian coordinates were adjusted for in the model as alternative covariates to explain the potential effects on SHP distribution from those unavailable or concomitant variables (e.g., the concentration of historic remains in central Edinburgh). This yielded model M2.

[36] There are also nonparametric estimations. For this research, loglinear modelling was employed.

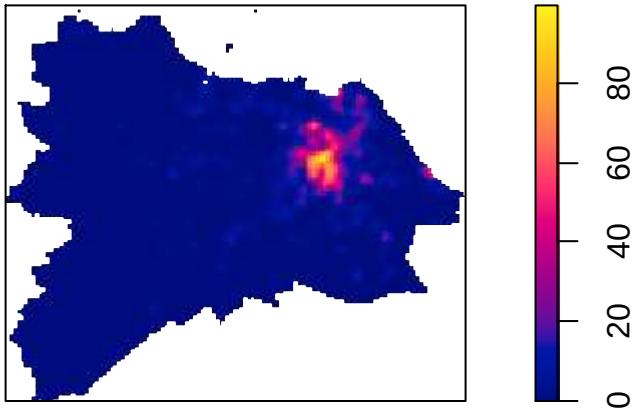


Figure 6-3 Kernel Estimation for DLP (Daily Life Place) Density serving as the Value of Spatial Covariate *Z(u)* in the Model (a 200m Bandwidth was used)

It should be noted that the model with a single covariate (DLP distribution) is inadequate to characterise the *full* SHP distributions and its genesis. Therefore, the focus here was to investigate some attributes of the SHP distribution (i.e., spatial attributes of HA) rather than developing a predictive point process model. In fact, it's hard to build an all-encompassing predictive model that can fully capture the process of *events* in the real world.

Some analyses begin with a test of complete spatial randomness (CSR) to decide whether the point pattern is completely random, which assumes that the spatial point distribution is independent of external factors that can affect it and there are no interpoint interactions. In other words, whether the spatial point distribution could have arisen by a homogeneous Poisson process. However, the spatial pattern of most social events does not follow a homogeneous Poisson distribution and thus rejecting a CSR does not necessarily provide many useful insights (Diggle, 2014). Therefore, a CSR test was omitted.

6.3.1.3 Model Diagnostic

After fitting a point process model to a spatial point pattern dataset, residual analysis, inhomogeneous *K* function and leverage analysis for spatial point process analysis developed by Baddeley and his colleagues were employed to diagnose the misspecifications of the models. Techniques such as model-

selection based on AIC values were not applicable to this research design as there were no alternative models to compare and any hypothesis testing with a *null* model (CSR) is pointless because any model of social events would show an improvement over a CSR.

Residual analysis for spatial point process developed by Baddeley et al. (2005) was employed to assess the discrepancy between the model and the observed data. The technique is built on the analogy between spatial residuals and residuals for (non-spatial) generalised linear models. For a parametric model for a spatial point process Y with the fitted density $\lambda(u)$, the raw point process residual $R(u)$ is the observed point number N minus expected number $\int \lambda(u)du$ at location u in W. The raw residuals are then scaled to compute standardised residuals such as Pearson residuals.

An inhomogeneous K function proposed by Baddeley, Moller and Waagepetersen (2000) was adopted to check the dependence between points. The inhomogeneous K function K_{inhom} is an analogue to the 'ordinary' K-function known as Ripley's K-function. It examines a point pattern for evidence of interpoint interactions after allowing for spatial inhomogeneity of the pattern.

A leverage function $h(u)$ for spatial point process was adopted to measure how far away an outlier is from those of the other observations due to its residual that may violate the spatial point process assumption. In other words, whether and how the fitted model was likely to be influenced by the data anomalies. The method is, again, developed by Baddeley and his colleagues (Baddeley, Chang & Song, 2013) as the counterpart of the classical leverage diagnostic for a generalised linear model.

6.3.2 Model Fit and Visualisation

Table 6-4 summarise the coefficient values in the intensity function based on M1 and M2 model. The result revealed a statistically significant association of SHP with DLP in both the models. The relatively larger coefficients of Cartesian coordinates which are also statistically significant suggest that SHP distribution is also associated with, and may largely be associated with, covariate other than DLP.

Table 6-4 Coefficient Values in M1 and M2 Models

x and *y* are reserved names which refer to the Cartesian coordinates.

	M1 model *(DLP)*		**M2 model (*DLP*+ *x* + *y*)**	
	Estimate	z value	Estimate	z value
DLP density	0.068	52.06***	0.059	42.01***
x			0.203	11.93***
y			0.219	8.18***

*** P < 0.001, ** p < 0.01, * p < 0.05, . p < 0.1

Figure 6-4 presents the contour plots of kernel-smoothed Pearson residual fields for the two models which visually display the spatial trend that the fitted models did not include (i.e., model misspecification). A positive value on the plots means that the fitted intensity for that area is an underestimation of the true intensity (the observed intensity), while a negative value shows some overestimation. These plots also reveal which areas have the largest discrepancy between the models and the real data. The residual plot of M1 model indicates significant misspecification and poor fit, which confirms that the SHP distribution depended on more covariates that were not included in the single covariate model. The plot of M2 model shows that incorporating the Cartesian coordinates in the model improved the underestimation significantly. A possible explanation, as assumed, is that the SHP density could be proportionate to a concomitant variable, such as the rising density of historic places toward central

Edinburgh. Incorporating Cartesian coordinates could have its effects on SHP distribution explained, which led to a better model fit.

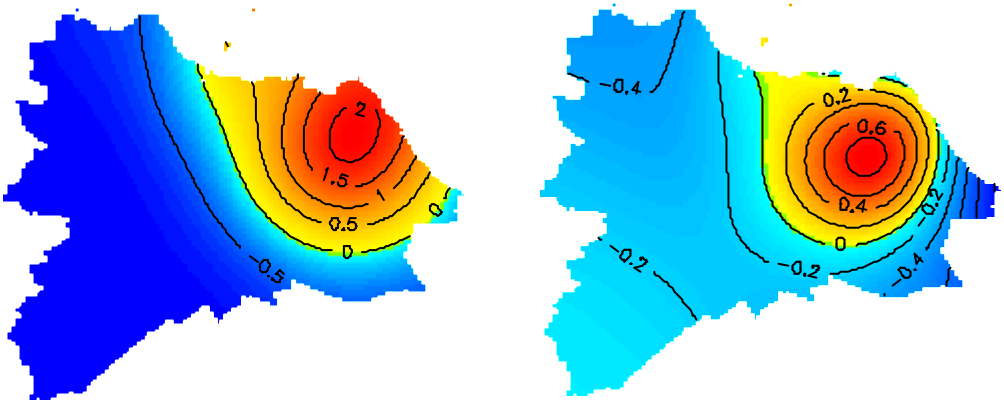
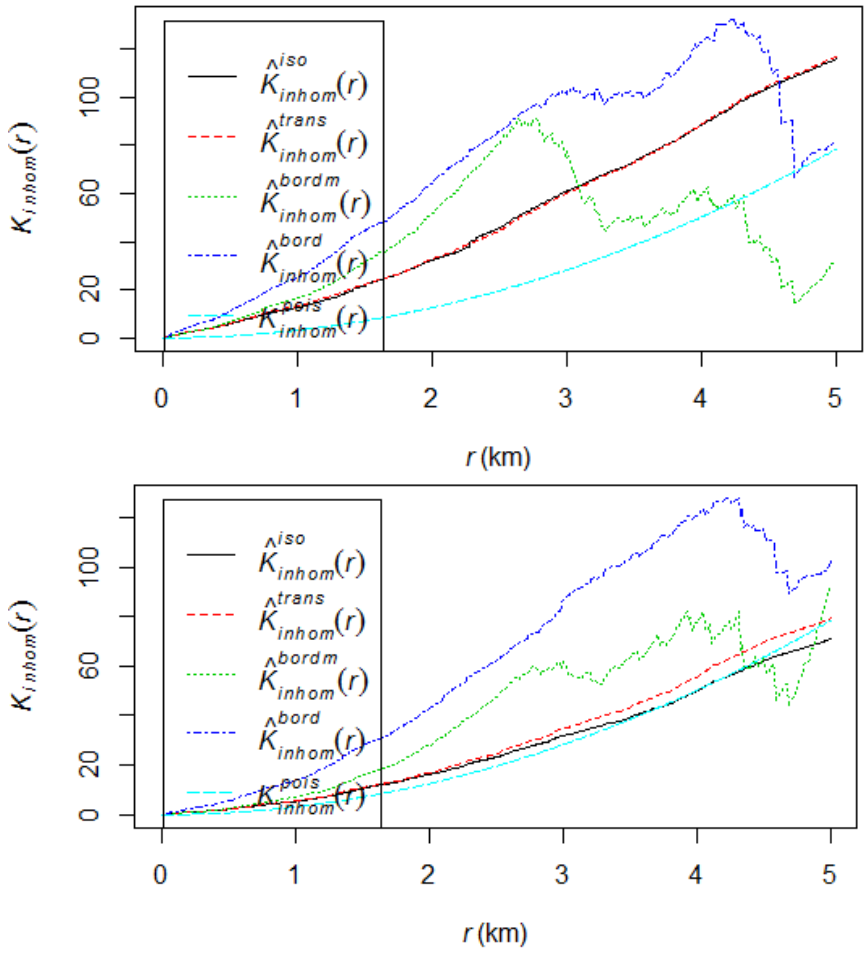


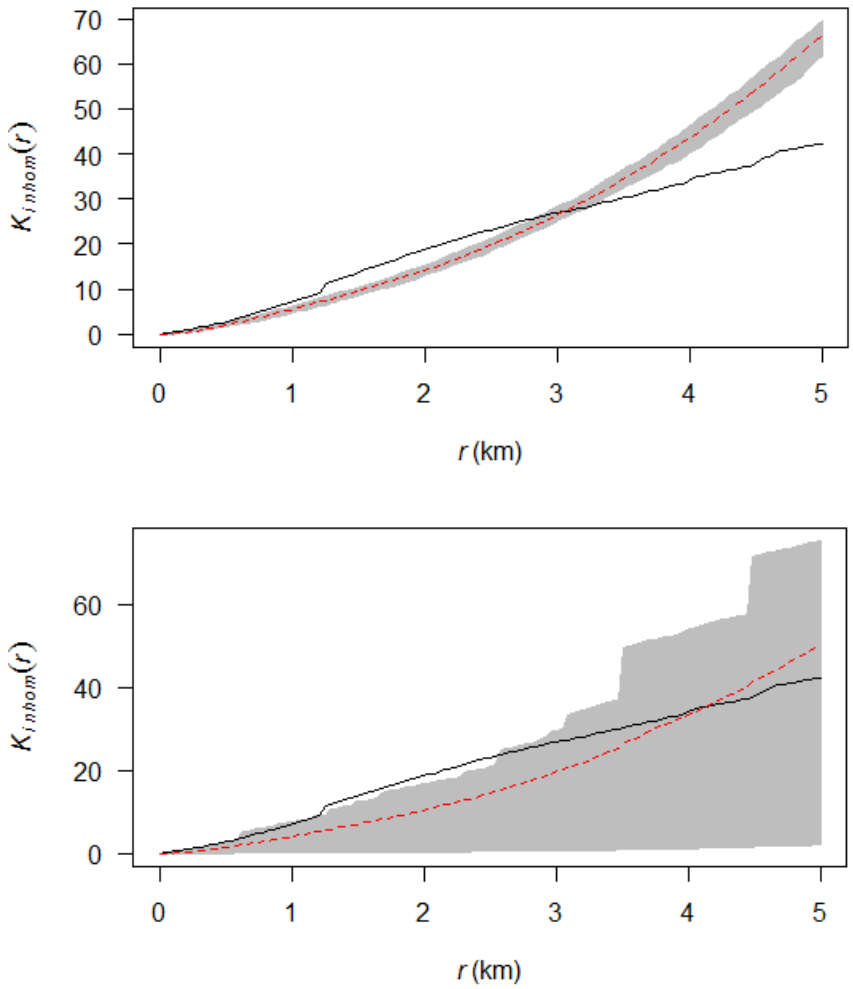
Figure 6-4 Contour Plots of Kernel-smoothed Pearson Residual Fields for M1 Model (left, ranges of smoothed field from -0.768 to 2.176) and M2 Model (right, ranges of smoothed field from -1.065 to 0.873)

Figure 6-5 and Figure 6-6 displays the results of inhomogeneous *K* function. The plots in both figures indicate that SHP distribution does not conform well to the interpoint independence assumption of an inhomogeneous Poisson process with the spatial effect of DLP density. Even after accounting for possible unavailable, concomitant variables using Cartesian coordinates, the SHP distribution still appears to show certain degrees of clustering (interaction) within 2.5km distances (see notes for Figure 6-6). Therefore, future research may consider a Cox or Neyman-Scott process to reach a better characterisation of the dependence of spatial clustering of SHP on DLP density or other covariates. However, it could also be the case that the clustering pattern was not necessarily caused by strong correlations/interaction between SHP locations, but was due to peaks in the intensity surface.



The plot lists *K* function estimations (*K-hat*$_{iso}$, *K-hat*$_{trans}$, *K-hat*$_{bordm}$ and *K-hat*$_{bord}$) depending on the edge correction selected. The solid line in cyan represents the theoretical *K* function under the null hypothesis that SHP distribution follows an inhomogeneous Poisson process depending on DLP density. Where estimated *K-hat* falls above the theoretical *K* line, the points are deemed more clustered than expected at distance *r*. Where the *K-hat* falls under the theoretical *K* line, the points are deemed more dispersed than expected at distance *r*.

Figure 6-5 Estimated Inhomogeneous K Function of SHP for M1 Model (top) and M2 Model (bottom)



If this interpoint independence assumption is well conformed, the K functions line should lie within the envelopes from multiple Monte Carlo simulations.

Figure 6-6 Inhomogeneous K Function of SHP (the solid black line) for M1 Model (top) and M2 Model (bottom) Plotted over 95% Simulation Envelops (grey shading) under the Null Hypothesis

Figure 6-7 shows a perspective view of the leverage function for M1 and M2 models. Sharp peaks indicate areas with large values of leverage, which means that the presence of SHP locations within these areas had a substantial effect on model fit. It can be seen from the figures that both M1 and M2 models have extreme high leverage (> 0.4) at roughly the same areas in central Edinburgh. The leverage also peaks at areas located along the northeast boundary of Edinburgh in the M2 model.

The leverage of a data point in fact depends mainly on its related covariate value. The SHP location with the highest leverage is where the most extreme value of DLP density was observed; for example, places with some apparent SHP cluster like Edinburgh Castle where the lowest DLP density was seen (see Figure 6-8 for a comparison of the contour plots of DLP and SHP in central Edinburgh).

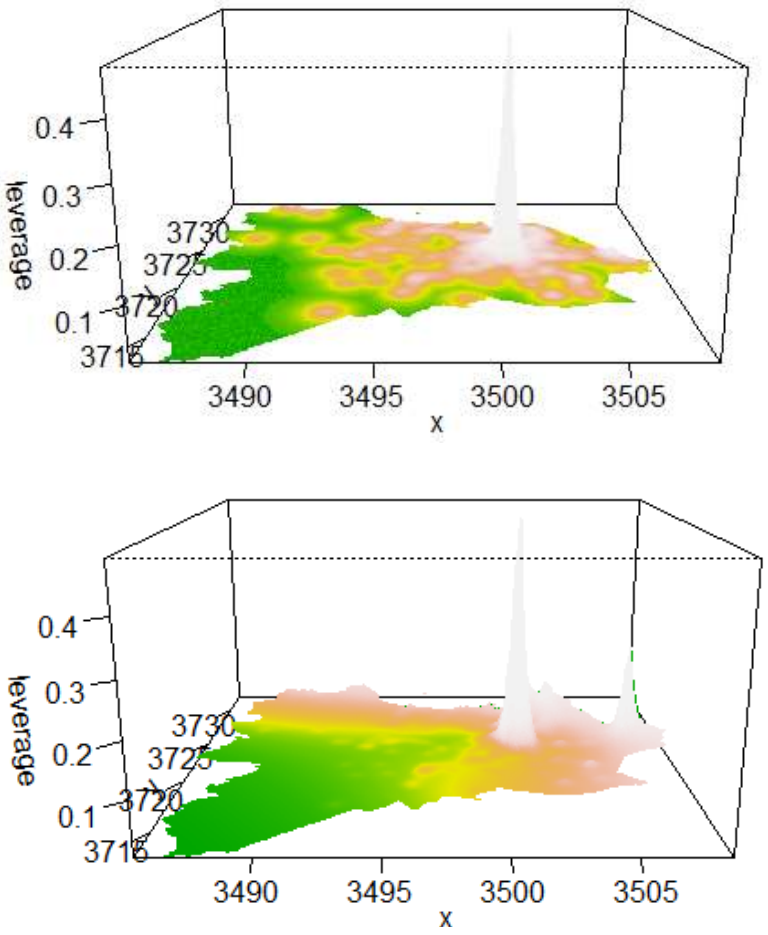
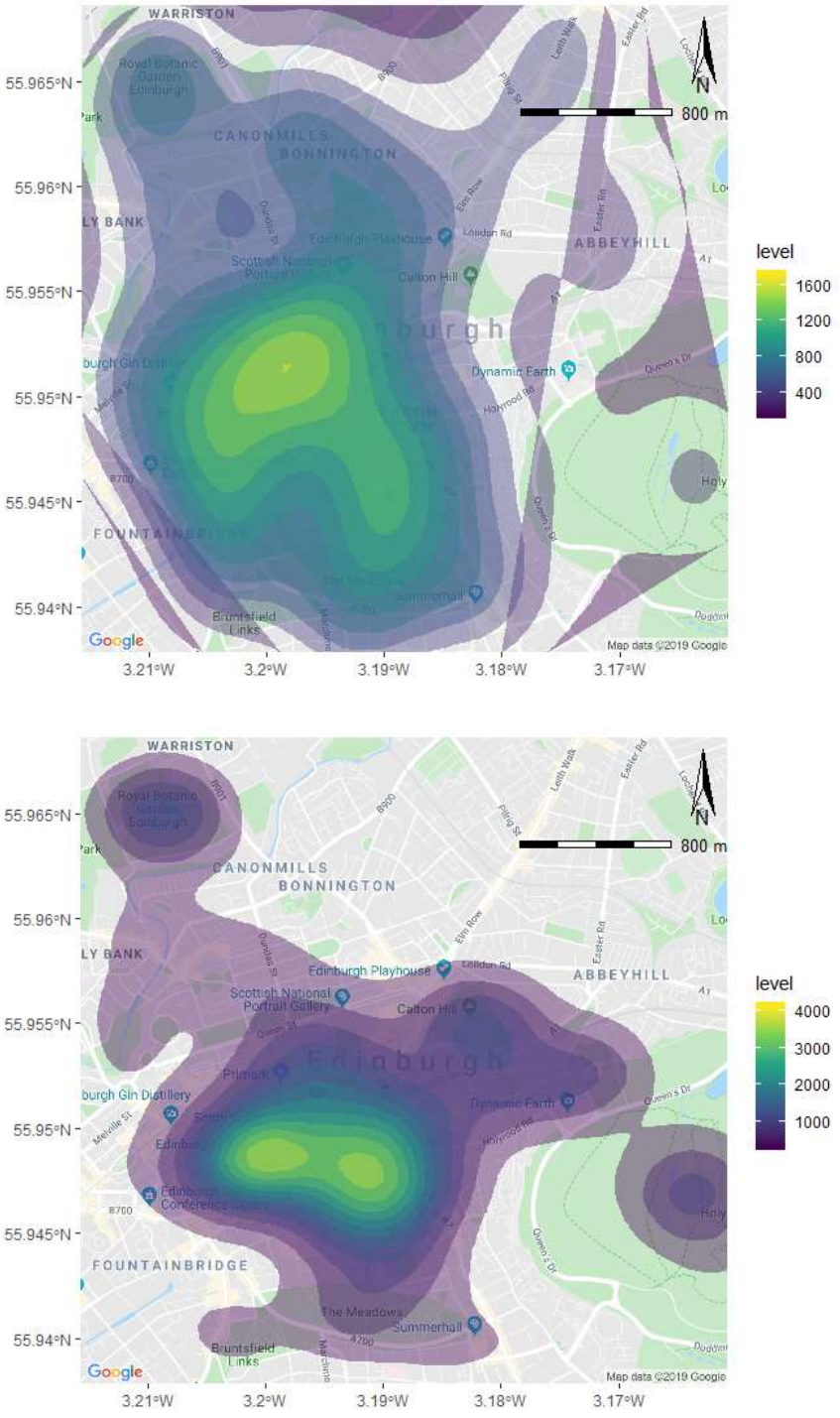


Figure 6-7 Perspective View of Leverage Functions for M1 Model (top) and M2 Model (bottom)



Source of background maps: same as in Figure 6-1

Figure 6-8 Comparison of Filled Contour Plots of DLP (top) and SHP (bottom) in Central Edinburgh

6.4 Building EGIS

The use of the online PPGIS technique for data collection, the cartographic mapping and the spatial analysis together make up the basis of an EGIS – a methodological approach for registering, displaying and exploring emotional data, which could innovate mapping studies of people-place emotion and their practical applications.

First, EGIS allows for the collection and creation of large volumes of spatially referenced emotional data using PPGIS. If made into an online open data input system, it could facilitate the collection of large volumes of Voluntary Geographical Information (VGI) data for academic use. Researchers would be able to retrieve spatial emotional data matrices from the EGIS and make links between the emotional data and other spatially referenced information such as Census data to address various research questions. The following data analyses are presented here as two examples to demonstrate how EGIS may facilitate place attachment studies. For these two analyses, a sample of 206 complete responses was used.

Example 1 Intellectual Attachment and Neighbourhood Deprivation

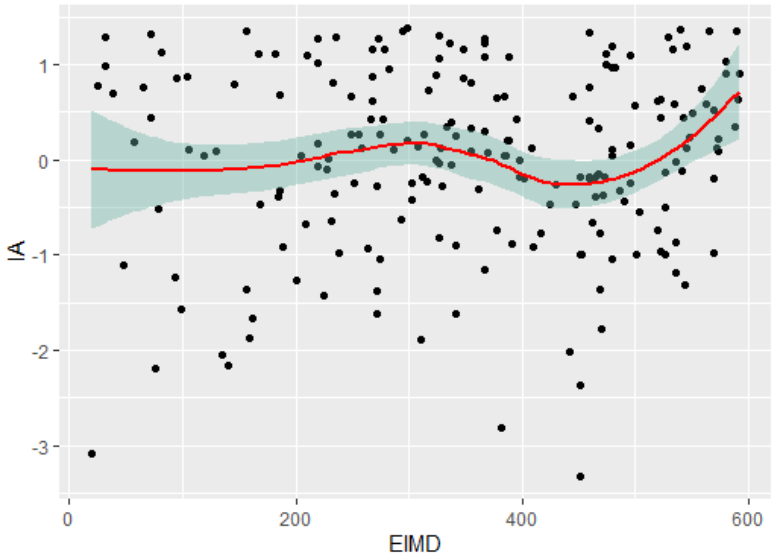
By having respondents' postcodes, the survey data were linked to SIMD data to examine the association between intellectual Attachment and deprivation at the neighbourhood level.

Since the analytical sample in this research is comprised of Edinburgh citizens only, the data zones within the City of Edinburgh were re-ranked according to their positions on the SIMD ranking to form an EIMD (Edinburgh Index of Multiple Deprivation). Postcodes linked up with data zones were then used to find the deprivation rankings of respondents' residential areas on the EIMD. The SIMD data released in 2016 were used in this research.

A scatter plot of intellectual attachment versus deprivation ranking shown in Figure 6-9 suggests that there was no evidence of a linear relationship between the two. That is to say that living in deprived areas does not lead to weaker intellectual attachment to the local historic environment. Figure 6-10 visually reveals that people live in areas of relative more severe deprivation (lighter colour) like Leith central (located in northeast Edinburgh) could have a stronger intellectual attachment (larger circles) than those who live in areas of less deprivation (darker colour).

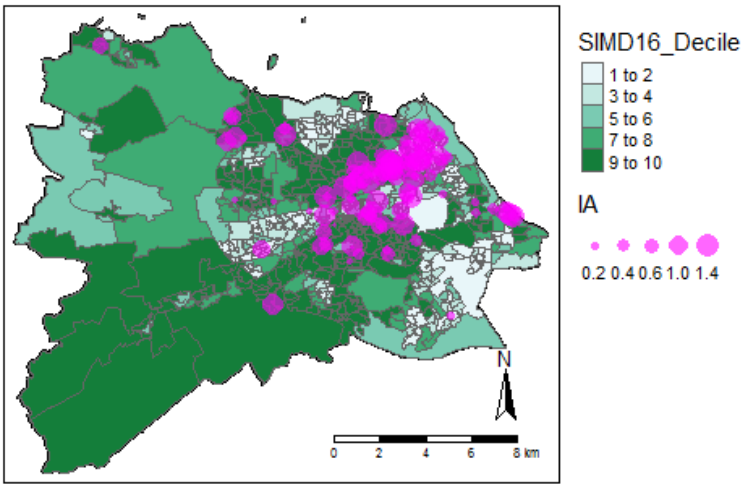
It is crucial to recognise that SIMD is an area-based measure of relative deprivation. Not every person living in a deprived area will be experiencing disadvantaged life or socio-economic hardships. Therefore, intellectual HA might not be irrelevant to individual deprivation.

In fact, the qualitative findings suggested that individual deprivation can have an influence on intellectual HA (discussed in Chapter Seven). The finding presented here might be a spurious one because the sample used in this analysis was not a representative sample randomly selected from the residential population living in neighbourhoods with various deprivation levels (including the least deprived area). Selected from members of local civic associations and Lost Edinburgh on Facebook, the sample could be comprised of people either from a middle- or upper-class neighbourhoods or have a deep interest in Edinburgh's history and thus stronger intellectual attachments. Therefore, it is not confident enough to claim that whether people would have strong intellectual attachment does not depend on where they live. However, this is not to say that it is inappropriate to connecting individuals' place attachment data with neighbourhood deprivation index. Rather if future research is to consider a robust test of the relationship, a different sampling scheme should be selected.



'IA' stands for intellectual attachment

Figure 6-9 Scatter Plot of Intellectual Attachment and EIMD (*N* = 206)



Source of polygon shapefile of Data Zone: same as in

Figure 6-10 Intellectual Attachment Plotted over a Choropleth Map of Deprivation

Example 2 Intellectual Attachment at the Neighbourhood Level and Living in a Conservation Area

The postcode data also enabled a 'correction' of respondents' answers on whether they lived in Conservation Areas. This was done by counting and subtracting the number of points (home locations) located within each polygon (Conservation Area) in a plot shown in Figure 6-11. Table 6-5 summarises participants misperception of whether they live in Conservation Areas or not. 38 among the 136 people who didn't think they live in Conservation Areas in fact do live in Conservation Areas, while 10 out of 70 who thought they live in Conservation Areas were actually wrong. The observed 'truth' about whether people live in Conservation areas or not then formed a new variable, named 'observed' which could be distinguished from people's self-reported answers, denoted by 'perceived'.

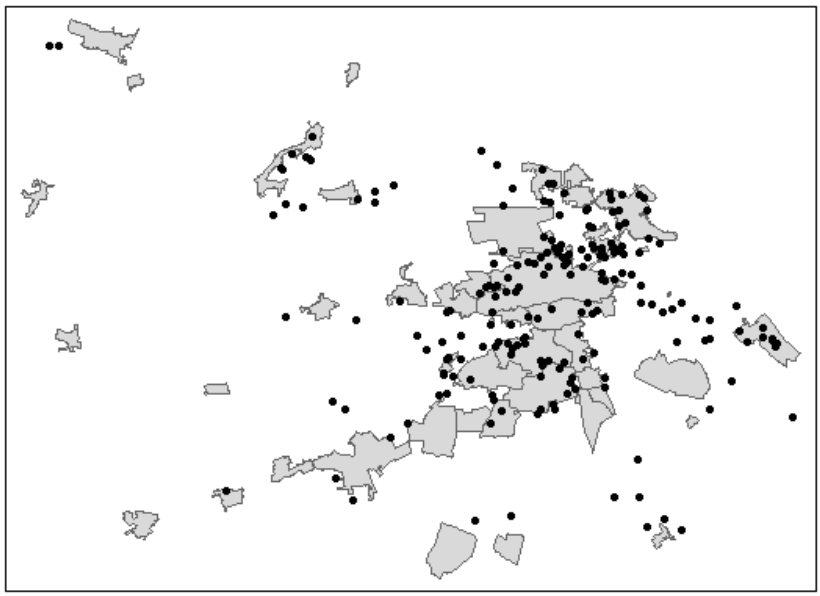


Figure 6-11 Working Plot Used for Counting Points in Polygon

Table 6-5 A Crosstabulation of Frequencies of Respondents' Perceptions about, and Observed 'Truth' of, 'Living in a Conservation Area'

			Observed 'truth' of living in a Conservation Area	
			No	Yes
Respondents' perceptions about living in a Conservation Area	No	136	98	38
	Yes	70	10	60

After this correction, the mediation effects of place attachment on the relationship between intellectual attachment and this observed truth of living in a Conservation Area or not was examined following the same analyses that had been run with the perceived variable presented in the mediation analysis in Chapter Five. Contrary to the findings for the perceived variable, the direct effect of the 'observed' variable on intellectual attachment remained significant, though smaller, after controlling for place attachment (see Table 6-6), which rejected the pre-assumption of a mediation effect. This suggests that people truly living in a Conservation Area were more likely to have stronger intellectual HA even if they might not be aware of the Conservation Areas status of their neighbourhoods which serves as another evidence of the unconscious developmental process of HA. The mediation effects of place attachment on the relationship between intellectual attachment and whether people see themselves living in Conservation Areas or not which were presented and discussed in Chapter Five should be examined with more control variables.

Table 6-6 Effects of 'Observed' Fact of 'Living in a Conservation Area' on Intellectual Attachment before and after Controlling for Place Attachment (*N* = 206)

	Intellectual Attachment	
	Before controlling for PA	After controlling for PA
Lives in a Conservation Area ('observed')	**0.447*** **	**0.283** **
Lives in a Conservation Area ('perceived')	**0.320***	0.083

*** P < 0.001, ** p < 0.01, * p < 0.05,

Second, EGIS produces a series of maps and thus enables place attachment to be made spatially explicit, which is a necessary step for place attachment research to achieve its impact on planning or decision support (Brown et al., 2015). Planners and policymakers could use the EGIS as a crowdsourcing tool to acquire citizen knowledge and to better evaluate a specific development proposal in terms of its impact on people's lives and place attachment. EGIS could also be used to support public participation in spatial problem solving and decision-making that would affect urban historic spaces. Within the heritage sector, EGIS could also function as an approach to including emotion in significance assessment of historic buildings and places, beyond objectively trying to discern what matters to people.

Third, EGIS takes the spatial investigation of place attachment beyond simple cartographic mapping to explore meaningful spatial patterns of place attachment and its associations using spatial statistics.

Finally, EGIS offers a fascinating tool for civic engagement – a tool for the public and decision-makers (especially the public) to interpret their knowledge and concerns in context. Local civic associations could deploy the EGIS to engage directly and routinely with local planning authorities. They could use EGIS to obtain crowdsourced data to discover historic places that should be preserved in order to sustain local identity, attachment, lifestyles and livelihood, and to present empirical evidence when evaluating a specific development proposal or

plan that may affect such places. On the other hand, the city council and the community councils could use EGIS to engage with civic associations and the wider public in spatial problem solving and decision-making that would affect urban historic spaces. As a result, EGIS functions in a way that is comparable to what Hester (1993, 2010, 2014) claimed to be 'the sacred structure': an inventory of 'sacred places' that "exemplify, typify, reinforce, and perhaps even extol the everyday life patterns and special rituals of community life" (Hester, 1993, p.273). EGIS could help to facilitate civic engagement in further ways. First, a publicly accessible EGIS could host online campaigns and provide a basis for campaigners to legitimise their wishes related to place attachment, and to negotiate with private developers or public sector agents against unsympathetic development proposals. Second, the EGIS could be used as a pedagogical interactive digital mapping tool capable of teaching young people to appreciate historically significant spaces and to understand how socio-spatial processes extend through time, which constitutes a viable strategy for developing their interests in history, enhancing their place attachment and fostering civic engagement (Stefaniak et al., 2017).

6.5 Discussion

This chapter presents the mapping and spatial statistic results. It provides interesting insights into the spatial distributions of historic places where people form emotional attachments. It also proposes an EGIS methodology to explore, understand and characterise the spatial attributes of place attachment.

6.5.1 Attachment to the Historic Environment on Maps

The mapping findings show that participants identified a large number of *localised* historic places with which they form emotional attachments. Such places, according to Pendlebury (2009), are commonplace, mundane everyday heritage. They do not meet the criteria for a listed building, a scheduled monument or inventory status designation, and may even not be located in Conservation Areas (see Figure 6-1 for their coincidence with Conservation Areas). They are, therefore, not afforded any legislative protections. Some might also be in a derelict condition, like Leith Walk. However, the affection

people have for them should not be disregarded by planners and conservationists. They are as important as those which have been designated for their special historic values in terms of maintaining people's attachment.

The relatively higher number of SHP (special historic place) and DLP (daily life place) identified per person for people who claimed degree level education than for those who did not is an interesting one. Though educational attainment cannot be treated as the sole indicator of an individual's social class, the possible existence of a class influence on attachment underscores the significance of considering the "political nature of people's relationships to places" (Manzo, 2003, p.55; see also Manzo, 2006, 2014), which concerns how individuals' colour, class, and the larger socio-political context would condition place attachment. This has not been thoroughly explored in the literature. In general, those who have the time/opportunity/money to be highly educated perhaps have more economic, cultural and social capital, or the prospect thereof, and thus have a greater stake in the status quo and the currently established society. It may follow that they have a greater emotional, political and economic attachment to (broadly defined) property. In geographical terms, this might refer, in a narrow sense, to the building they own, the quality of the neighbourhood environment surrounding their buildings, which adds to the attractiveness and value of their assets, but, more broadly, it could also include the historic properties of a capital city like Edinburgh that symbolise civic continuity, law and order, historic norms of privilege and entitlement. This issue is further discussed in the next two chapters.

The aggregation of SHP towards the city centre reflected the fundamental environmental background which is the concentration of historic remains in and around central Edinburgh. However, it is also meaningful to raise a question that where people view a place or an area as *historic to* which they are attached. This question is addressed in the next chapter.

Scannell and Gifford's (2010) study found city dwellers' attachment to the natural aspects of a place was stronger than attachment to its civic aspects. The SHP clusters in green spaces corroborate this finding. There have been also many studies on how urban green spaces – such as parks and gardens – as a readily

available type of nature, offer restorative benefits for individuals' health and well-being (e.g., Carrus et al., 2013; Kaplan & Kaplan, 1989; Knez et al., 2018). These places, therefore, foster emotional attachment within residents. In this sense, the history and historic meanings of these places might be aspects of secondary importance in forming place attachment. Lying at the opposite end of the scale were less frequently identified private historic gardens. The contrast indicated that public access could be an identifiable reference point when thinking about the social value of heritage places as "a collective attachment to place that embodies meanings and values that are important to a community or communities" (Jones, 2015, p.22). In fact, the emotional significance of public green spaces in Edinburgh is also evident in narratives of the interview participants.

The top ten list of the most frequently identified SHP highlighted the emotional significance of popular visitor attractions in a historic city to its residents, which is a topic that has received little attention in the literature. Bartie and Mackaness (2016) mapped the visual exposure of popular visitor attractions in Edinburgh. Those on the SHP list including Edinburgh Castle, Calton Hill and Arthur's Seat were found to have especially high visual exposure. It is thus meaningful to think about how residents perceive the prominence of these landmarks in their city, and how it might have led to their attachments. Again, these two questions are also addressed in next chapter, where the thesis' overall aim of understanding the ways in which residents form emotional attachments to the historic environment is considered in more depth using qualitative data.

6.5.2 The Spatial Correlation between SHP and DLP

The poor *goodness-of-fit* for the spatial point process model M1 and an improvement of model-fit after adjusting in Cartesian coordinates indicated that everyday movements could only partly explain the developmental process of attachment to the historic environment. Future research could consider developing a predictive point process model that can better characterise the SHP distribution by adding more spatial covariates such as the aforementioned visual exposure of different places. A useful perspective to think about when considering other covariates is to distinguish the unconscious and self-conscious

development process of place attachment. The model could have had only explained the unconsciously developed attachment conditioned by everyday movements. Future research could consider spatial covariates that would account for the self-conscious developmental process, if the use of spatial point process modelling is to better capture the *process* of SHP selections.

This trail of exploring the spatial correlation between SHP distribution and DLP distribution using the inhomogeneous Poisson process model has several limitations. First, it forces a log-linear function on the data but the correlation between SHP distribution and DLP distribution might follow a nonparametric estimation. Therefore, the poor model fit may not only be a sign of inadequacy but also inappropriateness. Second, the interpretations of model diagnostic analysis results relied on judgements. However, it does provide quantitative evidence about the correlation of SHP distribution and DLP distribution. It also demonstrates an alternative methodological approach to explore, understand and characterise the spatial heterogeneity of SHP selection. Moreover, different spatial covariates in a point process model can be further viewed as representing different dimensions of attachment (e.g., self-conscious and unconscious dimensions, as discussed, people may develop attachments to the historic environment both self-consciously and unconsciously). In this sense, a well-established spatial point process model is the spatial equivalent of a place attachment scale, which would measure place attachment in a spatial way and measure place attachment dimensions that traditional psychometric scales fail to capture. Lastly and most importantly, it comprises one of the key dimensions of EGIS methodology.

6.6 Summary

This chapter has presented, as well as discussed, the results of mapping and the spatial point process analyses. Using SHP (special historic place) as the spatial operationalisation of attachment to the historic environment, it has visualised the spatial distribution of historic places to where people feel attached, their spatial clusters, and their spatial correlational relationships with places that people use in their daily lives. The descriptive statistics of people's SHP selection revealed a considerable number of localised historic places to which

people feel attached. It also revealed a possible influence of educational attainment on SHP selections. The spatial aggregation of SHP towards the city centre might be a sign of how people define a place is ‘historic’. The clusters of SHP around public open green spaces and the top selected SHP around popular visitor attractions in turn shed lights on the relative importance of natural settings over the built environment in cities and residents’ experiences of the visual prominence of Edinburgh’s landmark heritage. Applying spatial point process modelling, this chapter confirmed the dependence of attachment to the historic environment on everyday movements that revealed the unconscious developmental process of place attachment. These analyses, findings and their implications led to the proposal of an EGIS methodology which would not only enable registering, displaying and exploring emotional data by performing cartographic mapping and spatial statistics, but also facilitate future civic engagement.

7. Chapter 7: Qualitative Analysis, Reflections for the Interviews

7.1 Introduction

This chapter is the last of the three research findings chapters. It presents the qualitative findings of Edinburgh residents' attachments to historic environments and places, enriching and triangulating the quantitative and spatial analysis results. The chapter starts with a description of the interview sample. Reflecting on the interview data, it then presents a range of attachments to the historic environment, which brings to life the quantitative findings of the different dimensions of attachment: intellectual, nostalgic and autobiographical. Next, it provides contextualised accounts of the emotional and experiential qualities of two types of historic places that were revealed during the visual mapping exercise with participants: historic open green spaces such as gardens and parks, and popular visitor attractions like Edinburgh Castle, Arthur's Seat and Calton Hill. In so doing, this chapter provides valuable insights into, and further evidence about, the findings that emerged from the quantitative and spatial analysis. The chapter ends with a conclusion section that reflects on the key findings to provide a more holistic understanding of the features of place attachment in historic settings.

7.2 Characteristics of Interview Participants

As stated in the methodology chapter, quantitative findings were used to guide the selection of interview participants. In this research, particular interests were given to ensuring representation of people with different educational attainment, family history and those who thought they live in a Conservation Area and who did not. These characters were factors that influence people's attachments to the historic environment. This allowed me to have more resonance and capacity to think about what people tell me and how it fits with where they were placed in the place attachment model I developed from the quantitative analysis. Also considered were the coverage of various age group

including the youngest and the oldest participants and the inclusion of individuals living in deprived neighbourhoods.

Initially, a sample of 40 respondents was identified and in the end 25 interviews were conducted.

A summary of the characteristics of the 25 interview participants is presented in Table 7-1. These 25 participants made up a sample of slightly more men (56%) than women (44%), ranging in age from 23 to 73 years (the youngest and the oldest in the sample). Fifteen (60%) of them are referred to as 'newcomers' (those who were not born in Edinburgh, although some of them have a family history of living in Edinburgh). The remaining ten (40%) are lifelong residents, although one of them indicated that they had spent part of their childhood in another place. Nineteen (nearly 85%) of them had at least a first degree and most of them had studied humanities (literature, history, language, art, drama or law). The sample was not very diverse with respect to participants' ethnicity either. Apart from one Spanish, one Canadian and one US American, all the participants were born and raised in the UK. They were given pseudonyms which were considered to be broadly in keeping with their gender, age and nationality.

Table 7-1 Interview Participants

Participants ID and pseudonym	Gender	Age	Educational attainment (level and subject)	Live in a Conservation Area	Family history	Neighbourhood of residence
1 Matt	Male	55-64	First degree (Art and Humanities)	No	Newcomer	New Town and Broughton
2 Richard	Male	65+	Higher degree (Natural Sciences)	Yes	Newcomer	New Town and Broughton
3 Ann	Female	35-54	First degree (*unknown*)	No	Newcomer	Muirhouse
4 Kate	Female	35-54	Higher degree (Art and Humanities)	Don't know	Newcomer	Morningside
5 John	Male	18-24	Higher degree (Social Sciences)	Yes	Yes (third generation)	New Town
6 Bob	Male	35-54	Higher degree (Social Sciences)	No	Yes (third generation)	Grange
7 Josephine	Female	65+	Higher degree (Art and Humanities)	Yes	Newcomer	New Town and Broughton
8 Lynn	Female	25-34	Higher degree (Social Sciences)	No	Newcomer	Canonmills
9 Eva	Female	35-54	Higher degree (Social Sciences)	Yes	Yes (first generation)	Inverleith
10 Keith	Male	35-54	First degree (Social Sciences)	Yes	Yes (third generation)	Bruntsfield
11 Alice	Female	35-54	First degree (Art and Humanities)	Yes	Newcomer	Old Town
12 Patrick	Male	25-34	Higher degree (Social Sciences)	No	Yes (third generation)	Leith
13 Chris	Male	25-34	No degree	No	Yes (second generation)	Bonnyrigg

(Table 7-1 continued)

Participants ID and pseudonym	Gender	Age	Educational attainment (level and subject)	Live in a Conservation Area	Family history	Neighbourhood of residence
14 Neil	Male	35-54	Higher degree (Natural Sciences)	No	Newcomer	Leith
15 Elle	Female	65+	Higher degree (Art and Humanities)	Yes	Yes (third generation)	Portobello
16 Zoe	Female	35-54	No degree	Yes	Yes (third generation)	South Queensferry
17 Ian	Male	65+	First degree (Social Sciences)	Don't know	Yes (first generation)	Newington
18 Martin	Male	25-34	Higher degree (Natural Sciences)	Yes	Yes (third generation)	Morningside
19 Andrew	Male	65+	No degree	No	Yes (second generation)	Craiglockhart
20 Clara	Female	35-54	Higher degree (Social Sciences)	Don't know	Newcomer	Leith
21 Naomi	Female	35-54	First degree (Social Sciences)	Yes	Newcomer	Leith
22 David	Male	55-64	First degree (Natural Sciences)	Yes	Newcomer	Grange
23 Lucas	Male	35-54	Higher degree (Natural Sciences)	Yes	Newcomer	Leith
24 Emma	Female	55-64	Higher degree (Social Sciences)	Yes	Newcomer	Trinity
25 Lachlan	Male	25-34	No degree	No	Yes (third generation)	Unknown

The order of each individual follows the sequence of the interview time.

7.3 Attachments to the Historic Environment

Thematic analysis of interview transcripts revealed a great variety of the ways in which people form attachments to the historic environment. Participants talked about their attachments to environments and places, regardless of their age, architectural or architectural importance, both at their doorsteps and citywide. Such widely-defined historic environments and places reflected the need to take on a more heterogeneous and pluralist discourse of heritage. There were people who highlighted the cultural significance of their attached historic places which are tied to time depth, aesthetic values, national identity. These are represented by listed buildings, scheduled monuments, World Heritage Site, Conservation Areas, places linked to significant cultural events such as the return of the Stone of Scone to Scotland, and places linked to famous historic figures (in Edinburgh) such as Robert Louis Stevenson, Patrick Geddes, Robert Burns, etc. There were also people whose feel connected to the more vernacular form of heritage, such as old fishing villages along the north coast of Edinburgh (e.g., Newhaven Harbour). Meanwhile, participants talked extensively about their experiences and attachments to historic places of their personal importance. One participant, Alice, specifically talked about her and her community's efforts of making their 'personal history'.

> We're working on a project at the moment. We've got some funding …. to, um, to start a decorate [in a place] in a way that would enable it would be less attractive to people to do for graffiti. …. And what we're trying to do is make these metal panels with stories in them. And what's really lovely about the project is that we've been working with all the local people and we've been telling our own stories to put in these panels that will go down the Close that will be a bit like cut out like paper, you know, cut out, um, paperwork, but metal, is that we're talking about history. This will be our history. This will be our personal history.

In the following analysis, illustrative verbatim extracts from the transcripts are used and framed in a way to help to refine, re-define, interpret and elicit the various dimensions of attachment.

7.3.1 Intellectual Attachments

7.3.1.1 An intellectualised interpretation of an aesthetic experience

Across the interviews, it was very common for participants to praise the beauty of a historic place or the 'picturesque' quality of historic Edinburgh when they talked about their emotional attachments. A wide range of words has been used including 'beautiful', including 'wonderful', 'astonishing', 'amazing' and sometimes 'quirky'. In an unusual example, one participant, Matt (a resident of the New Town for 20 years), gave an intellectual interpretation of an aesthetic experience of the Georgian New Town that reveals a culturally instilled emotion.

> I certainly find this um, this 18th-century Georgian style or architecture very beautiful and appealing. I mean that's just culturally how a lot of people in Britain say that. It's not the only kind of architecture there, but it's been, we've been uh, brainwashed to think of those proportions, the neo-classical proportions of house, design, the proportions of the windows, how they start larger on the ground floor, they get slightly smaller, uh, all these neo-classical things. I find it an unexpectedly pleasing environment in which to move around. It's not the only kind of built environment I find delightful. I like the Old Town as well. But there is a kind of rational grandeur to this which is attractive. It feels like a city that has tried to impose an architecture order on the brain of the people who live in it, you know. This is totally a product of the Enlightenment, and it was completely filled from the 1760s onwards as it extended downhill with doctors and lawyers, and rational people who had been trained a thing. And this architecture can reflect them.

This interpretation is unusual but insightful. The association of neo-classical architecture style with Scottish Enlightenment and a cadre of educated people (doctors, lawyers and rational people) suggests intellectually engaged thinking. It is a very knowledgeable narrative which hints at the influence of education. It reveals a possible connection between a person's identity (national identity) and her/his (aesthetic) taste of the historic environment. It also demonstrates an association of attachment with the *cognitive aspect of aesthetic experience*, that is, the semantic, symbolic and imaginative aspect wherein people appraise the symbolic reality of an object (Marković, 2012). In this sense, simply viewing the historic environment aesthetically beautiful may not fully account why it is preferred over the modern environment. Attachments to a historic

neighbourhood developed from its visually pleasant appearance are more than merely an issue of aesthetics.

Nevertheless, it is important to note that not all aesthetic experience is intellectual. Marković (2012) describes two other aspects of aesthetic experience — a *motivational, orientational or attentive aspect* and an *affective aspect*[37] — that suggest that simply perceiving a place as beautiful may not necessarily lead to the development of intellectual attachment. The relationship between aesthetic experience and place attachment is complex. Perhaps because aesthetic experience of the built environment (e.g., the neo-classical Georgian New Town, as in this case) is a complex psychological process on its own, and aesthetic experience as an academic concept is specified only vaguely in relevant subject areas, this theme has been largely unexplored in the literature on place attachment. There is only a small body of literature that examines the relationship between aesthetic appraisal and place attachment from a quantitative perspective (e.g., Jaśkiewicz's (2015) research, and the Italian project mentioned in Chapter Two, which included scale items measuring 'building aesthetics', see Bonaiuto et al., 1999; Bonaiuto et al., 2003, 2006).

Meanwhile, several participants distinguished their sentiments to Edinburgh from a feeling arising out of finding it aesthetically beautiful, which is discussed in the following sections.

7.3.1.2 Intentional imagination

The historic environment evokes imaginations, sometimes *spontaneous* and sometimes *deliberate* (i.e., without or with one's conscious direction, see Walton, 1990), which foster some emotional experiences that bond people to the historic environment. Regarding spontaneous imagination, Wells (2011, 2017; see also Wells & Baldwin, 2012) has established a link between the appearance

[37] According to Marković (2012), motivational, orientational or attentive aesthetic experience considers the state of intense attention engagement and high vigilance when persons are strongly focused on and fascinated with a particular object. "They lose their self-consciousness, the awareness of the surrounding environment, and the sense of time" (Marković, 2012, p.3). The affective aesthetic experience refers to an emotional experience: a person has a strong and clear feeling of unity with the object of aesthetic fascination and aesthetic appraisal.

of patina (or decay) in an urban environment, the experience of 'spontaneous fantasies' (explained in Section 2.4.1), and an increased level of emotional attachment. Whereas when it comes to intentional imagination, few discussions can be found in the literature.

In this research, participants also expressed spontaneous fantasy. For example, one participant, called Bob, said:

> I like abandoned places. Maybe because they allow you to imagine what happened there. And also, they allow you to imagine what else could happen there. [Bob]

However, an *intentional* (or *deliberate*) *imagination* was also in evidence which sometimes involves conscious intellectual engagements with the objective or known past. Consider the following narratives. They all pictured a kind of scenario in which they projected their present lives into the past.

> It's the idea of being able to live in a building that has a very distinctive history and being able to take on some of that feeling when you go into it. …. it's quite nice to kind of pretend that you're living a life that you may or may not be able to live in the past. Given that in Edinburgh, lots of old buildings are being destroyed for better or worse purposes. It's nice to be able to go to something that you think are not, are not going to be knocked down, turned into hotels. [Kate]

> One thing I love about Edinburgh is the fact that like I was saying, the Georgian architecture, much of it stayed the same. So people like Robert Louis Stevenson, you know, these sort of, uh, these great figures in history, his house is still there on Heriot Row and someone lives in it now. And I find it's fascinating that you can live in the same house as one of these, sort of, these really historical figures who had such influence in Edinburgh at a time. …. So just thinking walking in and out of these buildings and thinking, you know, Robert Louis Stevenson, Adam Smith or David Hume, or, uh, you know, these incredibly influential historic characters well-known for another world going the same sort of buildings as you and, um, even some of the pubs, um, so the taverns back then are pubs now, with different names and things, but, um, they're still used as taverns today, pubs today. And I find that, you know, incredible, that you could drink in the same way as one of these guys. [John]

In Kate's narrative, the historic environment has a kind of magical allure that gives her the experience of 'time travelling' – to imagine, think about, and

experience the sights and sounds of a fictional past. She did not make explicit whether she was imagining a past that has or does not have a relation to an objective or known past, or whether it would be welded to specific historic places. The past is linked irrevocably to specific historic places and that the link may not be entirely 'natural' or 'genuine'. In comparison, John's narrative demonstrates more control over imagination because it involves reminiscing about his knowledge of Scottish Enlightenment history, from which he has developed a 'cultural sense of place' (Hay, 1998).

Intentional imagination is also important for giving people a sense of participation in history, as one participant, called David, explained:

> My wife and I enjoy music, particularly in places to go for concerts and the, the churches, …. um, so, you know, places like Greyfriars, St Giles Cathedral …. These big, really ancient landmarks are really special. And I just love, uh, being in them and just feeling part of that history. Just knowing how many hundreds of years these have been there and the building has hardly changed in that time and thinking who else has been in here. Um, so I find that history, um, of Edinburgh, um, wonderful. I love being a part of that.

In this sense, *intentional imagination* is similar to what Lowenthal (2015) defined as 'sensing the past' — a "conscious, often self-conscious, recall" of the past that is recalled as "a congeries of distinctive occasions, different enough from the present to know it as another time, similar enough to assure us it is our own" (p.306). It is notable that in Lowenthal's discussion, the past[38] was mainly referred to as a person's own past, whereby one would recall not only happy memories of the past ('sensing one's own past' is discussed below in the context of nostalgic attachment), but also the sad, unhappy past, and troubling memories. However, here, a sense of joy, gratification and even pride can be detected in Kate's, John's and David's words. History in general (Kate), the history of the Scottish Enlightenment (John) and the history of Edinburgh (David) were conscientiously perceived.

[38] There is also a rich discussion about the differences between 'the past' and 'history', see Lowenthal (2015).

It is also notable that the physical appearance of historic places, which may not have changed for hundreds of years, played a significant role in all three participants' responses in evoking imagination and desired emotional states (underlined text).

7.3.1.3 History, ego integrity and the aged

Some older participants shared not only their love of the historic Edinburgh, but also their perceptions of how the past or place history is essential to the development of their sense of 'ego integrity' (Erikson, 1950, 1959, 1982) in one's later life. For older people who have invested all or a substantial part of their lives in their neighbourhoods and/or the city, 'places' with history (as declarative knowledge[39]) to appreciate as demonstrated in previous discussions become 'an extension of self'. For example, one participant, Elle (68 years old), put it in these terms:

> You know, you can't ignore your past because your past formed what exists now. I think it's very important that you respect the past. Yes, of course you move forward, but you have to respect to what made, what made this a place it was, same as you respect to what made you the person you are.

Another participant, Richard (73 years old), saw the increasing interest in history among older adults as the nature of getting old:

> In reality, most people get interested in history when they become old. I suppose when they see their mortality coming up and they start, they, thinking we want to hang on to our past and pass on to the next generation. Which is a good thing. …. If you talk to anybody in any community, they will refer to things that relate to their past, they are proud of the area or proud of their accent they have, proud of their family. Uh, that all links to their past history. So that's, you know, that's all part of living here and I'd probably say the same if I lived in somewhere else.

[39] Anderson (1993) discusses two basic types of knowledge: declarative and procedural. Things/events/processes, their attributes, and the relations between these things/events/processes and their attributes define the domain of declarative knowledge. For example, the Scottish Enlightenment history associated with the New Town. Procedural knowledge is the knowledge of how to perform or operate things. For example, a person knows well about all the shortcuts to central Edinburgh after living in the city for a long time.

People consider the physical environment as a fundamental component of their identity regardless of their age, as demonstrated in Twigger-Ross and Uzzell's (1996) study. However, it is usually among the elderly who are in the stage of 'integrity vs. despair'[40] coined by Erik Erikson in his theory of human psychological development across the life span (see Erikson, 1950, 1959, 1982) that considerable identity development occurs, when life stories are subject to retrospection and introspection. This process often results in virtue and wisdom which are intellectual products.

These findings help to explain a prevalent image that the intensification of attachment to, and emotional involvement in, the historic environment is associated with getting old.

This is probably one of the psychological reasons why many people join local civic associations after retired. They desire to remain in the mainstream of life and to feel they belong to society through their active engagement with the lives of other community residents, in a way to regain 'feelings of control and security' (Buffel et al., 2014; van der Land & Doff, 2010) or compensate for their functional losses (decline in functional health) (Cook et al., 2007).

7.3.1.4 The downside of intellectual attachment

An interesting theme recurred throughout the interviews was that some participants (those lifelong residents) associated their love of history or interest in history (of Edinburgh in particular) with being taken to museums and art galleries, and attending cultural events (such as the theatre, concerts and

[40] Ego integrity and despair form one of the conceptual pairs denoting the last stage in Erikson's theory of human psychological development. It begins as ageing adults begin to tackle the problems of their mortality. The onset of such stage is often triggered by life events such as retirement, the loss of a spouse and other changes to major roles in late life. Erikson described ego integrity as 'the acceptance of one's one and only life cycle as something that had to be' (Erikson, 1950, p.268) and later as 'a sense of coherence and wholeness' (Erikson, 1982, p.65). Ego integrity thus can be understood as a sense of self-fulfilment from a life well lived. At the same time, late life brings experience of despair, such as aspects of the past, present, and future that are difficult to integrate into a meaningful whole. Late life is therefore characterized by both sense of integrity and despair.

ballet) when they were of school age. On the one hand, this finding suggests attachments to the historic environment in adult life emerge from childhood experience, which is further discussed in the next section. On the other hand, the fact that many art galleries, museums and theatres in Edinburgh are situated in high-profile historic buildings and have an obvious and recognised artistic component brings to attention Pierre Bourdieu's theories of art consumption (which is usually measured in gallery attendance, see: Stevenson & Magee, 2017). The following analysis makes an analogy between 'art consumption' and 'historic environment consumption' to explain a negative facet of intellectual attachment.

It is widely believed that different levels of art consumption (including the denial of access to art) were connected with different education, (social) class, or what Bourdieu called cultural capital[41] (which is a source of social inequality for Bourdieu, see Bourdieu, 1986). "Love of art is not love at first sight but is born of long familiarity" (Bourdieu & Darbel, 1991, p.54). The French sociologist believes that the abilities to appreciate (understand) works of art, for example, to discriminate 'high' and 'popular' artforms, and attribute differential values to them, are not unmediated matters of personal (aesthetic) taste but, in advanced capitalist societies, ascribed and learned in ways that make them appear 'natural' (Bourdieu, 1986). The appreciation (understanding) of art, according to Bourdieu, requires a social language or set of interpretative tools which is the outcome of class and education (Bourdieu, 1986). As empirical evidence of this, education as a function of social class origin has been found to be a constant predictor of the class-differentiation of art consumption (Di Maggio & Useen, 1978; Stevenson & Magee, 2017).

Borrowing these ideas, it is reasonable to draw an analogy between appreciating the historic environment and appreciating works of art. As with art consumption, appreciating (understanding) the historic environment would also require an appropriation of a kind of 'social language or set of interpretative tools', which

[41] Bourdieu's concept of cultural capital refers to the collection of symbolic elements such as skills, tastes, posture, clothing, material belongings, credentials, etc. that one acquires through being part of a particular social class.

will have to be obtained from education or ingrained from social habitus[42] (A Bourdieu concept defining the embodiment of social structures in individuals). Intellectual attachments could be (or be understood as) the outcomes of non-practical consumptions of the historic environment for its artistical, architectural or historical values, distinguishing it from attachments that derive from practical or functional consumption (i.e., the historic environment is 'consumed' for its practical or functional values, for example, a historic building can be used as a pub where people go for a drink).

Seen in this way, intellectual attachments can sometimes be quite exclusive. As such, being taken to museums, art galleries, and other cultural events while at school-age could be viewed as an indicator of parental social status. In fact, it was sometimes expressed as a perceived privilege:

> I've always loved Edinburgh and I have a huge appreciation for its architecture …. I always had a very deep interest in art across the board and my mum and dad always encouraged that. They would take me to art galleries, they would take me to museums, and the Botanics. You got to see the beautiful of Edinburgh that maybe a lot of other kids didn't get that chance. [Zoe]

In addition, intellectual attachment may also have negative connotations, as Rogaly and Taylor (2009) compared the relative importance of aesthetic quality and the level of snobbery that place could provide to connoisseur's attachment.

7.3.2 Autobiographical Attachment

This section presents attachments resulted from the developing 'autobiographical insideness' (Rowles, 1983, 1990) — a person's affinity to places that she/he got to know and familiar with through her/his life journey, and attachments to places with a family connection.

[42] Social habitus, or generally habitus, is one of Bourdieu's most influential yet ambiguous concepts. It is, in Bourdieu's words, 'a subjective but not individual system of internalised structures, schemes of perception, conception, and action common to all members of the same group or class' (Bourdieu, 1977, p.86). Habitus is an important concept that make up Bourdieu's social reproduction theory which is a widely applied theoretical framework in various subjects in sociology. For a clearer and detailed explanation, see Power (1999).

7.3.2.1 The 'lived-in'

Participants showed attachments to 'lived-in' historic places where they organised their present everyday lives. In a narrow sense, these include specific places and paths of movements such as paths used for commuting, parks for exercising, pubs for socialising, and so on. In a broad sense, the city of Edinburgh as a whole and the neighbourhoods that participants lived in are all lived-in historic environments for people's place 'ballets' (Jacobs, 1961; Seamon, 1980), too. Attachments to such places, as reflected by participants' descriptions, take a long time to develop. For example, Elle said:

> I love Portobello, I spent a huge part of my life here. I care about it a lot.

7.3.2.2 The 'remembered'

Apart from lived-in places, participants expressed affection towards a series of remembered places which were associated with previous chapters of their lives like childhood, teenagerhood, parenthood, and so on, as well as milestone moments in their life journeys such as a first date, wedding, retirement, etc. The narratives were sometimes like people's autobiographical recollections, which are largely episodic ('I remember') although with a semantic component ('I know')[43], and full of perceptual and contextual particulars (Knez, 2014), such as the quote from Bob presented below.

The most frequently mentioned autobiographical attachment were attachments to places from childhood and (early) adolescence (for participants who grew up in Edinburgh), which indicates that place attachments formed in childhood hold a special place in people's memories. People's narratives were much more about their connections with what they did when they were children in those places (with their parents, grandparents or childhood friends), less about what they (as adults) knew or thought about those places. In addition, they highlighted significant childhood experiences. These include feeling safe about playing,

[43] The Canadian psychologist Endel Tulving proposed a distinction between episodic, experiential (remembering) and semantic, factual (knowing) memory (e.g., Tulving, 1972), which makes up one of the most influential theoretical classifications for human memory system in memory research.

having freedom (playing without parent purview), and enjoying natural settings more than the built environment, etc. The following long narrative is Bob's description of his attachment to where he grew up.

> Silverknowes Parkway is the house that I grew up in. …. so I played outside a lot …. (it) was basically quiet, was a very safe place, and it was, and we were close to the beach. So, as a very small child, I used to be taken down to the beach. And then when I was still quite young, I used to, with my friends, we used to go there as children to the beach. So there was football pitches, a golf course, some woods, um, some old houses in the woods. And we were also next to Lauriston Castle, which is one of Edinburgh's castles, or tower house, that's been expanded by the Victorians and Edwardians, and we used to play in there as well. So I played, [pause], in a historic landscape as well. And at the time, [stress], I think I probably did think about it a bit that we would, yeah, we would play around the castle, but it was mainly outdoor space that we were escaping in and we were, there were no adults, so we were playing safe. …. Um, and so a lot of my memories and attachment are connected to the people that I knew then, that other children that I knew then that I may have only known as children as I'm not in contact with them as an adult. Um, but even the building type which is a special building type, I'm basically quite fond of, um, because they're good family houses. …. And I suppose the legacy of liking that house is they are, um, white, um, painted pebbledash. Um, and I like houses that are white painted pebbledash and I think it's because the house I grew up in was white, white pebbledash. Um, but my attachments to the area is, was a sort of freedom that it gave me.

One notable theme that emerged from this narrative is the possible role that childhood place experiences play in the development of adult place attachments and (aesthetic) preferences, as reflected in Bob's account of the 'legacy' of growing up in a pebbledash house. The tributes participants paid to being taken to museums, art galleries, theatres, concerts, etc. in their childhood and teenage years, as mentioned previously, were also explicit evidence of how childhood- and teenage-place experience influence adult place attachment.

Such influence more often appeared in participants' broader autobiographical narratives. Adult place attachment could thus be better understood with reference to one's autobiographical frame. In this sense, looking at childhood and/or adolescent place attachment provides an alternative frame to explain class-differentiated intellectual attachments as habitus. For example, John's particular sentiment to the Georgian architecture could be considered as the

'legacy' of his childhood experience of growing up in Georgian houses, which enabled him to be 'born of long familiarity' with the 'social language or interpretive tool' to appreciate and interpret Georgian architecture (text underlined):

> I grew up in a street called Warriston Crescent, sort of old Georgian townhouses. …. They are kind of smaller townhouses, but they have the kind of unique interior and they're quite different from, say Heriot Row, much bigger Georgian townhouses or Moray Place which has these quite large grand houses. …. And that just adds to the uniqueness of the city. …. I'm extremely grateful for being raised in that kind of environment. And, and so Georgian architectures, it's always very familiar to me.

The role childhood place experiences play in adult identity has been revealed in many identity studies (e.g., Cooper, 1992; Porteous, 1990; Rubenstein & Parmelee, 1992; Thompson, Aspinall & Montarzino, 2008) and films and works of literature, but the effects of childhood place experience and on adult attachment within the social (class) context is an underexplored theme (Morgan, 2010).

Participants also expressed attachments to places where they spent a lot of time with their children. In much the same way as they talked about attachments to childhood and teenage places, they talked more about their connections with what they and their children did in the places and less about how they viewed or felt about the historic attributes of those places.

Special types of remembered place that participants attached to are those associated with their family's past (for those who had a family history of living in Edinburgh). People can get to know their families' pasts, also termed family history, in two ways. One is through conducting genealogical research, whereby the family's past is 'learned' like declarative historical knowledge. The other and most often, such knowledge is acquired orally from the older generations of the family (e.g., parents and/or grandparents) as a 'story'. In an unusual example, one participant, Martin, empathetically expressed a strong emotional feeling to the Usher Hall as if he had taken on the place attachment of the older generations in his family.

> Because of both family and my personal history, it (the old parts of Edinburgh) has a deep emotional attachment to me. And when I see old buildings are being damaged or defaced or altered, it does make me feel quite sad and angry sometimes. For example, the Usher Hall, which is on Lothian road, um, you know, a beautiful old building, uh, and so they decided to modernise part of it, and on the outside, they've made some alteration which is incredibly ugly, I feel. And I do feel like, because it has changed so much, so from, when my, parents, grandparents, great grandparents, great, great grandparents were alive, then I do feel that it's, it's sort of like almost an insult to the continuation of their memory in a way. [Martin]

Martin's narrative also highlighted how unwanted 'ugly' changes could disrupt place attachment. Planning disputes at the local level make clear the important role heritage plays in defining local distinctiveness. New development should be sensitive to this distinctiveness and built on a foundational understanding of what has gone before, so that they deepen and enhance place character as well as people's attachment rather than ignoring and defacing them. As one participant said:

> I guess a lot of them (attachment to the historic environment) just kind of come down to something almost aesthetic. Like the St Stephens in Stockbridge, I, I walk down Howe Street on my way home from work and it frames basically the bottom of that street. And sometimes you can see all the way across the river Fourth as well. And it's, I think it's just a beautiful building, sort of perfectly situated, kind of frame the end of the streets. …. And it makes me feel like I live in a place that has a history and has a past, and that people were thoughtful about the buildings and creating something that looked beautiful. It's probably not how I feel people approach architecture now so much these days. This is just how many houses can we get up as quickly as possible? You don't think so much about.

7.3.2.3 The 'reflected'

People not only enjoyed the lived-in, commemorated the remembered places, but also reflected on them (some remembered places were still lived-in by people). One participant, Patrick, spoke of how he and his fellow friends had been using the Princes Street Gardens when they were younger and how he felt about it after growing-up:

> Certainly, when I was younger, um, Princes Street Gardens was a huge, just a place where we'd all meet, …. my friends and I would all congregate there at Friday afternoons …. But um, every time I walked

> through the gardens now, I'm always struck by just how amazing a space that is to have in the middle of the city for everybody from, of all generations and from all over the world. …. You know, it's just such an incredible place. I absolutely love that.

In so doing, people develop a fresh perspective on still lived-in 'remembered' places.

This reflected aspect of autobiographical attachment is an added layer of the people-place relationships which are different from those embedded in intellectual attachments. Over the years, participants had each developed the rhythm and routine in their use of different lived-in places, which in turn created an inherent unconscious awareness of, or familiarity with, every detail of those places. The 'old' lived-in places might be still lived-in if they were continually used. Or they could become remembered places as they might not be at all essential in people's 'new' life routines, but the attachments people built with them were still important, holding special positions in people's memories. Other times, the 'old' lived-in places could just become the 'forgotten' places as the attachments to them (the 'old') were surpassed by those to the 'new'. Such processes continue across the life of every individual. People discover new places all the time and are continuously creating new memories. The expanding experiences of lived-in places keep accumulating within each participant's autobiography, creating growing memories of remembered places. The process leads to the development of what Rowles (1983, 1990) called *autobiographical insideness* and the resulting autobiographical attachment, in which place becomes something internal to self when a person becomes really old. Places as an ensemble of lived-in places and remembered places which are perceived as 'historic' by people are no different from other such (lived-in and remembered) places that are not considered as 'historic'. 'Living with historic environments' becomes almost a 'taken-for-granted' experience. Whereas, with an intellectual attachment, there is always a distance between self and place, where the historic place is something external and its historic associations and historical meanings can be appreciated. In this sense, the 'reflected' aspect of autobiographical attachment can be viewed as a type of intellectual attachment, where one would take a moment to review a person's relationship with the lived-in and remembered historic places.

7.3.2.4 The 'ostracised'

Reflecting on the people-place relationship discussed above, autobiographical attachment may not be developed if there is a geographical displacement of people's everyday lives from the historic environment. For example, one participant, Lynn, who lives in Canonmills (a district in Edinburgh at the edge of New Town) reflected on her relationship with the historic environment in the following way:

> Because we basically as good as live in the world heritage site across the street. It's, so I walk through the spaces, I live in the spaces in the sense that if we're going out to a restaurant for, going out for a drink, for meeting up with friends, that's probably within one of those buildings and one of those spaces. Um, so I guess for me the heritage is very much lived in sort of spaces and not like I use those spaces and those spaces are used by pubs, by restaurants, (but) like, yeah, by me to go into those spaces.

On the other hand, another participant, Ann, from Muirhouse (which is 25 minutes from the city centre by bus) expressed a different view:

> Living here, there's only so many times you can go to the Castle, you know, all the other galleries. You do all that, and then you revisit them now and again, but you can't base your life around just be a tourist, can you?

The fact that Muirhouse is one of the most deprived areas in Edinburgh indicates that the gap could be widened by the spatial segregation of relative wealth and poverty within the city. In addition, another education- or even class-specific issue that would influence the perceived relationship between people's daily lives and the historic environment is how 'historic environment' is defined. For Bob, where he grew up (Silverknows which is a neighbourhood next to Muirhouse, subjected to spatial displacement same as Muirhouse but less deprived), is also history.

> I suppose I viewed where we lived also was historic. So because Lauriston Castle was right beside us and because, um, [pause] there was um, down on the beach, there are three very big villas, very, very big houses that are no longer, well, one of them is in, when I was a child, one was a hotel, one was an office and one it was also an office. …. One of them is now a private house and the other two are hostels for homeless people. And, um but they were part of the, to

> me they were the history of, um, the area. …. And also …. in Muirhouse, … there was a dual carriageway that runs along here. Um, and in the middle of the dual carriageway is an Avenue of very big trees, and it was the Avenue to a very big house. It was part of an estate, the Muirhouse estate. And I knew that as a child. And I think I knew that because my dad had told me, because when he was a child, he used to visit the area before our house was built, so my dad grew up in Stockbridge, um, and so I knew that I lived in an area that was, that had a history. …. I didn't view this (New Town) as this is history and where I lived was not history.

Also, in this sense, spatial mobility promotes one's autobiographical attachment rather than threatening it, in a way that she/he develops "a great facility and immediacy in establishing affective ties with places" (Giuliani et al., 2003, p.120, also cited in Gustafson, 2014, p.41) within a larger geographical domain.

7.3.3 Nostalgic attachment

This section explores Edinburgh residents' attachments to the historic environment taking the form of nostalgia.

7.3.3.1 The 'missed'

> I would love to have had my eyes open. You know, where these, all these places I'm talking about before they demolished. …. I wish I could go back then and walk these streets that don't exist. [Keith]

> When I'm wandering around Edinburgh, the first thing I'll think of is that's the club that I used to go to, it reminds me exactly of like in last time I was here, saw such and such bands or this is where I met so and so, but now no longer have that. [Zoe]

These quotes above are indicative of the wildly expressed sense of loss over old buildings demolished or places altered.

Admittedly, sometimes it is difficult to draw a line between autobiographical reminiscence and nostalgia, as reminiscence can trigger nostalgia. Attachments to the 'missed' places seem to be another type of autobiographical attachment.

Yet sentiments to the 'missed' places may differ from autobiographical attachments to the 'remembered' places in terms of the role the physical fabric

plays. Arguably, the physical fabric of historic environments becomes of little importance for the development of such nostalgias for the 'missed' places than for autobiographical attachments. The physical fabric plays a significant role in the development of intellectual attachments because it represents the external values of historic places that people cherish. Such a role was downplayed by participants in the development of autobiographical attachments as it becomes the internal (taken-for-granted) component of people's lives and memories. Whereas here, the physical fabric is just a shell. For this point, Zoe gave a vivid metaphor:

> It's like you've been given a present in a lovely box. You open the box. You can look the inside. It's all lovely. You put that back in the box and everything and then one day you open the box and what was inside the box isn't there anymore. And it's still a very pretty box but it's not the reason why you open the box. You know what I mean.

7.3.3.2 Personal and historical nostalgic attachments

In line with the negative associations found between educational attainment and the nostalgic dimension in the quantitative analyses, most of those participants who had degree-level education denied thinking 'the past is better than the present', which is the precondition for the development of historical nostalgia. Therefore, a lot of nostalgic attachments came down to personal levels, like small domestic issues. As David stated:

> I would say I'm an optimistic person. And so I tend to think the future is better than the past. Um, and so when we talk about nostalgia, I love keeping old records and old memories and old photographs, but that connection is, tends to be personal about my family. And so I think you'll see lots of pictures here (pointing to the wall of his living room) when my children were small and, uh, those are very nostalgic, happy memories. And I associate those with places in Edinburgh.

Nevertheless, narratives of 'historical nostalgic attachments' were still in evidence. This was demonstrated in two distinct ways. First, many participants nostalgias for a quieter Edinburgh, when the city (not only the centre) was not overly touristy as today. One participant, Andrew, for example, regretted that the traditional ways of life of old Edinburgh residents have been displaced:

> My parents lived on the Royal Mile till they died, but my wife and I had to (move out) …. I, we'd love to live in the centre of town. (We) always love centre of town, but it's less and less practical. And one of the advantages was that there's all the local shops and you knew all the people who are running them and, you know, you don't have to go anywhere. My father, when he was on the Royal Mile, he used to just walk and get his messages, …. but you wouldn't be able to do that now. It's not as nice an environment now as it used to be, which is a real shame. [Andrew]

Second, several participants bemoaned the loss of local shops that had been closed down (by large retail chains or as the cost of gentrification which, ironically, was sometimes related to heritage conservation), the loss of local character and altering identity of traditional working-class communities, or 'civilisation' in decline. These are all associated with the negative connotations of neoliberal social processes since the 1980s (Ward & England, 2007), which indicates the past is preferable to the present. For example, Elle spoke about class and the dying Scottish language.

> It's very middle class here and there aren't a lot Scottish voices. And I think that's a loss because the Scots language is very vibrant and has lots of lovely words that I don't hear anymore. …. I just thought that is really really sad [stress]. …. a lot new people I know here, some of them are Scottish, but they would grow up in a different way. They weren't working class as I was. …. And I think it's a shame that that aspect of identity, all over Scotland I think, has been lost, particularly in Edinburgh.

Although issues like commercial establishments, the demographic compositions, as well as how people present themselves, their accent, outfits, manners and behaviours are not directly relevant to the historic environment, changes in these aspects of people's social lives were perceived as deteriorations in life experiences in historic Edinburgh.

Nostalgic attachments have a temporal dimension which represents a different type of people-place relationship. In nostalgic attachments, it was not the place itself nor what a person did in the place that she/he missed, but rather the emotion framed within a past era which appealed.

7.4 Emotionally Significant Historic Places

As with the mapping findings (see Table 6-X, the most frequently identified historic places), two types of places were intensely mentioned by participants. They were public green spaces (including the well-known Holyrood Park, Princes Street Gardens, Botanic Gardens, the Water of Leith Walkway, as well as other local parks, walkways, cemeteries and allotment gardens) and the iconic landmarks (Edinburgh Castle, Arthur's Seat, Calton Hill, etc.). Attachments to these places were expressed as rising out of various ways which embrace, but go beyond, the three dimensions of attachment (intellectual, nostalgic and autobiographical) presented in the previous section. The results demonstrate the unique values of these two special types of historic places in association with everyday lives of Edinburgh residents.

7.4.1 Recreation and restorative

Many of those public green spaces that interview participants mentioned are historic public green spaces and/or green spaces that are surrounded by historic buildings. For example, when Bob talked about the Meadows and the Princes Street Gardens, he stressed:

> They're lovely open spaces, but they also lovely open spaces surrounded by historic buildings. And the relationship between the two is quite important. Um, and that's, there's something pleasing about that feeling of um, being in a natural space and being in the city, as well as the, the combination of the two.

However, in general, participants' narratives about their attachments to such places were relatively unconcerned with the historical aspects. Most of the time, they were appreciative accounts of the various recreational and restorative potentials that those places could offer. This was demonstrated in two distinct ways. Specifically, first, many participants demonstrated they have or had a long-term relationship with green spaces used for outdoor recreation. This includes participants themselves as adults (individuals) using such green spaces for health-related physical activities such as walking, running, or cycling on a weekly basis, as parents taking their children to play, as well as playing or hanging out with friends there when they were children or teenagers. In short,

public green spaces were ‘lived-in’ places. Second, and more importantly, such public historic green spaces were emphasised as being the oasis of Edinburgh where participants can go to find the sights, sounds, and smells of nature in a city (trees, fresh air, birds, and the changes of seasons), to escape the busy traffic and crowds (quietness), to have respite from urban-associated stress (calm and peace), and to think and reflect on their emotional states and identities. For example, Lynn described her attachment to the Botanic Gardens as follows:

> The Botanic Gardens in particular is really quite important to me. Um, because we're so, so close to the Botanic Gardens, …. it is a place that I go to quite a lot, pretty much most weekends. If I don't have anything else to do, then I will end up there for a walk. So it's a lovely space kind of, a bit of an oasis, I suppose for me in the dizziness of the city. …. to be able to go and be in the trees and just kind of have nice nature to look at is important for me. It kind of helps me to relax and helps me to calm down from the dizziness of the week.

The findings further support the inference made in the spatial analysis chapter that such places were not attached to for their historic meanings, rather for the restorative experience they could provide as a natural environment. Meanwhile, arguably it might be through participants’ long-term use of such places that a kind of autobiographical attachment developed (whereby places became integrated parts of people’s lives and embodiments of their memories). For Lynn, strolling in Royal Botanic Garden to pursue some restorative moments is an essential part of her life.

7.4.2 Visual exposure

> The city of Edinburgh has one of the most spectacular urban landscapes in the world. Its dramatically varied terrain rests on a complicated geological pattern of sediments, extinct volcanoes, lava flows and igneous intrusions. (*The Old and New Towns of Edinburgh World Heritage Site Management Plan*. EWH, 2005, p.19)

Edinburgh has a unique topology. It is these volcanoes, hills, slopes and valleys shaped some landmark features like Edinburgh Castle, Calton Hill, and Arthur’s Seat that create great views looking to and from them. A pervasive theme across the interviews was how participants perceive the visual magnitude of these landmarks. This was demonstrated in two ways. First, the visual prominence of

these landmarks, especially Edinburgh Castle and Arthur's Seat, was valued emotionally. Edinburgh Castle is a magnificent landmark on top of a volcanic plug, dominating the skyline of the historic central Edinburgh, and above all, it is of great historicity on its own right. For some participants, it is a fundamentally visual and psychological experience in their daily lives. Using Patrick's words:

> The Castle is just looming over you.

Going to or living in and/or around central Edinburgh, one could have different images of Edinburgh Castle from different angles, in different lights and at different times of the day. For example, one participant, Eva, described coming up on views of the Castle on her commute to work in the morning.

> …. sometimes I walk (to work), …. then either walk through the gardens or along George Street, or I do different ways in the morning. Like, you know, sometimes you'll come up on those, it's like the sun's coming up over the Castle or something like that. And you'll just think what a beautiful city it is, you know.

Another participant, Clara, living in Canonmills, said she could even see Edinburgh Castle from the window of her flat.

The same happens to Arthur's Seat, which overlooks the city, is highly visible, and can therefore be seen from many people's homes.

Second, the visual experience of the city that people would have in places like Calton Hill, Princes Street Gardens, North Bridge and even on top of the hill in Botanic Gardens were highly praised. In fact, Calton Hill and North Bridge were identified as places that provide the greatest views of central Edinburgh in a recent study of visual exposure of popular visitor attractions in Edinburgh (Bartie & Mackaness, 2016). Similar as to the open green spaces, although these places were all recognised as having their history and interesting historical stories (for example, many participants mentioned the well-known National Monument of Scotland on the hill as a significant history of Edinburgh when they talked about Calton Hill), it was the 360-degree view of Edinburgh that people could get on

the top of it, to which they showed more appreciation. For example, one participant, Josephine, stated:

> I think with Calton Hill, there's such a wonderful view from the top. I mean, there are the monuments, the Waterloo and the national monuments. So there are historical aspects. But it's a wonderful place to be. …. And you've got an entire Panorama over historic Edinburgh.

Yet, places that offer such magnificent views of Edinburgh provide more than a visually pleasing aesthetic experience. They also produce restorative outcomes. Two narratives stand out. They suggest that restorative potentials were not limited to natural places. The built historic environment, which has a great aesthetic value, also seems to be able to offer the same opportunities. One is Lynn's description of how the impressive view of historical central Edinburgh that she could get on North Bridge has stayed with her and encourages her to positively reflect on her choice of Edinburgh as a place to live.

> …. (North Bridge) it's one of those sorts of special places. I don't spend like a lot of time there. I used to cross it back and forth because I, because I lived in Newington and then my then-boyfriend now-husband lived over in Canonmills. And so I was going back and forth quite a lot and I just love the view of the city from North Bridge. It's my favourite place to go and just have a look at the city, because you have the Balmoral Hotel, you can see the Castle, you can see, um, Salisbury Crags and Arthur's Seat, the Scotsman Hotel, all of the Old Town, all of the New Town. It's just one of those really spectacular viewpoints that always kind of takes my breath away, you know. And I'm still like, all the time I can go, I can walk past it every day and still be like, …. it kind of always is that moment for me that, this (Edinburgh) is like a really special place to be able to live in.

The other excerpt is Clara's account of a remarkable feeling and affection she has for a place in central Edinburgh where she could see Edinburgh Castle and Cockburn Street.

> The city centre for me is as if it has some kind of energy …. I cannot explain it because I think it's more, you know, energy. It's um, I don't know. But sometimes when I go or I have been feeling a bit low and I have gone there and I have seen the Castle, um, Cockburn street, …. when I see that and sometimes I, I felt my eyes watering because I feel so connected to that place and I don't really know why …. I don't remember, I don't have that image from Princes Street to Cockburn and the Castle from the first time (when she arrived in Edinburgh),

> but now it's something that it's like if it charged my batteries. It's hard to explain it. I love that place ….

These narratives suggest the emotional connections that people have with this kind of 'restorative built historic environment' may be heavily influenced by personal (episodic) memories. As shown in both narratives, the emotional ties that Lynn had with North Bridge and Clara had with that particular place in central Edinburgh have a time-depth, relating to their pasts. For Lynn, the impressive image of central Edinburgh carries her memory of walking across the bridge to see her boyfriend. For Clara, visiting that place might also be a re-experiencing of the vaguely remembered first sight of Edinburgh Castle and Cockburn Street in her early days in the city.

This could be a fundamental difference between the developmental process of place attachment associated with the perceived restorative potential of the built historic environment from those with natural environments. Re-consider Lynn's narrative of Botanic Gardens as an example. On the one hand, she has a high level of familiarity with the restorative experience in the Botanic Gardens as she goes there every week. On the other hand, the important feeling of nature that the Botanic Gardens can give her is not personal. The restorative effects of natural places were much more commonly perceived, which could even come down to an intellectual evaluation. For example, Matt used the phrase 'rus in urbe'[44] to explain his affection to those public historic green spaces in Edinburgh.

Last, the term 'favourite place' in Lynn's narrative is interesting. A recent study found that autobiographical memory and place attachment are both predictors of restorative perception of favourite places, and place attachment also mediates the relationship between memory and restorative perception (Ratcliffe & Korpela, 2016). In this sense, the findings of this research provide further qualitative evidence of the complex nature of such associations.

However, overall, the complex relationship between place attachment and restorative perceptions of the built historic environment is an emerging theme

[44] 'Rus in urbe' is a Latin phrase referring to country features created in towns or cities.

which has received little attention. Even restorative environment research has been mostly concerned with natural environments so far and has only occasionally referred to historical settings, such as museums (Kaplan Bardwell & Slakter, 1993) and plazas (in Rome) (Scopelliti, Carrus & Bonaiuto, 2019).

7.5 Summary

Using qualitative data, this chapter has explored the ways in which people form attachments to the historic environments they experience in their daily lives. The three dimensions captured by the measurement scale in the quantitative analyses have been confirmed by the thematic analysis. The deductions made in the spatial analyses have also been verified.

First of all, the chapter has demonstrated that people can develop intellectual attachments to the historic environment as the consequences of aesthetic appreciation, imagination and self-reflection. They attach to their 'lived-in' and 'remembered' historic places and 'reflect' on such attachments as the result of growing a sense of 'autobiographical insideness'. They also tend to yearn for historic places that have disappeared, the happy moments in their lives, as well as the quieter and less homogeneous Edinburgh. Meanwhile, the chapter has also provided an alternative perspective on the three dimensions (intellectual, nostalgic and autobiographical) as three different types of 'person-place' relationship which in turn condition the different roles the physical fabric plays.

The chapter then presented how the historic public green spaces are used as 'lived-in' places for their recreational and restorative potential, how the visitor attractions that dominate the Edinburgh skyline are experienced by local residents, and how the beautiful cityscape of central Edinburgh can be as restorative as those natural settings.

Furthermore, it has illustrated the mutual inclusiveness between the three dimensions of attachment. For example, people may reflect on their autobiographical attachment and start to appreciate the historic meanings of places. Autobiographical attachment and intellectual attachment may merge at some point, especially for older people, when they reflect on their past and

identity development. Then, there are the difficulties presented above of distinguishing nostalgic and autobiographical attachment (to the 'remembered' places). There are also the complex relationships between the restorative potential of the built historic environment, autobiographical collections and place attachment.

Finally, the chapter has revealed several knowledge gaps that require further exploration. First, there is a lack of some fundamental understanding of the relationship between aesthetic experience and place attachment. Existing research usually only examines the relationship (positive or native) between aesthetic experience and place attachment, but rarely explores why. This research made an attempt by arguing that aesthetic appreciation of the historic environment could be culturally ingrained. Second, this theme could and should be further considered together with people's autobiographical frame and the cultural and social context in which they were born and grew up. This is important to improve our understanding of why certain historic environments are sometimes preferable over modern architecture. It is not only because people psychologically value the aged appearance of the historic environment and experiences of spontaneous fantasy (Wells, 2017; Wells & Baldwin, 2012), but also because people's aesthetic sensibilities of the built historic environment (as a cultural object) were shaped by childhood place experiences, education and social class positions and culturally ingrained habitus. Third, the restorative potential of the built historic environment and how it may relate to place attachment has been largely ignored as researchers only focus on the natural environment.

This chapter has delved deep into residents' everyday experience of attachment to the historic environment using interview data. Explanations and discussions were often drawn on literature from a wide range of disciplines including memory studies, psychology, sociology and even art and cultural studies, reflecting the diversity and richness of the phenomenon. It has thus echoed Eckersley's (2017) call for a new paradigm of place attachment study, which does not separate understandings of these different areas of attachment (e.g., memory, a person's psychological development, social status, taste) into ''silos' according to different disciplines.

The next, concluding, chapter relates all findings and discussions back to the overall research questions and academic literature; reviews the knowledge contribution of this thesis; reflects limitations and potential further research and outlines policy and practice implications.

8. Chapter 8: Conclusions

8.1 Introduction

The overall aim of this research was to gain more empirical evidence about, and theoretical insights into, urban residents' place attachment to the historic environment they experience in their daily lives, and to apply a spatial perspective and PPGIS (Public Participation GIS) mapping approach to visualise this attachment. It asked four main research questions:

> RQ1 Why and in what ways do urban residents form attachments to the historic environment both in their local neighbourhoods and the wider city in which they live?
>
> RQ2 What are the factors that influence an individual resident's attachments to the historic environment?
>
> RQ3 How are attachments to the historic environment associated with (and/or different from) people's place attachments to their local neighbourhoods and the wider city in which they live?
>
> RQ4 When attachments to the historic environment are directly identified in PPGIS using a mapping approach, what is the spatial expression of participants' responses?

and an additional question RQ5:

> Are residents' attachments to the historic environment related (or not) to people's everyday movements?

This concluding chapter first summarises the key research findings under each research question, drawing links to the existing knowledge reviewed in the literature. It then highlights what this thesis contributes to our knowledge, specifies the limitations of the work, and outlines recommendations for future research provoked by the research findings, as well as practical implications for the conservation and management of the historic environment.

8.2 Addressing the Research Questions

RQ1: Why and in what ways do urban residents form attachments to the historic environment both in their local neighbourhoods and the wider city in which they live?

Building on the review of the literature (Chapter Two), I hypothesised and defined four broad ways in which urban residents may feel attached to the historic environment they experience in their daily lives. Using the 'language' of place attachment research, they are four 'dimensions' of attachment to the historic environment: intellectual, nostalgic, autobiographical and life-dependent.

As was defined in Chapter Two, the *intellectual* dimension refers to the type of attachment people have with the historic environment derived from their interests in its history, and their appreciation of its historical associations. The *nostalgic* dimension means attachment caused by longing or sentimental yearning for places and things in the past which are no longer exist. The *autobiographical* dimension summarises attachments to historic places that have developed along with a person's life journey (e.g., growing up and/or ageing in a specific place) and resulted from family connections. The *life-dependent* dimension covers attachments that are the results of a functional dependence rooted in everyday lives. It was hypothesised that these four dimensions would be observed at both the neighbourhood level and the city level.

A 12-item scale (HA Scale) was designed to measure and test the hypothesised dimensions (Chapter Four). Conventional exploratory factor analysis of the scale responses at the two spatial levels (neighbourhood and city) confirmed that people's attachment to the historic environment may be accounted for by at least three of the four hypothesised forms: the intellectual, nostalgic and autobiographical dimensions. The life-dependent dimension was additionally relevant at the city level (Chapter Five). These dimensions of attachment were not mutually exclusive at either the neighbourhood level or the city level. Rather, correlations between some dimensions were significantly high, for example those between the intellectual and autobiographical dimensions at the neighbourhood level, and between the autobiographical dimension and nostalgic

dimensions at the city level. This suggested that people may feel attached to a historic place for various reasons (dimensions) simultaneously.

Qualitative analysis using participants' descriptions of their personal stories and experiences revealed more nuanced reasons why attachments to the historic environment could arise under each of the confirmed latent dimensions (Chapter Seven). First, intellectual attachment could have arisen from pleasing aesthetic experiences, an enjoyable sense of the past built on imagination sparked by historic places, as well as the development of ego integrity among old people. (The term ego integrity is from Erikson's (1950, 1959, 1982) stage theory of psychosocial development. An explanation of the term is included in Chapter Seven.) Second, autobiographical attachment encompassed people's affinities with various historic places where they had spent a lot of time, where they had experienced important life moments, and where there were meaningful associations with their family ranging across generations. Third, nostalgic attachment was expressed as more than merely *historic* nostalgia which refers to the 'yearning' for historic places and for a past that had disappeared as a consequence of urban development (measured by the HA Scale), but also *personal* nostalgia associated with intimate domestic experiences such as one participant's 'longing' for the time when his children were young.

Qualitative findings also revealed two other ways in which people form attachments to historic places. One was attachment to certain historic environments, mainly (but not limited to) historic parks and gardens, which developed from using them for restorative purposes, reflecting the possible existence of a functional attachment (i.e., the life-dependent dimension). The other was attachment to landmark-places as a result of their visual magnitude.

An alternative answer to RQ1 was the dichotomous structure comprising two domains – self-conscious and unconscious, in which the historic environment switches between being external and internal to people's 'lifeworld[s]'. For the self-conscious dimension, the historic environment is external. There is an explicit distance (spatial or temporal) between people's everyday lives and the historic environment when they take a moment to appreciate or commemorate the past. For the unconscious dimension, the historic environment is internal.

Attachment to the historic environment becomes an attachment to the environment that *happens to be historic*. The historic attributes of places are thus of secondary importance. Historic places become *lived-in* places when routinely used by residents every day, such as for restorative purposes, or simply through being seen by people every day.

Using 'special historic place' as the spatial operationalisation of place attachment to the historic environment, this research examined the spatial correlations between mapped special historic places and places that people visit in their daily lives (i.e., places where people go to shop, work, socialise, etc). The dependence of special historic place distribution on daily life place distribution suggested that the attachment to the historic environment could be developed unconsciously, arising out of everyday movements.

An important point to make, following these findings, is to distinguish between *attachment to historic places* and *attachment to places that happen to be historic* (see Table 8-1). The intellectual dimension, for instance, is a type of *attachment to historic places* because it involves direct, conscious appreciation of the historical associations of a place, allowing the creation of a person's self-identity relating to the physical world. The autobiographical dimension, on the contrary, is a type of *attachment to places that happen to be historic*, in which a historic place is emotionally significant for reasons other than it being historic. People attach to it due to personal and family connections. Similarly, unconsciously developed attachment is also attachment to places that happen to be historic. A historic place, in this case, is not emotionally significant for being historic either; rather, it gains meaning through the everyday movements of people. The importance of making this distinction is revealed later when discussing the implications of this thesis for policy and practice. In general, *attachment to historic places* was found to be associated with factors such as education and social class, which is a vital issue to consider if place attachment research would be considered as a tool that helps to fulfil the socially progressive potential of the historic environment.

Table 8-1 A Simplified Categorisation of Various Ways in which People Form Attachments to the Historic Environment

Ways in which People form Attachments to the Historic Environment
Attachment to Historic Places
Intellectual dimension
Nostalgic dimension (not including personal nostalgia)
Self-conscious dimension
Attachment to Places that Happen to be Historic
Autobiographical dimension
Life-dependent dimension (restorative potentials)
Unconscious dimension
Others, namely personal nostalgia and visual exposure

RQ2: What are the factors that influence an individual resident's attachments to the historic environment?

Quantitative analyses examined the associations of each attachment dimension with the explanatory variables at two spatial levels – the neighbourhood and the city level. The findings revealed that factors influencing each dimension varied under a 'place-scale effect', following Hidalgo and Hernández (2001) and Lewicka (2010). Factors found to affect intellectual attachment included educational attainment and the two self-reported residential characteristics: living in a listed building or not, and living in a Conservation Area or not. People who held a degree-level qualification (in particular higher degrees), who thought they lived in a listed building, or who thought they lived in a Conservation Area, demonstrated stronger intellectual attachment than those who did not, but these associations were only statistically significant at the neighbourhood level.

Factors determining autobiographical attachment include having a family history of living in Edinburgh and/or being born in Edinburgh or not. Autobiographical attachment tended to be deeper for people who were born in Edinburgh and who consequently might be expected to have a richer family history of living in the city than would newcomers. These associations were valid across the two spatial levels.

Family history is also a factor influencing nostalgic attachment (i.e., historical nostalgia as measured by the HA Scale). Historical nostalgia was found to be strong at both spatial levels (neighbourhood and city) among people who were born in Edinburgh and therefore had a rich family history associated with the city.

Age was a factor influencing nostalgic attachment only at the city level. Retirees tended to have a higher degree of nostalgic attachment than those who were still working. In other words, historical nostalgia is age-related. One reason could be that mental commitment to the past is more intense among older people than youngers (Gergov & Stoyanova, 2013).

Length of residence, a factor not included in the quantitative analysis due to a technical error with data entry, was nevertheless observed to be a significant factor influencing autobiographical attachment at both the neighbourhood and city levels in the qualitative analysis. This confirmed the positive relationship between the time living in a place and attachment in many previous studies (see a review in Lewicka, 2011b). In short, autobiographical attachment is directly determined by the time people have spent in the historic environment. In addition, family connections also frequently appeared in people's descriptions of their autobiographical attachments to the historic environment in the qualitative findings.

Undoubtedly, as has been discussed in the literature (e.g., Brown et al., 2015; Seamon, 1980, 1984; Zia et al., 2014), and is further supported by the spatial point process analysis results, people's everyday movements are a factor that influences their unconscious attachments to historic spaces.

Apart from these manifest factors, qualitative findings provided evidence about the influence of more latent factors (i.e., social and cultural factors). One important social factor that influences intellectual attachment is social class. This was explicitly or implicitly reflected in the perceptions of those people who grew up in Edinburgh of their parental social status, which enabled them to 'see', value, and develop their 'love' of, a historical and artistic Edinburgh from an early age. A more latent, yet also important factor that influences

intellectual attachment is people's cultural background, as demonstrated in participant Matt's description of the pleasing aesthetic experience of Georgian Architecture, whereby aesthetic taste in relation to the historic environment was a cultural product.

Social and cultural factors were the 'real' reasons why the above-mentioned sociodemographic factors have their influences on attachment. Social class might be the latent reason why strong intellectual attachment was associated with degree-level education, since Scotland has an enduring social class inequality regarding the chances of entering higher education (Scottish Government, 2016). Furthermore, social status might play a role in the development of autobiographical attachment. Autobiographical attachment which is tied to personal memories is not individualistic, purely mentalistic and apolitical: it is dictated by a larger economic, cultural and political reality. This is evidenced by the fact that autobiographical attachment at the neighbourhood level tended to be deeper for those who thought they lived in Conservation Area than for those who believed they did not. At first glance, this is easy to imagine given that a neighbourhood designated as a Conservation Area must have a rich historic environment. However, given that property prices in a Conservation Area are generally much higher than in other neighbourhoods, it follows that people who own a property in a Conservation Area are likely to be better off (i.e., have better socioeconomic conditions) than those who live elsewhere. Finally, social status affects people's interaction with the urban world; it can sometimes limit their everyday movements and thus limit those places with which they can connect. In this sense, it may also influence the unconscious developmental process of place attachment.

In addition to the sociodemographic factors that largely characterise a person's profile, and social class that defines a person's position in a structured society, qualitative findings also revealed that an individual's attachment to historic places was conditioned by the place's characteristics. Both physical and social characteristics of places influence people's attachments. For example, on the one hand, the historical appearance of Edinburgh, much of which has not changed for hundreds of years, played an important role in enabling people to develop a rich 'sense of past'. On the other hand, the social aspects, such as

what life used to be like, what the place was used for, and how it was experienced, were more of an influence upon historical nostalgia and autobiographical attachment.

RQ3: How are attachments to the historic environment associated with (and/or different from) people's place attachments to their local neighbourhoods and the wider city in which they live?

The quantitative analyses revealed strong correlations between the dimensions of attachment to the historic environment and residents' place attachment to their neighbourhood and the city. At both the neighbourhood and the city level, strongest correlations were found between intellectual attachment and place attachment. A mediation analysis revealed a causal effect in which participants' intellectual attachment to the historic environment at the neighbourhood was the outcome of their place attachment to the local neighbourhoods.

The findings did not provide any empirical evidence supporting a reverse causal relationship in which people's attachment to the historic environment would lead them to develop attachments to their neighbourhood and the city.

By proposing that residents' attachment to the historic environment would be determined by the four dimensions, this research started from an assumption that this particular type of attachment is different from attachment to other types of environments.

This assumption was confirmed in the quantitative analyses by comparing the content of the explanatory variables of attachment to the historic environment and that of people's place attachment to their local neighbourhoods and the wider city in which they live. As presented in Chapter Five, demonstrable differences between these two types of attachments were found at the neighbourhood level. First, while homeownership was found to be a significant factor influencing residents' place attachment to their neighbourhoods, as in previous place attachment studies (e.g., Bolan, 1997; Brown et al., 2003, 2004; Mesch & Manor, 1998; Ringel & Finkelstein, 1991), it did not influence any dimensions of attachment to the historic environment. Second, educational attainment was found to be an important factor influencing residents'

intellectual attachment to the historic environment (at the neighbourhood level), but had no effect on their place attachment to their local neighbourhoods. As discussed in Chapter Five, these differences highlight that people might view the historic environment as a public possession shared by all members of their community. To understand this environment's meanings requires skills and knowledge.

At the city level, there were as more notable similarities than differences between attachment to the historic environment and attachment to the wider city. For example, having a family history of living in Edinburgh and being born in the city — two explanatory variables that were consistently positively associated with the autobiographical and nostalgic dimensions of attachment to the historic environment – also made a difference to people's place attachment to the wider city. This suggests there could be a place-scale effect on the relationships between these two types of attachment.

RQ4 & the additional RQ 5: When attachments to the historic environment are directly identified in PPGIS using a mapping approach, what is the spatial expression of participants' responses? Are residents' attachments to the historic environment related (or not) to people's everyday movements?

Using 'special historic place' as the spatial operationalisation of attachment to the historic environment, this research visualised residents' attachment to the historic environment on maps (see Figure 6-1 and Figure 6-2 in Chapter Six).

Overall, the mapped special historic places revealed a clear trend of spatial aggregation towards the city centre that coincides with the high concentration of built heritage in central Edinburgh. However, they were not limited to the historic buildings and monuments that have been listed or are located within Conservation Areas and the World Heritage Site.

Visual inspection of the special historic place map and descriptive statistics of the special historic place selections highlighted the emotional significance of public green spaces and popular tourist attractions. These were the two most frequently identified types of historic places, and were among the most

frequently mentioned historic places when people talked about their attachments in the qualitative interviews. Attachment to the public green spaces mostly arises from regular visitations to enjoy the restorative potential of the natural environment, while the visual exposure or visual dominance of the Edinburgh skyline, or the popular tourist attractions, played a decisive role in the development of people's attachment.

In addition, the spatial distribution of the mapped special historic places and that of the mapped daily life places demonstrated a significant spatial correlation, which suggested people's attachments to historic places — at least the unconsciously developed attachments — were conditioned by their everyday movements across spaces.

8.3 Contributions to our Knowledge

8.3.1 Theoretical Contributions

Overall, attachment to the historic environment has been a topic which has attracted little attention in environmental psychologists' studies of the place attachment phenomenon (also argued by Wells, 2015, 2017). The academic literature on the historic environment does mention and emphasise concepts like 'place attachment' and the importance of understanding people's emotional attachment to the historic environment — yet, again, there is a lack of systematic understanding of the dimensions, explanatory variables and/or the 'psychological process' (Scannell & Gifford, 2010a), which are key definitions in place attachment studies that usefully delineate this phenomenon. This cross-sectional research therefore has expanded our understandings of attachment to the historic environment.

It featured the first self-reported measure — the HA Scale — specifically designed to estimate residents' attachment to the historic environment in an urban context. This is an important contribution, because attachment to the historic environment has proven to be different from attachment to the other types of settings. Using place attachment scales designed for measuring attachment to other settings to measure attachment to the historic environment

may therefore result in inaccurate findings. In this sense, I disagree with Lewicka's (2011b) argument that "the various place attachment measures thus should be treated as an 'extended family' of methods rather than as precise measurement tools with well-tested construct validity" (p.220).

Meanwhile, I proposed the application of a bifactor structure[45] as an alternative theoretical construct. In so doing, I called for researchers to keep consistency between statistical evidence and theoretical interests, and report key statistic results such as eigenvalues in factor analysis to improve scientific robustness. It thus challenges the 'accepted' ways in which current research presents factor analysis results of place attachment scale responses and raises thought-provoking questions for place attachment researchers to consider. Namely, do the uni- and multi-dimensional conceptual structures accurately reflect the nature of place attachment? If a bifactor structure would better represent the underlying structure of place attachment scale responses in the 'real world', where would it lead place attachment theory?

8.3.2 Empirical Contribution

This thesis has provided important new empirical evidence about a series of emerging themes in place attachment literature that have been underexplored.

First of all, following the works of Hidalgo and Hernández (2001), Lewicka (2010) and others, the varying content of factors that influence attachment at two spatial scales (neighbourhood and city) observed in this research yielded further empirical evidence about the place-scale effect on attachment. This is a little-explored factor but one that may be a significant "moderator of the relationship between place attachment and psychological processes that lead to attachment" (Lewicka, 2010, p.47).

Second, the spatial analysis results provide quantitative evidence for the phenomenological explanation of the association between the development of place attachment and people's everyday movements. It thus can serve as

[45] A bifactor structure assumes that the HA scale responses are directly influenced by a general factor alongside more narrowly defined subdomains.

empirical support for theories linking place attachment with 'home range' (Brown et al., 2015) and 'human ambit' (Zia et al., 2014).

Third, evidence of the latent social and cultural factors of attachment (in particular social class, although only demonstrated by a few examples) is a particularly significant contribution of the empirical parts of this thesis. Nearly 20 years ago, Manzo identified the lack of focus on 'the political nature of people's relationship with place' in place attachment literature (Manzo, 2003; see also Manzo & Perkins, 2006). She suggested future research could look at the academic literature on the politics of identity, and reviewed a few of them, such as Dixon and Durrheim (2000), Hayden (1995, 1997) (Manzo, 2003). She even argued that a "proper understanding of people's emotional relationships to places, then, must include a contextualized — and politicized — view of these relationships" (Manzo, 2003, p.53). Unfortunately, this area remains largely unexplored in the literature. Only a couple of very recent publications discussed the emotional relationship to places within a large socio-political milieu (e.g., Eckersley, 2017; Whittington, 2020).

There is a substantial body of literature focused on aspects of people's social lives which reflect class distinctions, such as community ties (summarised in Lewicka, 2011b) and mobility (see the review by Di Masso et al., 2019). Some studies have looked into the social characteristics of deprived communities that influence people's social lives — for example, how population turnover and the social mix influence people's place attachment by undermining their social networks (e.g., Bailey, Kearns & Livingston, 2012; Livingston et al., 2010). Others have investigated middle-class neighbourhood identity (e.g., Frost & Catney, 2020). However, these studies were seldom[46] founded upon theories about how individuals' lives, social networks, identities and values were outcomes of 'habitus' (Bourdieu, 1986), 'struggle' (Skeggs, 2004) or 'social abjection' (Tyler, 2013), which are frequently referred to in sociological writing about inequality. In this respect, this thesis provides theoretical contributions to the study of the political nature of place attachment by using Bourdieu's habitus

[46] There are two exceptions worth mentioning, both reported by sociologists rather than academics from environmental psychology. These include Benson's (2014) and Benson and Jackson's (2012) studies, which draw on Pierre Bourdieu's concept of habitus, and Paton's (2013) study which builds on Savage's idea of elective belongings.

to explain the associations of intellectual attachment with higher education and better social status.

Fourth, the qualitative findings revealed a couple of knowledge gaps while serving as new empirical evidence filling them. These include: a) the complex associations of attachment with aesthetic experience — this is underexplored and only a few studies can be found (e.g., Jaśkiewicz, 2015; Bonaiuto et al., 1999; Bonaiuto et al., 2003, 2006), b) the lack of focus on the role of childhood place experience in the development of adult place attachment (Morgan, 2010), and c) the largely neglected restorative potential of the built environment as compared to the frequently examined natural environment (Scopelliti, Carrus & Bonaiuto, 2019) as well as its associations with place attachment.

8.3.3 Methodological Contributions

Methodological advancement is a central aspect of the thesis. I have developed an approach to place attachment research that I call an Emotional Geographic Information System (EGIS), which emerges from applying a PPGIS mapping method building on an existing place attachment mapping study, namely Brown and Raymond's (2007) study, to visualise attachment to the historic environment, but the discussion generated around this idea has gone beyond data visualisation. The EGIS 'statement' in Chapter Six proposed that the value of mapping lies in more than the cartographic visualisation of meaningful places, but, through the use of spatial statistics, can also facilitate further enquiries into place attachment, in particular its spatial attributes. It was demonstrated in this thesis by applying spatial point process modelling to examine the spatial correlations between the spatial special historic place and daily life place distribution. Although only a simple first-order log-linear Poisson point process model with a single covariate was considered, this is a significant step forward, given it had not been used before to analyse place attachment data.

Meanwhile, in response to the neglected need to define the 'public' in PPGIS research (Brown, 2012), this research focused explicitly on the place attachment of members of civic associations in Edinburgh and an online interest community (the Lost Edinburgh Facebook group). As such, it has generated many ideas

concerning how attachment and attachment mapping can be used to promote civic engagement in historic environment conservation in the UK.

8.4 Limitations

There are several limitations which should be noted. This research looked at urban residents' attachment to the historic environment they experience in their daily lives through the lens of members of local civic associations and Lost Edinburgh followers on Facebook. As I have mentioned in previous chapters, the majority of these people are likely to be from middle- and upper-class communities and/or have developed relatively deep attachments. As such, the findings reported in this thesis are not easily generalisable to the residential population in Edinburgh as a whole. For example, connecting place attachment and SIMD data was problematic because the latter is based on a national survey of the entire population. However, gaining a representative description of place attachment among citizens of Edinburgh was not the aim of this research. The biggest advantage of such a sampling design was that it created an opportunity to use place attachment research methods (e.g., place attachment mapping) to facilitate community empowerment. Nevertheless, it would be worthwhile to conduct a larger-scale study across the whole population of a city using the People-Place Emotion Survey designed in my research. This would allow the emotional attachments people have with the historic environment to be studied in a wider range of neighbourhood and socio-political contexts.

There were two issues that were not identified before the HA Scale was finalised. One was that measuring the four latent constructs using only three variables caused 'identification issues' (mentioned and explained in Chapter Four). Survey responses to a scale following a confirmatory design thus had to be examined using exploratory strategies. Unfortunately, the sample was not big enough to be split into training and validation datasets that would allow cross-validation using confirmatory factor analysis. Furthermore, I did not include one or two negatively worded items in the Scale. A similar issue happened when I tailored Lewicka's initial Place Attachment Scale by retaining only the positive statements. Negatively-worded items are those phrased in the opposite direction from the majority of the items in the Scale (e.g., 'I am not interested in learning

the history of the city'). Including such statements is a 'tradition' in the design of psychological measurement scales because it helps to balance the acquiescence response bias[47] (Cronbach, 1950). In fact, researchers like Kyle et al. (2005), Williams and Roggenbuck (1989), Williams and Vaske (2003) and Lewicka (2005) all used a mixture of positively and negatively worded items in their place attachment scales. Additionally, it must be said that a formal piloting which was skipped due to time constraints might have caused validity problems with the questionnaire. For example, in feedback on the survey, there was one comment: "if I knew I would have been asked the same questions again but with a different spatial context (the city level), I would have answered the questions differently".

The mapping method design and spatial analysis also present limitations. Although 'special place' as the spatial operationalisation of place attachment has demonstrable 'external validity' (Brown & Raymond, 2007; Lin & Lockwood, 2014a), it should be recognised that such an operationalisation cannot capture the full spectrum of people's attachment to historic places. Moreover, unlike Brown and Raymond's (2007) study, respondents were not asked to assign values of specialness to the historic places they identified in my research. This is because Maptionnaire, the online PPGIS tool I used in this research could not facilitate such a task, and I did not have the time to acquire the programming skills needed to do so. A place may only be mapped a few times but may be assigned a high value of significance. Therefore, this research did not adequately measure the level of significance of places.

Finally, while trying to further legitimise accepted policy narratives promoting a place-based strategy for conservation and management of the historic environment, it was not possible to gather empirical evidence about the relationships between attachment to the historic environment, social capital and civic engagement. In fact, examining the relationships between the latter was one of the original purposes of the research. However, the dramatic decline in response rates as the questionnaire progressed obliged me to drop the variables measuring people's social capital and their perceptions about taking civic

[47] Acquiescence response bias is the tendency for survey respondents to agree with statements regardless of their content.

actions; the questionnaire items designed to measure social capital and civic engagement which made up the fifth part of the People-Place Emotion Survey, are provided in Appendix B, given they may be of interest for future research.

I also faced personal challenges arising from English being my second language, and from not having a life-long immersion in British culture. I endeavoured to tackle these obstacles. For example, at the beginning of my fieldwork, I found it difficult to remember the names and locations of places in Edinburgh and their associated historic figures, which obliged me to make strenuous efforts to assimilate this information, the history and events of Edinburgh through frequent visits and extra reading.

8.5 Future Research

To address some of the limitations, further research could be conducted in various areas.

8.5.1 Future Refinement of the HA Scale

The first thing to address in future research is the refinement of the HA Scale. This could be achieved in three ways. First, building on the findings of this research, some of the current items designed to measure the four hypothesised dimensions could be replaced and new items added. For example, the three items designed to measure the life-dependent dimension were found to lack validity across the two spatial-scales (neighbourhood and city). Since not all three statements were reflected in people's descriptions of their attachments to the historic environment in the interview, it might be worth dropping the three items. Second, to overcome the model identification problem, additional items should be designed so that each dimension could be measured by at least four items. Third, negatively phrased scale items should be included to enable acquiescence response bias to be accounted for. Finally, a new HA Scale, such as that shown in Table 8-2, could be piloted formally before its integration into the large-scale survey research.

Table 8-2 Refined HA Scale

Intellectual Attachment
I am proud of living in my neighbourhood because it has a rich history and many historic assets
I am not interested in learning about my neighbourhood's past
The historic places in my neighbourhood make the area
I like to wander around or spend time in the historic places in my neighbourhood
Autobiographical Attachment
I associate the historic places in my neighbourhood with my own past
I associate the historic places in my neighbourhood with my family's past
I have a lot of memories associated with the historic places in my neighbourhood
I organise a lot of my life around using historic places in my neighbourhood
Nostalgic Attachment
I miss the historic places that have been lost from my neighbourhood
I miss the way things used to be in my neighbourhood
I love keeping old records, old photographs and other memorabilia' of historic places that are associated with me and my family
I tend to think the past was better than the present
I tend to think the present is better than the past

8.5.2 Future for Place Attachment Mapping and EGIS

In this thesis, I tried to exemplify the ways in which mapping can be combined with other quantitative data to obtain a better understanding of the place attachment phenomenon and related themes. For example, in Chapter Six, I linked the EGIS with SIMD data, although the results were somewhat problematic due to the special sampling design in this research. Nevertheless, the importance of the idea should not be underestimated.

In fact, this potential of the mapping method has been widely recognised in the literature. For example, Jorgenson and Stedman (2011) suggest: "once the boundaries of the spatial objects have been recorded for each individual, supplementary instructions can ask participants to identify the location of physical features they consider to be of particular importance" or rate their "beliefs about a place, the feelings associated with it, and the behaviours that

are undertaken there" (pp.800-803). In their research, Jorgenson and Stedman coded physical variables of the mapped areas (including the 'size of the mapped area', 'the degree of fragmentation of the area', and 'whether the area of attachment included waters') and measured their associations with environmental attitudes (Jorgenson & Stedman, 2011). For this purpose, if supplemented with GIS data, some particular variables of interest (e.g., access to public services like public transport, amount of public green space, building density) can be measured accurately and used to describe individuals' subjective spaces. Brown et al. (2015) also saw a future in linking place attachment mapping to the assessment of place-inspired behaviours. In addition, as demonstrated in the SIMD example, administrative and economic data can also be incorporated — for example the number of Airbnb properties, population density and house prices.

The most valuable aspect of mapping, however, lies in its ability to generate insights into the spatial attributes of place attachment, as well as the role that spatial variables play in the development of place attachment. In this thesis, the first-order inhomogeneous Poisson point process modelling with a single covariate might be an oversimplification, but it is a useful first step in this emerging field of research. Future research could incorporate more spatial covariates in the model, or consider a more detailed and essentially multidimensional model to examine the spatial attributes of place attachment and their genesis. Alternatively, nonparametric models might be considered. Many other spatial analytical approaches could also be considered. For instance, a distance-based analysis of point patterns could be used to examine whether home location affects the spatial distribution of the historic place locations to which someone feels attached.

GWR (Geographically Weighted Regression) may also be considered. GWR tests the spatial non-stationarity of the general trends represented by the 'global' regression model (Brunsdon, Fotheringham & Charlton, 1996). For instance, the positive associations of intellectual attachment with residents' place attachment to their neighbourhood was a 'global' model. It would be worthwhile investigating whether such an association varies across different neighbourhoods in the city.

In the meantime, I developed the methodology of EGIS, based on place attachment mapping. The term 'emotion' encompasses positive feelings like joy and fondness, and negative feelings such as fear, sadness and dislike. In humanistic cartographic research undertaken on the emotional relationship between people and places, the most commonly mapped emotions have been the fear and discomfort of urban residents (Griffin & McQuoid, 2012). In comparison, place attachment studies favour the exploration of positive affects linked to 'eulogized spaces' over the negative and ambivalent feelings related to unloved places (Madgin et al., 2016; Manzo, 2003). Therefore, it would be worthwhile incorporating these emotions into place attachment mapping in future research. Exploring the spatial division between positive and negative people-place emotions also helps us understand the political nature of place attachment, such as why a place is appreciated by some people but not valued by others.

Finally, if place attachment is seen as constantly changing (Low & Altman, 1992) and is thus fluid and adaptable (Brown & Perkins, 1992), then affective bonds between people and place are not fixed in space and time. Rather, the use of an EGIS can collect spatial-temporal emotional data over time to track changes in place attachment. This could allow researchers to consider why certain historic places that were once emotionally significant are now less valued, while other places with historically formed emotional attachments remain important today and may well continue to be in the future.

8.5.3 The Politics of Place Attachment

The politics of place attachment is another promising field that could be developed in further research.

As mentioned previously, in the study by Manzo (2003), considering the 'political nature of people's relationship with places' in place attachment research is crucial to 'adequately' understand the phenomenon. She argued that such a perspective is of particular significance for understanding emotional attachment to public places (like the historic urban spaces considered in this thesis), because these places can be the sites of conflict over rights and use of spaces

(Manzo, 2003). People of different ethnical backgrounds may have different perceptions of, and affections towards, the same place (Eckersley, 2017; Whittington, 2020), or different place experiences of, and types of attachment to, the same place (Riley, 1992), and thereby claim different levels of ownership and stewardship of the same places. Some people's sense of rootedness and belonging is based on the exclusion of others from that place (Pratt 1984, cited in Manzo, 2003; for more evidence, see Manzo, 2003 and Manzo & Perkins, 2006).

Adopting this perspective, future research could explore and compare attachments to public historic places held by people from different social and ethnic backgrounds, such as between working-class and middle-class people (or people living in deprived and affluent neighbourhood areas). How place attachment may be defined around 'social class' is an inescapable and important aspect of the ways in which the historic environment is dealt with in the urban context. Such studies could be placed into sociologists' writings about social class and inequality like those of Bourdieu (1979), Savage, Bagnall and Longhurst (2005), Skeggs (1997), Tyler (2013), and others. For example, this thesis has tried to explain the associations of intellectual attachment with educational attainment and parental social status using Bourdieu's (1986) account of cultural capital (leisure interests give people social advantages) or 'habitus'. This concept was first developed in his famous book *Distinction: A Social Critique of the Judgement of Taste*, published in 1979 and the subject of extensive research ever since. Future research may seek to examine place attachment within the paradigm of Bourdieu and his followers' discussions on cultural capital and habitus in a more comprehensive way and provide further empirical evidence.

8.6 Implications for Policy and Practice

A key reason for pursuing this research was to generate new empirical evidence and insights that would be useful to those developing policy and practice responses to the historic environment, principally in Scotland within the UK, but also in comparator countries, as well as further afield. The empirical findings of this research provide several key pieces of learning that could be drawn upon for both policy and practice development.

This thesis has demonstrated a wide range of 'emotional values' associated with the historic environment in Edinburgh that are shared by local residents. It has also revealed that such "[emotional] values attached by people to what might be termed 'historic environment' [….] will not necessarily map onto those traditionally identified by official bodies" (Graham et al., 2009, p.5). Many places of attachment may not meet the criteria of a listed building or Conservation Area designation but should not be disregarded in local development and planning. Therefore, following previous calls (e.g., Gentry, 2013; Wells, 2015, 2017) for a fundamental change to the basic methods and methodologies for the conservation, management and governance of the historic environment, this thesis re-emphasises this 'need', with evidence, and recommends the creation of an additional designation category alongside the current listing, scheduling and designations in Scotland: one which appreciates, legitimises and protects the emotional values of historic places that are used, experienced and loved by people over time. This provides a way to add to the list of agents – alongside architects, planners, archaeologist, historian – that decision-makers must consult, with the potential to collaboratively conserve, manage and transform the historic environment.

This additional designation category could be created through the use of PPGIS mapping. An EGIS, as I proposed in this thesis, could be created and integrated into the current Designations Map Search[48]. This additional 'layer', as discussed in Chapter Six, would enable policymakers, decision-makers and even project instigators to identify those places of (emotional) significance that may have been overlooked before. Moreover, due to the participatory nature of EGIS, the heritage sectors may be able to actively interact with the public (i.e., local communities) on conservation and management of the historic environment, delivering a more socially-inclusive agenda of heritage, which remains relatively weak in current practice (Pendlebury, 2009; Pendlebury et al., 2004). This is

[48] As explained in the methodology chapter, the Designations Map Search developed by Historic Environment Scotland can be used to identify designation assets of a place.

how the EGIS would be different from the RSA Heritage Index 2016[49] developed by The Royal Society for Arts in collaboration with Heritage Lottery Fund.

From the start of this research, I viewed attachment to the historic environment is inclusive. By saying inclusive, I mean to claim that all people in a community or a society are emotionally connected to the historic environment in different ways, and thereby would all be able to appreciate the emotional significance of the historic environment. I thus believed initiatives such as a place attachment survey would be a good vehicle for the impetus to demonstrate the socially progressive potential of the historic environment (or heritage) in Scotland and within the UK. However, the evidence that attachments to the historic environment — especially the intellectual dimension, are not inclusive, casts a shadow over this intention. As shown in this thesis, people who actively engaged in local affairs at the community level (i.e., members of local civic associations), as well as who demonstrated enthusiastic to the city's past (i.e., the Lost Edinburgh Facebook group), are still mostly from the same relatively privileged groups as a hundred years ago. Most of them have a good education and are homeowners, and a considerable number are retired. (Table 8-3 illustrates the differences between the sample of respondents who took part in my research and the overall residential population of the City of Edinburgh Council area in 2011[50]). Many of them may also be educated or have sent their children to private schools, and have higher cultural (as reviewed in Chapter Seven) and social capital. Indeed, similar demographic characteristics were observed in other studies of civic associations, for example, Craggs's (2016) study of The Twentieth Century Society (an architectural amenity society). Therefore, in order to help more deprived groups to gain or share their appreciation of heritage, which "might be viewed as the role of the historic environment in social control" (Pendlebury et al., 2004, pp.26-27), the heritage sector should not only embrace the concept of place attachment in such attempts, but also address the need to shift the focus on '*attachments to historic places*' to

[49] The RSA Heritage Index 2016 mapped the UK's heritage assets, covering both heritage assets (material and tangible stuff like buildings and nature reserves) and heritage activities (things like volunteering, investment and community initiatives) (Schifferes, 2016). It can be viewed at: https://www.thersa.org/projects/heritage/index.

[50] The descriptive statistics were obtained from Scotland's Census by National Records of Scotland (NRS) covered by Crown Copyright.

'*attachments to places that happen to be historic*'. That said, historic places should be understood as the settings of people's daily lives which give rise to the unconscious and less conscious experience of place (Graham et al., 2009).

Focusing on 'historic' only can threaten the environment with becoming fragmented as privileged heritage, whereas the historic environment should be incorporated into the lived-in places of contemporary urban life, rather than set aside.

Nevertheless, as Pendlebury et al. (2004) comment, "merely enabling more people to enjoy heritage, or extending how it is defined to recognise the diversity of society, does not in itself challenge power relations and control over the process by which heritage is defined and managed" (p.23). There is a need for an active sense of negotiation between different understandings of heritage values, and the relative power and authority that underpins them (Smith, 2006).

Table 8-3 Comparison of Key Sociodemographic Characteristics of Analytic *Sample 1* in this Research and the Overall Residential Population of Edinburgh (2011)

Numbers in red are used to highlight the big differences.

Variables (Category)	Categories in Percentage (%)	
	Analytic *Sample 1* in this Research	Overall Residential Population of Edinburgh
Gender (Female)	50.55	51.2
Age (65+ years)	23.08	14.4
Ethnicity (Scottish)	64.84	70.3
Ethnicity (Other British)	21.61	11.8
Education (Degree-level qualification)	70.70	41.4
Homeownership (Owned)	81.32	59.5
Employment status	55.68	69.0 (economically active) *

* The 2011 Census Data uses the term 'economically active' to describe people (aged between 16 and 74 years) who are either working or looking for work.

The role of the historic environment in supporting public health promotion should also be recognised. Power and Smyth (2016) found a wide range of 'therapeutic' experiences associated with community-led heritage conservation. As for my research, the findings suggest there is a need to protect old people's autobiographical insideness and support the development of their ego integrity. Heritage practices at the community level should consider joining up with active ageing programmes and broader public health promotion initiatives. There is also a potential for those restorative environments that 'happen to be historic' to act as health-enabling spaces that can have a more immediate outcome on residents' well-being.

8.7 Final Reflection

This research systematically examined urban residents' attachment to the historic environment via a theoretical framework built upon place attachment theories established by environmental psychologists. The use of different research methods has yielded necessary layers of evidence of and insight into the nature of the phenomenon. The EGIS has demonstrated potential future applications of place attachment research to policy design and decision-making that would positively affect the historic environment, as unsympathetic local development projects continue to threaten people's attachment to beloved historic places in British cities.

Some may argue that place attachment data are personal, visceral and subjective emotional reaction as oppose to the objective rational knowledge that has been valued in policy- and decision-making that affect the historic environment. However, this view fails to recognise that the 'continued existence of familiar surroundings may satisfy a psychological need, which even if irrational, is very real' (Hubbard 1993, 363, cited in Madgin et al., 2018). It is such an irrational need which has driven the community campaigns, like those mentioned earlier in this thesis, forming a significant part of the vibrant associational culture in the UK. Some of them had led to conservation-led urban regeneration schemes (decision-making) in late 20th century Britain. A well-explained example is the regeneration of Castlefield in Manchester by Madgin (2010). In fact, the emotional dimensions of knowledge production and lay-

expert relationships have recently come to the fore in a variety of heritage contexts (Madgin et al., 2018).

The findings, however, also raise important questions about whether a historic environment strategy that incorporates the type of place attachment research and mapping pursued in this research can fulfil the changing agenda of current conservation, planning and social policies, especially the objectives of combating social inclusion and empowering the community. For example, the public's opinions about where is 'historic' in the city could be very limited to those popular tourism attractions. This calls into question the effectiveness of using the current approach to access attachment to everyday heritage. Moreover, the finding that the development of attachments *per se* may even be class-specific highlights the possibility that the approach to accessing 'evidence' of attachment to the historic environment could also inspire structural 'interventions' in the emotional landscape that encompass the meaning of historic places. I therefore argue for the need to problematise these issues and policy imperatives further, and call for a more pragmatic understanding of people's attachment to the historic environment.

There is also a need to re-examine the role historic environment plays in people's daily lives. For example, the finding that the most frequently mapped and mentioned historic places were public green spaces indicates that the importance of the historic environment to people's daily lives may not involve any direct associations with its 'historic' attributes.

Further, the people with the strongest autobiographical attachments are often those who used to live there, spent their childhoods there, and so on, but who have little or no active connection to the neighbourhood beyond that (As demonstrated in Bob's description of his attachment to his childhood places). These connections may not be relevant to development or conservation decisions that will affect the economic and social use of the built environment today and in the future. Therefore, a more localised perspective needs to be taken.

Nevertheless, place attachment answers the question of why people psychologically value the past, and therefore, as argued by Madgin et al. (2018),

"if nothing else", considering attachment to the historic environment "alongside traditional assessments of physical fabric, could help to open up a constructive dialogue concerning why certain groups resist changes to the urban environment by providing a 'deeper understanding' of the meaning of historic places" (p.596).

Appendices

Appendix A: Background Information of the eight Local Civic Associations

Name	Year of founding	Number of individual members 2018-2019	Website
Broughton History Society	1996	Around 60	Does not have an independent website
Dean Village Association	1971		https://deanvillage.org/
Edinburgh Old Town Development Trust	2009	Around 280	http://eotdt.org/
Grange Association Edinburgh	1974	Unknown	http://gaedin.co.uk/wp/
Inverleith Society	1975	Unknown	https://www.inverleith-society.org.uk/
Portobello Amenity Society	1981	Around 150	http://www.pasportobello.co.uk/
The Colinton Amenity Association	1927	Around 460	https://www.colinton-amenity.org.uk/
The Cramond Association	Unknown	Around 600	https://www.cramondassociation.org.uk/

Appendix B: People-Place Emotion Survey

University of Glasgow
College of Social Sciences

WELCOMING

The questionnaire consists of some questions and some mapping tasks that involve identifying places on a map of Edinburgh.

Please follow the green arrows and on-screen instructions. This questionnaire should not take you more than **30 minutes** in total to complete. You do not have to finish in one go, as long as you use the same device and web browser each time. Also, you do not have to answer all the questions if you do not wish to, and can withdraw at any time without giving a reason.

Submitting a completed questionnaire via the online system indicates that you are giving your **consent** to participate in the research.

All answers are kept strictly **confidential** following the new EU General Data Protection Regulation (GDPR) released in May 2018. The website will not store your personal data and does not use cookies.

Please click the arrow to continue.

PART 1: ABOUT YOU

1. What is your gender?

☐ Female

☐ Male

☐ Other

☐ Prefer not to say

2. How old are you?

☐ 18 – 24 years

☐ 25 – 34 years

☐ 35 – 54 years

☐ 55 – 64 years

☐ 65 – 74 years

☐ 75 years or older

3. How many years in total have you lived in …? (in years)

Edinburgh	Your current neighbourhood
☐ Less than 1	☐ Less than 1
☐ 1-4	☐ 1-4
☐ 5-10	☐ 5-10
☐ 10-20	☐ 10-20
☐ More than 20	☐ More than 20

4. Were you born in Edinburgh?

☐ Yes, I was. **CONTINUE**

☐ No, I wasn't. **GO TO QUESTION 6**

5. **FILTERED QUESTION: IF ANSWER TO QUESTION 4 IS 'YES'.** Please indicate you and your family's history of living in Edinburgh

- ☐ Only my generation was born in Edinburgh
- ☐ My father and/or my mother was born in Edinburgh
- ☐ At least one of my grandparents was born in Edinburgh

6. **FILTERED QUESTION: IF ANSWER TO QUESTION 4 IS 'NO'**. Please indicate your family's history of living in Edinburgh.

- ☐ My father and/or my mother was born in Edinburgh
- ☐ At least one of my grandparents was born in Edinburgh
- ☐ My children were born in Edinburgh
- ☐ None of my family members was born in Edinburgh

7. Which of the following best describes your current position?

- ☐ Self-employed
- ☐ Employed Full-time
- ☐ Employed Part-time
- ☐ Unemployed
- ☐ Long-term sick
- ☐ Retired
- ☐ Home-maker
- ☐ Student
- ☐ In military / community / voluntary social service
- ☐ Other (PLEASE SPECIFY)

8. **FILTERED QUESTION IF ANSWER TO QUESTION 6 IS 'Self-employed', 'Employee (Full-time)', 'Employee (Part-time)', 'Student' OR 'Military / Community / Voluntary Social service'.** Please identify the location of your workplace (or school/university campus if you are a student) on the map.

9. Please indicate the highest level of educational qualifications you have achieved.

- ☐ No qualifications
- ☐ Secondary School Learning Certificate or Diploma
- ☐ High School national examination (including Standard Grade and Highers)
- ☐ First Degree
- ☐ Higher Degree
- ☐ Other (PLEASE SPECIFY)

10. To which ethnic group do you consider you belong? (CODE ONE ONLY)

- ☐ White Scottish
- ☐ White Other British
- ☐ White Irish
- ☐ White Gipsy / Traveller
- ☐ White Polish
- ☐ Other White ethnic group (PLEASE SPECIFY)
- ☐ Any mixed or multiple ethnic groups (PLEASE SPECIFY)
- ☐ Pakistani, Pakistani Scottish or Pakistani British
- ☐ Indian, Indian Scottish or Indian British
- ☐ Bangladeshi, Bangladeshi Scottish or Bangladeshi British
- ☐ Chinese, Chinese Scottish or Chinese British
- ☐ Other (PLEASE SPECIFY)
- ☐ African, African Scottish or African British
- ☐ Other (PLEASE SPECIFY)
- ☐ Caribbean, Caribbean Scottish or Caribbean British
- ☐ Black, Black Scottish or Black British
- ☐ Other (PLEASE SPECIFY)
- ☐ Arab, Arab Scottish or Arab British
- ☐ Other (PLEASE SPECIFY)
- ☐ Do not wish to disclose

11. Please indicate the extent to which you feel you belong to or identify with the following geographical areas.

	Not at all	A little	Quite a lot	Very much
My neighbourhood	☐	☐	☐	☐
Edinburgh	☐	☐	☐	☐
Scotland	☐	☐	☐	☐
The United Kingdom or Britain	☐	☐	☐	☐

PART 2: ABOUT YOUR HOME

12. Which of the following best describes how you occupy your current home?

☐ Private rented
☐ Social rented
☐ Owned with a mortgage
☐ Owned outright
☐ Other (PLEASE SPECIFY)

13. Please mark on the map your home or give your postcode.

14. Is your home located in a listed building?

☐ Yes, it is
☐ No, it isn't
☐ I don't know

15. Is your home located in a conservation area?

☐ Yes, it is
☐ No, it isn't
☐ I don't know

PART 3: YOUR FEELINGS ABOUT LIVING IN YOUR NEIGHBOURHOOD

16. Please indicate the degree to which each of the following statements reflects your feelings about your neighbourhood.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am proud of it	☐	☐	☐	☐	☐
It is like a part of myself	☐	☐	☐	☐	☐
I know it very well	☐	☐	☐	☐	☐
I defend it when somebody criticizes it	☐	☐	☐	☐	☐
I miss it when I am not here for a long time	☐	☐	☐	☐	☐
Even if there are better places, I am not going to move from here	☐	☐	☐	☐	☐
I want my family and friends to live in my neighbourhood in the future	☐	☐	☐	☐	☐
I want to be involved in what is going on in my neighbourhood	☐	☐	☐	☐	☐
I am rooted here	☐	☐	☐	☐	☐

17. Think about the historic surroundings, historic areas and historic places in your neighbourhood. Please indicate the degree to which each of the statements reflects your perceptions of them.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am proud of living in my neighbourhood because it has a rich history and many historic assets	☐	☐	☐	☐	☐
I like to learn about my neighbourhood's past	☐	☐	☐	☐	☐
The historic places in my neighbourhood make the area	☐	☐	☐	☐	☐
I like to wander around the historic places in my neighbourhood	☐	☐	☐	☐	☐
I miss the historic places that have been lost from my neighbourhood	☐	☐	☐	☐	☐
I miss the way things used to be in my neighbourhood	☐	☐	☐	☐	☐
I associate the historic places in my neighbourhood with my own past	☐	☐	☐	☐	☐
I associate the historic places in my neighbourhood with my family's past	☐	☐	☐	☐	☐
I have a lot of memories associated with the historic places in my neighbourhood	☐	☐	☐	☐	☐
I organise a lot of my life around using historic places in my neighbourhood	☐	☐	☐	☐	☐
I get a lot of satisfaction from living in and around the historic settings in my neighbourhood	☐	☐	☐	☐	☐
I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood	☐	☐	☐	☐	☐

PART 4: YOUR FEELINGS ABOUT LIVING IN EDINBURGH

18. Please indicate the degree to which each of the statements reflects your feelings about Edinburgh.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am proud of it	☐	☐	☐	☐	☐
It is like a part of myself	☐	☐	☐	☐	☐
I know it very well	☐	☐	☐	☐	☐
I defend it when somebody criticizes it	☐	☐	☐	☐	☐
I miss it when I am not here for a long time	☐	☐	☐	☐	☐
Even if there are better places, I am not going to move from here	☐	☐	☐	☐	☐
I want my family and friends to live in Edinburgh in the future	☐	☐	☐	☐	☐
I want to be involved in what is going on in the city	☐	☐	☐	☐	☐
I am rooted here	☐	☐	☐	☐	☐

19. On the next two tasks, please mark on the map the places or the boundaries of areas that:

- you frequently use in your daily life

- you go in order to relax and/or socialise

Reminder: You can identify as many locations as you want in this task and the places/areas you identified can overlap with those from other tasks.

19-1. Places I frequently use in my daily life

For example, visiting this place is part of my daily life, I go shopping, send my children to school, buy a cup of coffee in the morning, commute, walk my dog here, etc.

19-2. Places I go to in order to relax and/or socialise

For example, I go to this place to have fun or to meet my friends.

20. Think about the historic surroundings, historic areas and historic places in the city. Please indicate the degree to which each of the statements reflects your perceptions of them.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am proud of living in Edinburgh because it has a rich history and many historic assets	☐	☐	☐	☐	☐
I like to learn about the city's past	☐	☐	☐	☐	☐
The historic places in Edinburgh make the city	☐	☐	☐	☐	☐
I like to wander around the city's historic places	☐	☐	☐	☐	☐
I miss the historic places that have been lost from the city	☐	☐	☐	☐	☐
I miss the way things used to be in the city	☐	☐	☐	☐	☐
I associate the historic places in the city with my own past	☐	☐	☐	☐	☐
I associate the historic places in the city with my family's past	☐	☐	☐	☐	☐
I have a lot of memories associated with the historic places in the city	☐	☐	☐	☐	☐
I organise a lot of my life around using historic places in the city	☐	☐	☐	☐	☐
I get a lot of satisfaction from living in and around the historic places in the city	☐	☐	☐	☐	☐
I would not swap my life in and around the historic places of Edinburgh for one in any other city	☐	☐	☐	☐	☐
(Please skip this item if you do not work in Edinburgh) I get a lot of satisfaction from working in and around the historic places in the city	☐	☐	☐	☐	☐

21. Please mark on the map any historic places that you think are significant/special to you. They can be historic buildings, streets, gardens, spaces and/or areas.

Reminder: You can identify as many locations as you want in this task and the places/areas you identify can overlap with those from other tasks.

PART 5: GET INVOLVED

NOTE: THE DESIGN OF QUESTIONS INCLUDED IN THIS PART WAS NOT EXPLAINED IN THE THESIS. THE DATA WERE NOT ANALYSED DUE TO A CONSIDERABLY LOW RESPONSE RATE.

22. How many associations, trusts or other civic groups are you currently a member of?

☐ None

☐ 1

☐ 2

☐ 3

☐ More than 3

23a. **FILTERED QUESTION IF ANSWER TO QUESTION 22 IS NOT 'NONE'.** Which civic organisations are you a member of? (MARK ALL THAT APPLY)

☐ Broughton History Society

☐ Colinton Amenity Association

☐ Edinburgh Old Town Development Trust

☐ Inverleith Society

☐ Leith Civic Trust and associated civic organisations

☐ Portobello Amenity Association

☐ The Cockburn Association

☐ The Cramond Association

☐ The Dean Village Association

☐ The Grange Association

☐ The Lost Edinburgh Facebook Group

☐ Other (PLEASE SPECIFY)

23b. **FILTERED QUESTION IF ANSWER TO QUESTION 22 IS NOT 'NONE'**. If you pay a subscription to be a member of any civic association, trust or civic group, which of the following best describes your motivation for membership? (MARK ALL THAT APPLY)

☐ I take part just for fun

☐ To meet other like-minded people

☐ To keep up with the changes in my neighbourhood and/or Edinburgh

☐ To contribute to my neighbourhood and/or Edinburgh

☐ To ensure my voice can be heard

☐ To get together with people to influence decisions that may affect my neighbourhood and/or Edinburgh

☐ Other (PLEASE SPECIFY)

24. In the last 12 months, how often have you taken part in the activities of the following types of local organisation?

	At least once a week	At least once a month	At least once every three months	At least once a year	Never
Civic association, trust or other types of civic groups	☐	☐	☐	☐	☐
Residents association	☐	☐	☐	☐	☐
Amenity society	☐	☐	☐	☐	☐
Political party or group	☐	☐	☐	☐	☐
Community Council	☐	☐	☐	☐	☐
Health, disability and welfare group	☐	☐	☐	☐	☐
Environmental group	☐	☐	☐	☐	☐
Hobby/social club	☐	☐	☐	☐	☐
Religious group	☐	☐	☐	☐	☐
Other groups (PLEASE SPECIFY)	☐	☐	☐	☐	☐

25. Considering the civic and group activities you have participated in, please indicate the extent to which you agree with the following statements.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
By participating, I can influence decision-making that affects my neighbourhood	☐	☐	☐	☐	☐
Collectively, the organisation I'm part of can influence decision-making that affects our neighbourhood	☐	☐	☐	☐	☐
By participating, I can influence decision-making that affects the city	☐	☐	☐	☐	☐
Collectively, the organisation I'm part of can influence decision-making that affects our city	☐	☐	☐	☐	☐

THANK YOU

Thank you for taking part in this survey.

Please provide your name and e-mail address if you would like to be included in the prize draw. You will not be included if you do not wish to be.

Name _____ Email _____

I would like to invite you to a face-to-face interview, so I can find out more about your experiences and opinions about the historic places in Edinburgh.

If you are willing to be interviewed, I will contact you to arrange a convenient time to meet. I will then e-mail you a separate consent form before the interview. Alternatively, you can sign a paper version of the consent form or give your verbal consent to participating at the beginning of the interview.

If you prefer not to be involved any further, I will not contact you again.

Would you like to take part in an interview?

☐ Yes, I would

☐ No, I wouldn't

PLEASE NOTE, your personal information on this page will be kept confidential and securely stored, in strict accordance with the ethical requirements of the University of Glasgow.

This assurance about confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is found. In that event, the University may be obliged to contact any relevant statutory bodies/agencies.

Appendix C: Introduction Letter and Consent for Gatekeepers

Introduction

Dear Ms/Mr XXX

My name is Yang Wang. I am a PhD student at the University of Glasgow.

I write to ask you to advertise a survey among members of xxx (insert the name of a local civic association) for a research entitled *Measuring and Mapping Residents' Place Attachment in Edinburgh,* which has been given ethical clearance under reference 400170070. Residents who complete the survey will be asked if they would like to involve in a follow-up interview.

The research aims to find out how urban residents develop their emotional attachment to the built environment and local neighbourhood that they experience in their daily lives, paying particular focus on the role of the historic environment and its assets. It is funded by the Urban Studies Foundation and will contribute to my PhD studies at the University of Glasgow.

The research has been approved by the Ethics Committee at The University of Glasgow and, as part of that approval process, I am required to obtain gatekeepers' permission from organisations where I recruit or interview participants.

Members of civic associations have demonstrated their attachment associated with the historic environment via their engagement and interest in local development and conservation, which makes their views and experiences very important. They will help me to better understand how the historic environment is connected to people's daily lives.

Therefore, I request your agreement to advertise this project to members of the **xxx** inviting them to take part in my research. Participation involves completing a map-based survey which will take roughly 30 minutes in total, and a follow-up interview if the willingness to take part in is indicated. If they are willing to participate in the research, they can follow a link to an online questionnaire enclosed in the correspondence. They can withdraw at any time, without penalty and without giving a reason. All answers are confidential.

If you agree, would you please sign the form on the next page that acknowledges that you understand the nature of the study being conducted and the risks and likely benefits of participation in this research, and you give permission for the research to be conducted at xxx (insert the name of a local civic association)?

I would greatly appreciate your kind help.

Yours sincerely

Yang Wang

Room 234, Level 2, Urban Studies, 18 Bute Garden, Glasgow, G12 8RS

Consent

I, xxx as the Chair/Secretory/Administrator of xxx confirm that

I have understood the nature of the research to be conducted among members of xxx.

I have had the opportunity to consider the request, ask questions and have had these answered satisfactorily.

I understand that participation of our organisation in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this will not affect legal rights.

I understand that any personal information collected during the study will be anonymised and remain confidential.

I am happy for our organisation to take part in the project. I reserve the right to withdraw this permission at any time.

Signature: Date:

Appendix D: Early Coding Framework

Personal information			
Education and or employment (Related to interest in history)			
Family			
Chronology of personal mobility			
Place grown up			
Place of residence (previous)			
Place of residence (current)			
Reasons/dimensions of attachment		**Factors influencing place attachment**	**SHP**
Theme	**Subthemes (Descriptive)**		
Intellectual attachment	Interest in history		
	Interest in history developed at a very young age	1 Grown up in Edinburgh, long exposed to history, 2 Parental social status	
	Interest in history developed at a late age	1 Education, 2 Job, 3 Involvement	
	Not interested in history		
	Feeling part of history		
	Knowledge about history or collective memory	Education	The Georgian architecture and Scottish Enlightenment
	Personality, identity, belonging and legacy	Getting old	
	Feeling proud		**City centre, EWH**

[Appendix D continued]

Reasons/dimensions of attachment		**Factors influencing place attachment**	**SHP**
Theme	**Subthemes (Descriptive)**		
Autobiographical attachment	Childhood memories	Lifelong residents	Public green spaces, Museums, Castle
	Teenagerhood memories	Lifelong residents	Public green spaces
	Adult memories		Castle
	Memories of older generations		
	Newcomers with family roots		
	Memory with child/children	Newcomers, Have children	Public green spaces, Museums
Nostalgic attachment	Sense of loss of identity		
	No longer being able to do what was used to	Social change vs. physical change	
	Feeling regret about how time was spent when they were young	Age (from taken for granted to appreciate),	
	Negative perceptions of tourism		City centre
	Life moments to do with small domestic issues		
	Historical moments		
A mixture of the above			

[Appendix D continued]

Reasons/dimensions of attachment		**Factors influencing place attachment**	**SHP**
Theme	**Subthemes (Descriptive)**		
Other reasons such as life dependence	Find historic environments/places beautiful	1 Cultural influence, 2 Art and museum visiting, 3 Class	
	Nature	Part of life	Public green spaces
	Hard to explain		City centre
	Flâneur		City centre
	Being away and then come back to Edinburgh		
	Attachment developed from civic engagement	Level of engagement	
	Unconscious	1 Part of life and work, 2 Visual exposure	Castle, Calton Hill
Other key issues not covered above			
Reasons for choosing the current neighbourhood			
Reasons for choosing Edinburgh (for newcomers)			
Reasons for feeling attached to current neighbourhood			
Reasons for feeling attached to Edinburgh			
Mixed emotions			

Appendix E: Participant Information Sheet for Interviews

University of Glasgow

College of Social Sciences

Participant Information Sheet

Title of project: Measuring and mapping residents' place attachment in Edinburgh

Researcher: Yang Wang

Funding details: Urban Studies Foundation and the University of Glasgow

Invitation

You kindly completed the survey for this research project. This is an invitation to take part in a follow-up interview. Please take some time to read the information carefully and discuss it with others, if you wish. You are welcome to ask me if there is anything that is not clear or if you would like more information.

Why have I been invited to take part?

As you may remember, you took part in a survey for a research project that aims to find out how urban residents develop emotional attachments to their local built environment and neighbourhood, with a particular focus on the role of historic places, spaces, buildings and street furniture. You indicated at the end of the survey that you would be willing to be contacted to participate in a face-to-face interview to tell me more about your experiences of historic places in Edinburgh.

Your views are important because they will help me to better understand how the historic environment is connected to people's daily lives.

What will the interview involve?

The interview will take the form of an informal conversation that is expected to last between 60 and 90 minutes. With your permission, I will audio-record the interviews so that afterwards what you sad can be accurately reflected in transcripts. Apart from what you say in the interview, nothing you tell me will be recorded in any way, unless you give your specific permission.

Taking part in this interview is entirely voluntary. You are free to withdraw at any time.

Will my taking part in the interview be kept confidential?

All the information that I collect about you during the course of the interview will be kept strictly confidential.

Your personal details (including your name and contact details) will not be used to identify you in any online or paper publications. They will be stored securely and kept for up to ten years after the research ends in January 2020 and then disposed of securely.

Any paper notes and audio recordings collected during the interview will be stored securely in a locked cabinet. They will only be seen by me, my supervisors and the professional consultant who transcribes the interviews. They will be kept for up to ten years after the research ends in January 2020 and then disposed of securely.

Please note that the assurances about confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is found. In that event, the University may be obliged to contact relevant statutory bodies/agencies.

What about the results of the research?

I will present my final research findings in my PhD thesis. I also intend to present the results at a heritage/cartography conference and to use the findings to write an academic paper and some policy briefing papers. I may also tweet about my work.

Some of the data will be rendered on maps for spatial analysis together with some of the information collected from the survey to create an EGIS (Emotional Geography Information System). The EGIS is a tool I am developing as part of my PhD to visualise the geographical distributions of people's emotional relationship with different places.

Should you wish to have a copy of the summary of my research findings, please ask me to put you on my circulation list.

Who has ethically reviewed the research?

This research has been reviewed and agreed by the College of Social Sciences Research Ethics Committee of the University of Glasgow.

Contact for further Information

If you have any questions about this research, you can contact me, Yang Wang or the Ethics officer for the College of Social Sciences at Muir.Houston@glasgow.ac.uk.

Thank you for taking the time to read this information

Appendix F: Consent Form for Interviews

Consent Form

University of Glasgow
College of Social Sciences

Title of Project: Measuring and mapping residents' place attachment in Edinburgh

Name of Researcher: Yang Wang

I confirm that I have read and understood the Participant Information Sheet about taking part in the interview of the above study and have had the opportunity to ask questions.

I understand that my participation is entirely voluntary and that I am free to withdraw at any time, without giving any reason.

I consent to my interview being audio-recorded.

I acknowledge that I will be referred to by pseudonym in any research outputs.

I understand that:

- The material will be treated as confidential and kept in secure storage for up to ten years after the research ends in January 2020 and then disposed of securely.
- The material may be used in publications, conference presentations, and other printed or online outputs.

I agree to take part in the interview for this research study ☐

I do not agree to take part in the interview for this research study ☐

Name of Participant …… Signature ……

Date ……

Name of Researcher …… Signature ……

Date ……

Appendix G: Ethics Approval

Application Approved

Ethics Committee for Non-Clinical Research Involving Human Subjects

Staff Research Ethics Application ☐ Postgraduate Student Research Ethics Application ☐x

---

Application Details

Application Number: 400170070

Applicant's Name: Yang Wang

Project Title: Measuring and Mapping Residents' Place Attachment in Edinburgh

Application Status: **Approved**

Start Date of Approval: 19/03/2018

End Date of Approval of Research Project: **01/01/2020**

Please retain this notification for future reference. If you have any enquiries please email socsci-ethics@glasgow.ac.uk.

Appendix G: Sociodemographic Composition of Analytical Sample 2 (*N* = 133)

Variable	Category	Percentage (%)
Gender	Female	45.86
	Male	54.14
Age group (years)	18-34	16.54
	35-54	36.09
	55-64	27.82
	65+	19.55
Employment status	Working	59.40
	Not working (including the Retired)	40.60
Educational attainment	No degree	28.57
	First degree	29.32
	Higher degree	42.11
Born in Edinburgh	No	63.16
	Yes	36.84
Have a family history of living in	No / Newcomer	58.65
Edinburgh	First generation	6.77
	Second generation	12.78
	Third generation	21.80
Homeownership	Social or private rented	15.04
	Owned outright	42.11
	Owned with mortgage	42.86
Living in a listed building	No,/Don’t know	75.94
	Yes	24.06
Living in a Conservation Area	No,/Don’t know	63.91
	Yes	36.09

Appendix H: Factor Pattern of HA Scale Neighbourhood-level Responses Revealed in A Four-factor EFA (*Sample 1*, *N* = 273)

Items	Factor Loadings (direct *oblimin* rotation)				h^2
	Factor 1	Factor 2	Factor 3	Factor 4	
I am proud of living in my neighbourhood because it has a rich history and many historic assets	**0.58**	-0.02	0.11	0.35	0.66
I like to learn about my neighbourhood's past	**0.78**	-0.02	-0.03	-0.10	0.53
The historic places in my neighbourhood make the area	**0.71**	0.03	0.03	0.12	0.63
I like to wander around the historic places in my neighbourhood	**0.91**	0.04	-0.01	-0.12	0.81
I miss the historic places that have been lost from my neighbourhood	0.33	0.09	**0.51**	-0.14	0.55
I miss the way things used to be in my neighbourhood	-0.06	0.01	**0.92**	0.02	0.83
I associate the historic places in my neighbourhood with my own past	0.05	**0.79**	0.11	-0.11	0.74
I associate the historic places in my neighbourhood with my family's past	-0.08	**0.89**	-0.01	-0.07	0.69
I have a lot of memories associated with the historic places in my neighbourhood	0.08	**0.78**	0.00	0.18	0.80
I organise a lot of my life around using historic places in my neighbourhood	0.21	**0.47**	-0.03	0.28	0.55
I get a lot of satisfaction from living in and around the historic settings in my neighbourhood	**0.63**	0.07	0.04	0.30	0.72
I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood	0.07	0.28	0.17	**0.47**	0.55

Appendix I: Factor Patterns of HA Scale Neighbourhood-level Responses in Three-factor EFA Using *obllimin* and *promax* Rotation (*Sample 1*, *N* = 273)

Items	Factor loadings					
	obllimin rotation			*promax* rotation		
	F1	F2	F3	F1	F2	F3
I am proud of living in my neighbourhood because it has a rich history and many historic assets	**0.73**	0.12	-0.06	**0.72**	0.13	-0.06
I like to learn about my neighbourhood's past	**0.72**	-0.12	0.10	**0.73**	-0.15	0.11
The historic places in my neighbourhood make the area	**0.78**	0.02	0.03	**0.78**	0.02	0.03
I like to wander around the historic places in my neighbourhood	**0.83**	-0.06	0.13	**0.84**	-0.10	0.14
I miss the historic places that have been lost from my neighbourhood	0.23	0.11	**0.69**	0.23	0.02	**0.76**
I miss the way things used to be in my neighbourhood	-0.04	0.42	**0.44**	-0.06	0.34	**0.50**
I associate the historic places in my neighbourhood with my own past	-0.02	**0.74**	0.20	-0.08	**0.71**	0.24
I associate the historic places in my neighbourhood with my family's past	-0.13	**0.81**	0.09	-0.19	**0.81**	0.13
I have a lot of memories associated with the historic places in my neighbourhood	0.12	**0.84**	0.04	0.06	**0.87**	-0.01
I organise a lot of my life around using historic places in my neighbourhood	0.33	**0.56**	-0.14	0.29	**0.60**	-0.13
I get a lot of satisfaction from living in and around the historic settings in my neighbourhood	**0.76**	0.15	0.05	**0.76**	0.16	-0.15
I would not swap my life in and around the historic places of my neighbourhood for one in any other neighbourhood	0.27	**0.51**	0.09	0.23	**0.54**	-0.08

Appendix J: Associations between City HA Dimensions and Explanatory Variables

Table J-1 The Mean Differences of City HA Factor Scores between Categories within Each Dichotomous Variable (Unpaired t-test, *Sample 2*, *N* = 133).

Homeownership, education and family history were coded into dichotomous variables. Some categories of these variables were merged due to their relatively low absolute frequencies which were not statistically significant.

Variable		HA Dimensions			
		Intellectual M, SD	**Autobiographical** M, SD	**Nostalgic** M, SD	**Life-dependent** M, SD
Gender	Female (*n* = 61)	0.113, 0.98	**0.176, 0.76**	**0.200, 0.87**	**0.186, 0.77**
	Male (*n* = 72)	-0.096, 0.99	**-0.149, 1.06**	**-0.169, 1.03**	**-0.158, 1.05**
	95% CI for mean difference	-0.131, 0.548	0.011, 0.638	0.043, 0.694	0.031, 0.657
	t	1.215	2.049	2.239	2.172
	p	0.227	**0.042**	**0.027**	**0.032**
Employment status	Employed (*n* = 79)	-0.045, 1.05	-0.084, 1.04	**-0.163, 1.01**	0.062, 1.02
	Not working (*n* = 54)	0.066, 0.78	0.122, 0.90	**0.238, 0.87**	-0.091, 0.82
	95% CI for mean difference	-0.425, 0.203	-0.541, 0.129	-0.726, -0.076	-0.470, 0.163
	t	-0.700	-1.217	-2.444	-0.960
	p	0.485	0.226	**0.016**	0.339

[Table J-1 Continued]

Variable		HA Dimensions			
		Intellectual M, SD	**Autobiographical** M, SD	**Nostalgic** M, SD	**Life-dependent** M, SD
Educational attainment	No degree (n =38)	0.055, 0,78	**0.402, 0.95**	**0.413, 0.93**	0.011, 0.85
	Degree (n = 95)	-0.022, 1.01	**-0.161, 0.96**	**-0.165, 0.95**	-0.004, 0.98
	95% CI for mean difference	-0.246, 0.412	0.199, 0.927	0.220, 0.936	-0.326, 0.357
	t	0.476	3.087	3.223	0.091
	p	0.635	**0.003**	**0.002**	0.928
Homeownership	Rented (*n* = 20)	0.162, 0.88	-0.012, 1.13	0.305, 1.01	**0.311, 0.62**
	Owned (*n* = 113)	-0.029, 0.98	0.002, 0.97	-0.054, 0.96	**-0.055, 0.98**
	95% CI for mean difference	-0.173, 0.554	-0.567, 0.539	-0.141, 0.859	0.028, 0.705
	t	1.064	-0.053	1.479	2.189
	p	0.295	0.959	0.152	**0.035**
Born in Edinburgh	No (*n* = 84)	-0.023, 1.03	**-0.301, 0.96**	**-0.206, 0.96**	-0.012, 0.93
	Yes (*n* = 49)	0.039, 0.80	**0.517, 0.80**	**0.354, 0.91**	0.021, 0.98
	95% CI for mean difference	-0.377, 0.254	-1.127, -0.510	-0.890, -0.230	-0.376, 0.310
	t	-0.386	-5.253	-3.367	-0.190
	p	0.700	**0.000**	**0.001**	0.850
Family history	No (*n* = 78)	-0.054, 1.05	**-0.331, 0.96**	**-0.228, 0.95**	-0.013, 0.93
	Yes (*n* = 55)	0.076, 0.77	**0.469, 0.83**	**0.323, 0.92**	0.018, 0.97
	95% CI for mean difference	-0.443, 0.183	-1.108, -0.491	-0.876, -0.227	-0.364, 0.302
	t	-0.824	-5.123	-3.363	-0.184
	p	0.412	**0.000**	**0.001**	0.854

[Table J-1 continued]

Variable		HA Dimensions			
		Intellectual M, SD	**Autobiographical M, SD**	**Nostalgic M, SD**	**Life-dependent M, SD**
lives in a listed building (perceived)	No or Do not know (*n* = 101)	0.079, 0.79	0.073, 0.97	0.079, 0.97	0.010, 0.92
	yes (*n* = 32)	-0.250, 1.31	-0.229, 1.02	-0.250, 0.94	-0.031, 1.04
	95% CI for mean difference	-0.165, 0.824	-0.109, 0.712	-0.057, 0.715	-0.371, 0.453
	t	1.348	1.475	1.709	0.199
	p	0.186	0.147	0.093	0.843
lives in a Conservation Area (perceived)	No or Do not know (*n* = 85)	0.030, 0.98	-0.039, 1.01	0.017, 0.97	-0.021, 0.98
	yes (*n* = 48)	-0.053, 0.88	0.069, 0.96	-0.030, 0.98	0.038, 0.88
	95% CI for mean difference	-0.246, 0.411	-0.458, 0.243	-0.303, 0.399	-0.389, 0.270
	t	0.497	-0.610	0.269	-0.358
	p	0.620	0.543	0.788	0.721

Table J-2 Effects of Age on City HA Factor Scores (One-way ANOVA) (*Sample 2*, *N* = 133)

Variable	HA Dimensions							
	Intellectual		Autobiographical		Nostalgic		Life-dependent	
	F	p	F	p	F	p	F	p
Age	**2.84**	**0.041**	0.435	0.728	1.837	0.144	2.637	0.052.

Table J-3 Mean Differences of City HA Factor Scores among Age Categories (Tukey test on One-way ANOVA) (*Sample 2*, *N* = *133*)

Age Categories (years)	HA Dimensions							
	Intellectual		Autobiographical		Nostalgic		Life-dependent	
	95% CI for mean difference	p	95% CI for mean difference	p	95% CI for mean difference	p	95% CI for mean difference	p
35-54 vs. 18-34	**-0.637 (-1.258, -0.017)**	**0.042**	-0.130 (-0.796, 0.536)	0.957	-0.254 (-0.901, 0.392)	0.736	**-0.623 (-1.245, -0.001)**	**0.050**
55-64 vs. 18-34	-0.290 (-0.939, 0.359)	0.651	-0.007 (-0.704, 0.690)	1.000	-0.067 (-0.743, 0.608)	0.994	-0.313 (-0.964, 0.337)	0.593
65+ vs. 18-34	-0.564 (-1.262, 0.134)	0.158	0.144 (-0.606, 0.893)	0.959	0.293 (-0.434, 1.020)	0.721	-0.563 (-1.263, 0.136)	0.160
55-64 vs. 35-54	0.347 (-0.180, 0.875)	0.320	0.123 (-0.443, 0.689)	0.942	0.187 (-0.363, 0.736)	0.813	0.309 (-0.219, 0.838)	0.426
65+ vs. 35-54	0.374 (-0.513, 0.660)	0.988	0.274 (-0.357, 0.904)	0.672	0.547 (-0.064, 1.159)	0.097	0.059 (-0.529, 0.647)	0.994
65+ vs. 55-64	-0.274 (-0.891, 0.343)	0.656	0.151 (-0.512, 0.813)	0.934	0.361 (-0.282, 1.003)	0.464	-0.250 (-0.868, 0.368)	0.719

Appendix K: An A to Z List of Mapped Special Historic Places

Name	Frequencies
A	
A1	2
Ann Street	1
Arthur's Seat	6
Assembly Rooms	3
Assembly Roxy	1
Atholl Cres	1
B	
Bannermans Bar	1
Barclay Viewforth Church	1
Bedlam Theatre	1
Blackford Hill	2
Boroughmuir High School	1
Braid Hills	2
Brandon Terrace	1
Bristo Square, Bristo Street	1
Broughton St Mary's Parish Church	1
Bruntsfield Links	2
Buccleuch Pl	1
Burns Monument	1
C	
Calder House	1
Calton Hill	13
Camera Obscura	1
Cammo	2
Canongate Kindergarten	2
Canongate Kirk and/or the Garden	2
Canonmills Bridge	2
Central Library	2

Pilrig St.Paul's Church of Scotland	1
Portobello	1
Portobello Beach	3
Preston street (east)	1
Princes Street	2
Princes Street Gardens	9
Q	
Queen Street	1
R	
Raeburn Pl in Stockbridge	2
Regent Terrace (and gardens)	1
Restalrig Circus	1
Riddles Court (Patrick Geddes Centre)	1
Robert Ferguson Statue	1
Rosslyn Chapel	1
Royal Botanic Gardens	21
Royal Circus	1
Royal College of Surgeons	1
Royal Mile	5
S	
Saint Stephen's Stockbridge	2
Scottish Merchant Navy Memorial	1
Scottish National Gallery	4
Scottish National Gallery of Modern Art	3
Scottish National Portrait Gallery	3
Scottish Parliament Building	3
Sighthill Drive	1
Silverknowes Promenade	1
Silverknowes	1
Silverknowes Beach	1
Siverknowes Parkways	1
South Leith Parish Church	1
South Morningside Primary School	1
St Andrew's and St George's West Church	2

Tron Kirk	1
U	
Usher Hall	4
V	
Victoria Quay	1
Victoria Street	4
W	
Waldorf Astoria Edinburgh, The Caledonian	1
Walter Scott Monument	4
Warriston Cemetery	1
Water of Leith Walkway Dean Village entrance	2
Water of Leith, St Bernard's Well	4
Waverley Station	2
Waverley Valley	1
Weehailes Adventure Playpark	1
Well Court	1
Others	
The glasshouses in Saughton Park	1
The old Odeon cinema on Clerk Street	1
The old Royal Infirmary at Lauriston Place	3
The railway lines that are now cycle paths in Victorian Park	1

References

Adams, D., & Larkham, P. (2015). Walking with the ghosts of the past: Unearthing the value of residents' urban nostalgias. *Urban Studies*, Vol. 53(10), 2004–2022.

Ahlfeldt, G. M., Moeller, K., Waights, S., & Wendland, N. (2017). Game of Zones: The political economy of Conservation Areas. *The Economic Journal*, 127 (October), F421–F445.

Anderson, J. R. (1993). *Rules of the mind*. Hillsdale, New York: Erlbaum.

Anton, C. E., & Lawrence, C. (2014). Home is where the heart is: the effect of place of residence on place attachment and community participation. *Journal of Environmental Psychology*, 40, 451-461.

Anton, C. E., & Lawrence, C. (2016). The relationship between place attachment, the theory of planned behaviour and residents' response to place change. *Journal of Environmental Psychology*, 47, 145-154.

Baddeley, A., Chang, Y-M., & Song, Y. (2013). Leverage and influence diagnostics for spatial point processes. *Scandinavian Journal of Statistics*, 40, 86-104.

Baddeley, A., Moller, J., & Waagepetersen, R. (2000). Non- and semi-parametric estimation of interaction in inhomogeneous point patterns. *Statistica Neerlandica*, Vol. 54, nr, 3, 329-350.

Baddeley, A., Rubak, E., & Turner, R. (2015). *Spatial Point Patterns: Methodology and Applications with R*. Boca Raton: Chapman & Hall/CRC.

Baddeley, A., Turner, R., Moller, J., & Hazelton, M. (2005). Residual analysis for spatial point processes. *Journal of the Royal Statistical Society B*, 67, Part 5, 617–666.

Bailey, N., Kearns, A., & Livingston, M., (2012). Place attachment in deprived neighbourhoods: the impacts of population turnover and social mix. *Housing Studies*, Vol. 27, No. 2, 208–231.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 5, 1173-1182.

Bartie, P., & Mackaness, W. (2016). Mapping the visual magnitude of popular tourist sites in Edinburgh city. *Journal of Maps*, 12(2), 203-210.

Batcho, K. (2013). Nostalgia: the bittersweet history of a psychological concept. *History of Psychology*, 16(3), 165-176.

Beaujean, A. A. (2013). Factor analysis using R. *Practical Assessment, Research, and Evaluation*, 18(4), 1-11.

Belk, R. W. (1992). Attachment to possessions. In: I. Altman, and S. M. Low (Eds.), *Place attachment* (pp.37-62). New York and London: Plenum Press.

Benson, M. (2014). Trajectories of middle-class belonging: the dynamics of place attachment and classed identities. *Urban Studies*, Vol. 51(14), 3097–3112.

Benson, M., & Jackson, E. (2012). Place-making and place Maintenance: performativity, place and belonging among the middle classes. *Sociology*, 47(4), 793–809.

Bernaards, C. A., & Jennrich, R. I. (2005). Gradient Projection Algorithms and Software for ArbitraryRotation Criteria in Factor Analysis, Educational and Psychological Measurement: 65, 676-696. <http://www.stat.ucla.edu/research/gpa>

Black, A., & Liljeblad, A. (2006). *Integrating social values in vegetation models via GIS: the missing link for the Bitterroot National Forest*. Final report JFSP project no. 04-2-1-114. Missoula, MT: Aldo Leopold Wilderness Research Institute.

Bolan, M. (1997). The mobility experience and neighborhood attachment. *Demography*, 34, 225-237.

Bollen, K. A., & Stine, R. (1990). Direct and indirect effects: classical and bootstrap estimates of variability. *Sociological Methodology*, 20, 115-140.

Bonaiuto, M., Aiello, A., Perugini, M., Bonnes, M., *et al*. (1999). Multidimensional perception of residential environment quality and neighbourhood attachment in the urban environment. *Journal of Environmental Psychology*, 19, 331-352.

Bonaiuto, M., Breakwell, G. M., & Cano, I. (1996). Identity processes and environmental threat: the effects of nationalism and local identity upon perception of beach pollution. *Journal of Community & Applied Social Psychology*, 6, 157-175.

Bonaiuto, M., Fornara, F., & Bonnes, M. (2003). Indexes of perceived residential environment quality and neighbourhood attachment in urban environments: a confirmation study on the city of Rome. *Landscape and Urban Planning*, 65, 41–52.

Bonaiuto, M., Fornara, F., & Bonnes, M. (2006). Perceived residential environment quality in middle- and low-extension Italian cities. *Revue Européenne de Psychologie Appliquée*, 56, 23–34.

Bonifay, W., Lane, S. P., & Reise, S. P. (2017). Three concerns with applying a bifactor model as a structure of psychopathology. *Clinical Psychological Science*, Vol. 5(1), 184-186.

Bourdieu, P. (1977). *Outline of a theory of practice*. Cambridge, UK: Cambridge University Press.

Bourdieu, P. (1979). *Distinction: a social critique of the judgement of taste*. London: Routledge.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Eds.), *Handbook of theory and research for the sociology of education* (pp.241-258). New York: Greenwood.

Bourdieu, P., Darbel, A., & Schnapper, D. (1997). *The love of art: European art museums and the public* (New Ed edition). Cambridge, UK: Polity.

Boym, S. (2001). *Future of nostalgia*. New York: Basic Books.

Boym, S. (2011). Nostalgia. In *Atlas of transformation*. [Last accessed: December 10, 2020]. Available from: http://monumenttotransformation.org/atlas-of-transformation/html/n/nostalgia/nostalgia-svetlana-boym.html.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.

Brehm, J. M., Eisenhauer, B.W., & Krannich, R. S. (2006). Community attachments as predictors of local environmental concern, The case for multiple dimensions of attachment. *American Behavioral Scientist*, 50, 142-165.

Brown, B. B., & Perkins, D. D. (1992). Disruptions in place attachment. In I. Altman, and S. M. Low (Eds.), *Place attachment* (pp.279-304). New York and London: Plenum Press.

Brown, B. B., Perkins, D. D., & Brown, G. (2003). Place attachment in a revitalizing neighborhood: individual and block levels of analysis. *Journal of Environmental Psychology*, 23, 259-271.

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

Brown, G. (2005). Mapping spatial attributes in survey research for natural resource management: methods and applications. *Society & Natural Resources*, 18(1), 17-39.

Brown, G. (2012). Public participation GIS (PPGIS) for regional and environmental planning: reflections on a decade of empirical research. *Journal of the Urban and Regional Information System Association*, 25:2, 7-18.

Brown, G., & Raymond, C. (2007). The relationship between place attachment and landscape values: towards mapping place attachment. *Applied Geography*, 27, 89-111.

Brown, G., Raymond, C., & Corcoran, J. (2015). Mapping and measuring place attachment. *Applied Geography*, 57, 42–53.

Brown, G., & Raymond, C. (2014). Methods for identifying land use conflict potential using participatory mapping. *Landscape and Urban Planning*, 122, 196-208.

Brown, G., Reed, P., & Harris, C. (2002). Testing a place-based theory for environmental evaluation: an Alaska case study. *Applied Geography*, 22(1), 49-77.

Brunsdon, C., Fotheringham, A. S., & Charlton, M. E. (1996). Local Forms of spatial analysis. *Geographical Analysis*, Vol. 28, No. 4, 381-398.

Buffel, T., Donder, L. Philipson, C., Witte, N. D., *et al*. (2014). Place attachment among older adults living in four communities in Flanders, Belgium. *Housing Studies*, Vol. 29, No. 6, 800-822.

Burns, C. (1989). Individual interviews. In S. Robson & A. Foster (Eds.), *Qualitative research in action* (pp.47-57). London: Hodder and Stoughton.

Carrus, G., Lafortezza, R., Colangelo, G., Dentamaro, I., *et al*. (2013). *Relations between naturalness and perceived restorativeness of different urban green spaces*. *PsyEcology*, 4, 227–244.

Casakin, h., Hernández, B., & Ruiz, C. (2015). Place attachment and place identity in Israeli cities: the influence of city size. *Cities*, 42, 224-230.

Case, D. (1996). Contributions of journeys away to the definition of home: an empirical study of a dialectical process. *Journal of Environmental Psychology*, 16, 1-15.

Chawla, L. (1992). Childhood place attachment. In: I. Altman, and S. M. Low (Eds.), *Place attachment* (pp.63-87). New York and London: Plenum Press.

Cheung, W. Y., Wildschut, T., Sedikides, C., Hepper, E., *et al*. (2013). Back to the future: nostalgia increases optimism. *Personality and Social Psychology Bulletin*, 39(11), 1484-1496.

Cockburn Association. (2019). [Last accessed: October 31, 2019]. Available from: https://www.cockburnassociation.org.uk/.

Cook, C. C., Martin, P., Yearns, M., & Damhorst, M. L. (2007). Attachment to "place" and coping with losses in changed communities: a paradox for aging adults. *Family and Consumer Sciences Research Journal*, Vol. 35, No. 3, 201-214.

Cooper, M. C. (1992). Environmental memories. In I. Altman, and S. Low (Eds.), *Place attachment* (pp.87-112). New York and London: Plenum Press.

Craggs, R., Geoghegan, H., & Neate, H. (2013). Architectural enthusiasm: visiting buildings with The Twentieth Century Society. *Environment and Planning D: Society and Space*, Volume 31, 879–896.

Craggs, R., Geoghegan, H., & Neate, H. (2015). Civic geographies of architectural enthusiasm. *ACME: An International E Journal for Critical Geographies*, 14 (2), 367-376.

Craggs, R., Geoghegan, H., & Neate, H. (2016). Managing enthusiasm: between 'extremist' volunteers and 'rational' professional practices in architectural conservation. *Geoforum*, 74, 1–8.

Creswell, J. W. (2009). *Research design: qualitative, quantitative and mixed methods approaches* (Third Edition). London, Sage Publishing Inc.

Creswell, J. W. (2015). *A concise introduction to mixed methods research*. London, Sage Publishing Inc.

Creswell, J. W. and Plano Clark, V. L. (2018). *Designing and conducting mixed* methods research. London: Sage Publishing Inc.

Cronbach, L. J. (1950). Further evidence on response sets and test design. *Educational and Psychological Measurement*, 10, 3-31.

Cuba, L., & Hummon, D. M. (1993a). A place called home: identification with dwelling, community and region. *The Sociological Quarterly*, 34, 111-131.

Cuba, L., & Hummon, D. M. (1993b). Constructing a sense of home: affiliation and migration across the life cycle. *Sociological Forum*, 8, 547-572.

Davis, F. (1979). *Yearning for yesterday: a sociology of nostalgia*. New York: New York Free Press.

Denscombe, M. (2002). *Ground rules for good research: a 10 point guide for social researchers*. Buckingham: Open University Press.

Degen, M., & Rose, G. (2012). The sensory experiencing of urban design: the role of walking and perceptual memory. *Urban Studies*, 49(15), 3271-3287.

Devine-Wright, P. (2009). Rethinking Nimbyism: the role of place attachment and place identity in explaining place-protective action. *Journal of Community and Applied Social Psychology*, 19, 426-441.

Devine-Wright, P., & Howes, Y. (2010). Disruption to place attachment and the protection of restorative environments: a wind energy case study. *Journal of Environmental Psychology*, 30, 271-280.

Devine-Wright, P., & Lyons, E. (1996). Remembering pasts and representing places: the construction of national identities in Ireland. *Journal of Environmental Psychology*, **17**, 33–45.

Di Maggio, P., & Useem, M. (1978). Social class and arts consumption: the origins and *consequences of class differences in exposure to the arts in America. Theory and Society,* 5(2), 141-161.

Di Masso, A. D., William, D. R., Raymond, C. D., Buchecker, M., *et al*. (2019). Between fixities and flows: navigating place attachment in an increasingly mobile world. *Journal of Environmental Psychology*, 61, 135-133.

Diggle, P. J. (2013). *Statistical analysis of spatial and spatio-temporal point patterns* (Third Edition). Boca Raton: Chapman and Hall/CRC Press.

DiStefano, C., Zhu, M., & Mîndrilă, D. (2009). Understanding and using factor scores: considerations for the applied researcher. *Practical Assessment, Research & Evaluation*, 14 (20), 1-11.

Dombrowski, S. C., Beaujean, A. A., McGill, R. J., Benson, N. F., *et al*. (2019). Using exploratory bifactor analysis to understand the latent structure of multidimensional psychological measures: an example featuring the WISC-V. *Structural Equation Modeling: A Multidisciplinary Journal*, 0, 1–14.

Droseltis, O., & Vignoles, V. L. (2010). Towards an integrative model of place identification: dimensionality and predictors of intrapersonal-level place preferences. *Journal of Environmental Psychology*, 30, 23-34.

Dunnington, D. (2021). ggspatial: Spatial Data Framework for ggplot2. R package version 1.1.5. https://CRAN.R-project.org/package=ggspatial.

Eckersley, S. (2017). 'People-Place-Process' and attachment in the museum, A new paradigm for understanding Belonging? *Anthropological Journal of European Cultures*, Vol. 26, No. 2, 6-30.

Edinburgh World Heritage (EWH). (2005). *The Old and New Towns of Edinburgh World Heritage Site management plan*. Edinburgh: EWH.

Edinburgh World Heritage (EWH). (2017). *The Old and New Towns of Edinburgh World Heritage Site management plan, 2017-2022*. Edinburgh: EWH.

Eisinga, R., Grotenhuis, M. T., & Pelzer, B. (2012). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown. *International Journal of Public Health*, 58, 637-642.

Erikson, E. H. (1950). *Childhood and society*. New York: Norton.

Erikson, E. H. (1959). Identity and the life cycle: selected papers. *Psychological Issues*, 1, 1-171.

Erikson, E. H. (1982). *The life cycle completed*. New York: Norton.

Edinburgh Old Town Development Trust (EOTDT). (2019). *[About us]* [Last accessed: October 31, 2019]. Available from: http://eotdt.org/index.php/main-about-us.

Félonneau, M. L. (2004). Love and loathing of the city: Urbanophilia and urbanophobia, topological identity and perceived incivilities. *Journal of Environmental Psychology*, 24, 43-52.

Flyvbjerg, B. (2006). Five misunderstandings about case study research. *Qualitative Inquiry,* Vol. 12, No. 2, 219-245.

Fried, M. (1963). Grieving for a lost home, Psychological costs of relocation. In L. J. Duhl (Eds.), *The urban Condition: People and policy in the metropolis* (pp.151-171). New York: Simon & Schuster.

Fried, M. (2000). Continuities and discontinuities of place. *Journal of Environmental Psychology*, 20, 193-205.

Frost, D., & Catney, G. (2020). Belonging and the intergenerational transmission of place identity: reflections on a British inner-city Neighbourhood. *Urban Studies*, Vol. 57(14), 2833–2849.

Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, 22:1, 7-20.

Fullilove, M. T. (1996). Psychiatric implications of displacement. *American Journal of Psychiatry*, 153, 1516-1523.

Galster, G. (2001). On the nature of neighborhood. *Urban Studies*, 38, 2111-2124.

Gentry, K. (2013). History, heritage and localism. *Policy Studies*, Vol. 34, Nos. 5-6, 508-522.

Geoghegan, H. (2013). Emotional geographies of enthusiasm: belonging to the Telecommunications Heritage Group. *Area*, 45, 40–46.

Gergov, T. K., & Stoyanova, S. Y. (2013). Sentimentality and nostalgia in elderly people: psychometric properties of a new questionnaire. *Psychological Thought*, Vol. 6(2), 358-375.

Glaser, B. (1978). *Theoretical sensitivity: advances in the methodology of grounded theory*. Mill Valley, California: Sociology Press.

Graham, H., Mason, R., & Newman, A. (2009). *Literature review: historic environment, sense of place, and social capital*. Research commissioned for English Heritage. Available from: https://historicengland.org.uk/content/heritage-counts/pub/sense_of_place_lit_review_web1-pdf/.

Grant, R. W. (2015). Rethinking the ethics of incentives. *Journal of Economic Methodology*, Vol. 22, No. 3, 354-372.

Gregory, J. (2015). Connecting with the past through social media: the 'beautiful buildings and cool places Perth has lost' Facebook group. *International Journal of Heritage Studies*, 21:1, 22-45.

Griffin, A. & McQuoid, J. (2012). At the intersection of maps and emotion: the challenge of spatially representing experience. *Kartographische Nachrichten*, 62, 291–299.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59–82.

Gustafson, P. (2014). Place attachment in the age of Mobility. In L. C. Manzo, and P. Devine-Wright (Eds). *Place attachment: advances in theory, methods and applications* (pp.37-48). London: Routledge.

Hair Jr, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (Seventh edition). Essex, UK: Pearson Education Limited.

Hammitt, W. E., Backlund, E. A., & Bixler, R. D. (2006). Place bonding for recreation places: conceptual and empirical development. *Leisure Studies*, 25:1, 17-41.

Harman, H. H., & Jones, W. H. (1966). Factor analysis by minimizing residuals (MINRES). *Psychometrika*, 31, 351-368.

Harrison, R. (2011). 'Counter-mapping' heritage, communities and places in Australia and the UK. In J. Schofield, and R. Szymanski (Eds.), *Local heritage, global context: cultural perspectives on sense of place* (pp.79–98). Farnham: Ashgate.

Hay, R. (1998). Sense of place in a developmental context. *Journal of Environmental Psychology*, 18, 5-29.

Hayton, J. C., Allen, D. G, &Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: a tutorial on parallel analysis. *Organizational Research Methods,* Vol. 7, No. 2, 191-205.

Hernández, B., Hidalgo, M. C., & Ruiz, C. (2014). Theoretical and methodological aspects. In L. C. Manzo, and P. Devine-Wright (Eds.), *Place attachment: advances in theory, methods and applications* (pp.125-137). London: Routledge.

Hernández, B., Hidalgo, M. C., Salazar-Laplace, M. E., & Hess, S. (2007). Place attachment and place identity in natives and non-natives. *Journal of Environmental Psychology*, 27, 310-319.

Hester, R. (1993). Sacred structures and everyday life: a return to Manteo, North Carolina. In: D. Seamon (Eds.), *Dwelling, seeing and designing: toward a phenomenological ecology* (pp.271–298). New York: State University of New York Press.

Hester, R. (2010). *Design for ecological democracy*. Massachusetts: MIT Press.

Hester, R. (2014). Do not detach! Instructions from and for community design. In: L. C. Manzo, and P. Devine-Wright (Eds.), *Place attachment: advances in theory, methods, and applications* (pp.191–206). London: Routledge.

Hewitt, L. E. (2016). Associational culture and the shaping of urban space: civic societies in Britain before 1960. *Urban History*, 39:4, 590-606.

Hewitt, L. E., & Pendlebury, J. (2013). *Civic associations and urban communities, Local history, place-making and activism in twentieth-century Britain*. Project Report. AHRC Connected Communities. Available from: http://eprints.gla.ac.uk/72341/7/72341.pdf.

Hewitt, L. E., & Pendlebury, J. (2014). Local associations and participation in place: change and continuity in the relationship between state and civic society in twentieth-century Britain. *Planning perspective*, Vol. 29, No. 1, 25-44.

Hidalgo, M. C. (2013). Operationalization of place attachment: a consensus proposal, *Estudios de Psicología*, 34:3, 251-259.

Hidalgo, M. C., & Hernández, B. (2001). Place attachment: conceptual and empirical questions. *Journal of Environmental Psychology*, 21, 273-281.

Historic Environment Scotland (HES). (2019a). *Interim guidance on the designation of Conservation Areas and Conservation Area Consent*. Edinburgh: HES.

Historic Environment Scotland (HES). (2019b). *Scotland's inventory of gardens and designed landscapes*. Edinburgh: HES.

Historic Environment Scotland (HES). (2019c). *Scotland's listed building*. Edinburgh: HES.

Historic Environment Scotland (HES). (2019d). *Scotland's scheduled monument*. Edinburgh: HES.

Historic Environment Scotland (HES). (2020). *[Advice and support: living in a Conservation Area].* [Last accessed: October 31, 2019]. Available from: https://www.historicenvironment.scot/advice-and-support/your-property/owning-a-traditional-property/living-in-a-conservation-area/.

Hoang, T. D. T., Brown, G., & Kim, A. K. J. (2020). Measuring resident place attachment in a World Cultural Heritage tourism context: the case of Hoi An (Vietnam). *Current Issues in Tourism*, 23:16, 2059-2075.

Holzinger, K. J., & Harman, H. H. (1938). Comparison of two factorial analyses. *Psychometrika*, 3, 45–60.

Holzinger, K. J., & Swineford, S. (1937). The bi-factor method. *Psychometrika*, 2, 41–54.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika,* 30, 179-185.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modelling*, 6, 1–55.

Hull IV, R. B., Lam, M., & Vigo, G. (1994). Place identity: symbols of self in the urban fabric. *Landscape and Urban Planning*, 28, 109-I20.

Hummon, D. M. (1992). Community attachment: Local sentiment and sense of place. In I. Altman, and S. M. Low (Eds.), *Place attachment* (pp.253-277). New York and London: Plenum Press.

Jacobs, J. (1961). *The death and life of great American cities*. New York: Random House.

Jaśkiewicz, M. (2015). Place attachment, place identity and aesthetic appraisal of urban landscape. *Polish Psychological Bulletin*, 46(4), 573–578.

Jennrich, R. I., & Bentler, P. M. (2011). Exploratory bi-factor analysis. *Psychometrika,* 76, 537–549.

Jennrich, R. I., & Bentler, P. M. (2012). Exploratory bi-factor analysis: The oblique case. *Psychometrika*, 77, 442–454.

Jones, P., & Evans, J. (2012). Rescue geography: place making, affect and regeneration. *Urban Studies*, 49, 2315–2330.

Jones, S. (2017). Wrestling with the social value of heritage: problems, dilemmas and opportunities. *Journal of Community Archaeology & Heritage*, 4(1), 21–37.

Jones, S., & Leech. S. (2015). *Valuing the historic environment: a critical review of existing approaches to social value*. Project Report. Arts and Humanities Research Council.

Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology*, 21, 233-248.

Jorgensen, B. S., & Stedman, R. C. (2006). A comparative analysis of predictors of sense of place dimensions: attachment to, dependence on, and identification with lakeshore properties. *Journal of Environmental Management*, 79, 316-327.

Jorgenson, B. S., & Stedman, R. C. (2011). Measuring the spatial component of sense of place: a methodology for research on the spatial dynamics of psychological experiences of places. *Environment and Planning B: Planning and Design*, 38, 795-813.

Kahle, D., & Wickham, H. (2013). ggmap: spatial visualization with ggplot2. *The R Journal*, 5:1, 144-161. URL: http://journal.r-project.org/archive/2013-1/kahle-wickham.pdf.

Kaplan, R., & Kaplan, S. (1989). *The experience of nature: a psychological perspective*. Cambridge, UK: Cambridge University Press.

Kaplan, S., Bardwell, L. V., and Slakter, D. B. (1993). The museum as a restorative environment. *Environmental Behaviour*. 25, 725–742.

Kasarda, J. D., & Janowitz, M. (1974). Community attachment in mass society. *American Sociological Review*, 39, 328-339.

Knez, I. (2006). Autobiographical memories for places. *Memory*, 14(3), 359–377.

Knez, I. (2014). Place and the self: an autobiographical memory synthesis. *Philosophical Psychology*, 27:2, 164-192.

Knez, I., Ode Sang, Å., Gunnarsson, B., & Hedblom, M. (2018). Wellbeing in urban greenery: the role of naturalness and place identity. *Frontiers in Psychology*, 9:491, 1-10.

Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. *Environment and Behavior*, 37, 153-177.

Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2003). An examination of the relationship between leisure activity involvement and place attachment among hikers along the Appalachian Trail. *Journal of Leisure Research*, 35, 249-273.

Lalli, M. (1992). Urban-related identity: theory, measurement, and empirical findings. *Journal of Environmental Psychology*, 12, 285-303.

Lewicka, M. (2005). Ways to make people active: role of place attachment, cultural capital and neighborhood ties. *Journal of Environmental Psychology*, 4, 381-395.

Lewicka, M. (2008). Place attachment, place identity, and place memory: restoring the forgotten city past. *Journal of Environmental Psychology*, 28, 209-231.

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

Lewicka, M. (2011a). On the varieties of people's relationships with places: Hummon's typology revisited. *Environment and Behavior*, 43(5), 676-709.

Lewicka, M. (2011b). Place attachment: how far have we come in the last 40 years? *Journal of Environmental Psychology,* 31, 207–230.

Lewicka, M. (2013a). Localism and activity as two dimensions of people-place bonding: the role of cultural capital. *Journal of Environmental Psychology*, 36, 43-53.

Lewicka, M. (2013b). Place inherited or place discovered? Agency and communion in people-place bonding. *Estudios de Psicología*, 34:3, 261-274.

Lewicka, M. (2014). In search of roots. In L. C. Manzo, and P. Devine-Wright (Eds.), *Place attachment. Advances in theory, methods and application* (pp.49-60). London: Routledge.

Lin, C.-C., & Lockwood, M. (2014a). Assessing sense of place in natural settings: a mixed-method approach. *Journal of Environmental Planning and Management*, 57(10), 1441-1464.

Lin, C.-C., & Lockwood, M. (2014b). Forms and sources of place attachment: evidence from two protected areas. *Geoforum*, 53, 74-81.

Livingston, M., Bailey, N., & Kearns, A. (2010). Neighbourhood attachment in deprived areas: evidence from the north of England. *Journal of Housing and the Built Environment*, 25, 409–427.

Lokocz, E., Ryan, R. L., & Sadler, A. J. (2011). Motivations for land protection and stewardship: exploring place attachment and rural landscape character in Massachusetts. *Landscape and Urban Planning*, 99, 65-76.

Lost Edinburgh. (2019). *[About]*. [Last accessed: October 10, 2019]. Available from: https://www.facebook.com/lostedinburgh/about/?ref=page_internal.

Low, S. M. (1992). Symbolic ties that bind. Place attachment in the plaza. In I. Altman, and S. M. Low (Eds.), *Place attachment* (pp.165-185). New York and London: Plenum Press.

Low, S. M., & Altman, I. (1992). Place attachment: a conceptual inquiry. In: I. Altman, and S. M. Low (Eds.), *Place attachment* (pp.1–12). New York and London: Plenum Press.

Lowenthal, D. (2015). *The past is a foreign country (Revised)*. Cambridge, UK: Cambridge University Press.

Madgin, R. (2010). Reconceptualising the historic urban environment: conservation and regeneration in Castlefield, Manchester, 1960–2009. *Planning Perspectives*, Vol. 25, No. 1, 29–48.

Madgin, R., Bradley, L., & Hastings, A. (2016). Connecting physical and social dimensions of place attachment: what can we learn from attachment to urban recreational spaces? *Journal of Housing and the Built Environment,* 31, 677-693.

Madgin, R., & Rodger, R. (2013). Inspiring capital? Deconstructing myths and reconstructing urban environments, Edinburgh. *Urban History*, 40:3, 507-529.

Madgin, R., Webb, D., Ruiz, P., & Snelson, L. (2018). Resisting relocation and reconceptualising authenticity: the experiential and emotional values of Southbank Undercroft, London, UK. *International Journal of Heritage Studies*, 24(6), 1-14.

Mansolf, M., & Reise, S. P. (2016). Exploratory bifactor analysis: the Schmid-Leiman orthogonalization and Jennrich-Bentler analytic rotations. *Multivariate Behavioral Research*, 51:5, 698-717.

Manzo, L. C. (2003). Beyond house and haven: toward a revisioning of emotional relationships with places. *Journal of Environmental Psychology*, 23, 47-61.

Manzo, L. C. (2005). For better or worse: exploring multiple dimensions of place meaning. *Journal of Environmental Psychology*, 25, 67-86.

Manzo, L. C. (2014). Exploring the shadow side: place attachment in the context of stigma, displacement and social housing. In L. C. Manzo, and P. Devine-Wright (Eds.), *Place attachment: advances in theory, methods, and applications* (pp.178-190). London: Routledge.

Manzo, L. C., & Perkins, D. D. (2006). Finding the common ground: the importance of place attachment to community participation and planning. *Journal of Planning Literature*, 20:4, 335-350.

Marković, S. (2012). Components of aesthetic experience: aesthetic fascination, aesthetic appraisal, and aesthetic emotion. *i-Perception*, 3, 1-17.

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum Qualitative Sozialforschung*, Vol. 11, No. Art 8.

McClelland, A. (2019). Spaces for public participation: valuing the cross-border landscape in North West Ireland. *Irish Geography*, 52(2), 193-211.

McConachie, F., Jenny, B., Reinke, K., & Arrowsmith, C. (2020). Barapa country through Barapa eyes: cultural mapping of Gunbower Island, Australia. *Journal of Maps*, 16:1, 13-20.

Mesch, G. S., & Manor, O. (1998). Social ties, environmental perception and local attachment. *Environment and Behavior*, 30, 504-519.

Moore, J. (2000). Placing home in context. *Journal of Environmental Psychology*, 20, 207-217.

Morgan, P. (2010). Towards a developmental theory of place attachment. *Journal of Environmental Psychology*, 30, 11-22.

Morse, C. E., & Mudgett, J. (2018). Happy to be home: place-based attachments, family ties, and mobility among rural stayers. *The Professional Geographer*, 70:2, 261-269.

Mulder, C. H., & Malmberg, G. (2014). Local ties and family migration. *Environment and Planning A*, 46(9), 2195–2211.

Neal, S., Bennett, K., Jones, H., Cochrane, A., *et al*. (2015). Multiculture and public parks: researching super-diversity and attachment in public green spaces. *Population, Space and Place*, 21(5), 463-475.

Nowell, B. L., Berkowitz, S. L., Deacon, Z., & Foster-Fishman, P. (2006). Revealing the cues within community Places: Stories of identity, history, and possibility. *American Journal of Community Psychology*, 37, 29-46.

Onwuegbuzie, A. J., & Collins, K. M. T. (2017). The role of sampling in mixed methods research: enhancing inference quality. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, (Supplement 2) 69, 133–156.

Onwuegbuzie, A. J., & Collins, K. M. T. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report*, 12(2), 281-316.

Patterson, M. E., & Williams, D. R. (2005). Maintaining research traditions on place: diversity of thought and scientific progress. *Journal of Environmental Psychology*, 25, 361-380.

Paton, K. (2013). HSA Special Issue, housing in “hard times”: marginality, inequality and class. *Housing, Theory and Society*, 30:1, 84-100.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (Third Edition). London, Sage Publishing Inc.

Pendlebury, J. (2009). *Conservation in the age of consensus*. London, Routledge.

Pendlebury, J., & Strange, I. (2011). Urban conservation and shape of English city. *Town Planning Review*, 82(4), 361-392.

Pendlebury, J., Townshend, T., & Gilroy, R. (2004). The conservation of English cultural built heritage: a force for social inclusion? *International Journal of Heritage Studies*, 10:1, 11-31.

Perkins, D. D., & Long, D. A. (2002). Neighborhood sense of community and social capital: a multi-level analysis. In A. Fisher, C. Sonn, and B. Bishop (Eds.), *Psychological sense of community: research, applications, and implications* (pp.291-318). New York: Plenum.

Porteous, J. D. (1990). *Landscapes of the mind: worlds of sense and metaphor*. Toronto: Toronto University Press.

Power, A., & Smyth, K. (2016). Heritage, health and place: the legacies of local community-based heritage conservation on social wellbeing. *Health & Place*, 39, 160–167.

Power, E. M. (1999). An introduction to Pierre Bourdieu's key theoretical concepts. *Journal for the Study of Food and Society*, 3(1), 48-52.

Proshansky, H. M. (1978). The city and self-identity. *Environment and Behavior*, 10, 147-69.

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: physical world socialization of the self. *Journal of Environmental Psychology*, 3, 57–83.

R Development Core Team. (©2016). The *R project for statistical computing*. [Last accessed: October 15, 2019]. Available from: https://www.r-project.org/.

Rae, S. (2019). *Save Leith Walk campaign a demonstration of community spirit*. Edinburgh Evening News, 5th July 2019. [Last accessed: October 5, 2019]. Available from: https://www.edinburghnews.scotsman.com/news/opinion/save-leith-walk-campaign-demonstration-community-spirit-susan-rae-544589.

Ratcliffe, E., & Korpela, K. M. (2016). Memory and place attachment as predictors of imagined restorative perceptions of favourite places. *Journal of Environmental Psychology*, 48, 120-130.

Raymond, C. M., Brown, G. & Weber, D. (2010). The measurement of place attachment: personal, community, and environmental connections. *Journal of Environmental Psychology*, 30, 422-434.

Reise, S. P. (2012). The rediscovery of bifactor measurement models. *Multivariate Behavioral Research*, 47:5, 667-696.

Reise, S. P., Moore, T. M., & Haviland, M. G. (2010). Bifactor models and rotations: exploring the extent to which multidimensional data yield univocal scale scores. *Journal of Personality Assessment*, 92(6), 544–559.

Relph, E. (1976). *Place and placelessness*. London: Pion Limited.

Revelle, W. (2009). *An introduction to psychometric theory with applications in R*. Springer.

Revelle, W. (2020). *psych: Procedures for Personality and Psychological Research*. Northwestern University, Evanston, Illinois, USA. https://CRAN.R-project.org/package=psych.

Riger, S., & Lavrakas, P. J. (1981). Community ties: patterns of attachment and social interaction in urban neighborhoods. *American Journal of Community Psychology*, 9, 55-66.

Riley, R. B. (1992). Attachment to the ordinary landscape. In I. Altman, & S. Low (Eds.), *Place attachment* (pp.13-36). New York and London: Plenum Press.

Ringel, N. B., & Finkelstein, J. C. (1991). Differentiating neighborhood satisfaction and neighborhood attachment among urban residents. *Basic and Applied Social Psychology*, 12, 177-193.

Rishbeth, C., & Powell, M. (2013). Place attachment and memory: landscapes of belonging as experienced post-migration. *Landscape Research*, 38:2, 160-178.

Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016a). Applying bifactor statistical indices in the evaluation of psychological measures. *Journal of Personality Assessment*, 98, 223-237.

Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016b). Evaluating bifactor models: calculating and interpreting statistical indices. *Psychological Methods*, 21, 137-150.

Rogaly, B., & Taylor, B. (2009). *Moving histories of class and community: identity, place and belonging in contemporary England*. Basingstoke: Palgrave Macmillan.

Rowles, G. D. (1983). Place and personal identity in old age: observations from Appalachia. *Journal of Environmental Psychology*, 3, 299-313.

Rowles, G. D. (1990). Place attachment among the small town elderly. *Journal of Rural Community Psychology*, 11, 103-120.

Rubeinstein, R. L., & Parmelee, P. A. (1992). Attachment to place and the representation of the life course by the elderly. In I. Altman, & S. M. Low (Eds.), *Place attachment* (pp.139-163). New York and London: Plenum Press.

Sandelowski, M. (2000). Combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Research in Nursing & Health*, 23, 246-255.

Savage, M., Bagnall, G., & Longhurst, B. (2005). *Globalization and belonging*. London: Sage Publishing Inc

Savage, M. (2010). The politics of elective belonging. *Housing, Theory and Society*, 27, 115-161.

Scannell, L., & Gifford, R. (2010a). Defining place attachment: a tripartite organizing framework. *Journal of Environmental Psychology*, 30, 1–10.

Scannell, L., & Gifford, R. (2010b). The relations between natural and civic place attachment and pro-environmental behaviour. *Journal of Environmental Psychology*, 30, 289-297.

Scannell, L., & Gifford, R. (2017). Place attachment enhances psychological need satisfaction. *Environment and Behavior*, Vol. 49(4), 359-389.

Schifferes, J. (2016). *Where in the UK has the most heritage?* RSA (The Royal Society of Art) Blog, 24 November 2016. [Last accessed: October 2, 2020]. Available from: https://www.thersa.org/blog/2016/11/heritage-index-2016.

Schlossberg, M., and E. Shuford. (2005). Delineating 'public' and participation' in PPGIS. *Journal of the Urban and Regional Information Systems Association*, 16, 15-26.

Schmid, J., & Leiman, J. (1957). The development of hierarchical factor solutions. *Psychometrika*, 22, 53-61.

Scopelliti, M., Carrus, G., & Bonaiuto, M. (2019). Is it really nature that restores people? A comparison with historical sites with high restorative potential. *Frontiers in Psychology*. 9, 27-42.

Scottish Government (SG). (2004). *Scottish neighbourhood statistics data zones background information*. Edinburgh: Scottish Executive.

Scottish Government (SG). (2020). Scottish Index of Multiple Deprivation. [Last accessed: April 30, 2020]. Available from: https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/.

Scottish Government (SG). (2017). *A blueprint for fairness: the final report of the commission on widening access*. The Scottish Government. Available from: https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2017/05/implementing-blueprint-fairness-report-progress-recommendations-commission-widening-access/documents/00518613-pdf/00518613-pdf/govscot%3Adocument/00518613.pdf.

Seamon, D. (1980). Body-subject, time-space routines, and place-ballets. In A. Buttimer, and D. Seamon (Eds.), *The human experience of space and place* (pp.148-165). New York: St. Martin's Press.

Seamon, D. (2014). Place attachment and phenomenology: the synergistic dynamism of place. In L. C. Manzo, and P. Devine-Wright (Eds.), *Place attachment: advances in theory, methods, and applications* (pp.11-22). London: Routledge.

Shamai, S. (1991). Sense of place: an empirical measurement. *Geoforum*, 22, 347-358.

Shamsuddin, S., and N. Ujang. (2008). Making places: the role of attachment in creating the sense of place for traditional streets in Malaysia. *Habitat International*, 32, 399-409.

Skeggs, B. (2004). *Class, self, culture*, London: Routledge.

Smith, L. (2006). *Uses of heritage*. London: Routledge.

Spencer, L., Ritchie, J., O'Connor, W., Morrell, G., & Ormston, R. (2014). Analysis: principles and processes. In J. Ritchie, J. Lewis, C. M. Nicholls and R.

Ormston (Eds.), *Qualitative research practice* (pp.295-346). London: Sage Publishing Inc.

Stake, R. (2008). Qualitative case studies. In N. K. Denzin, and Y. S. Lincoln (Eds.). *Strategies of qualitative Inquiry* (pp.119-150). London: Sage Publishing Inc.

Stedman, R. C. (2003). Is it really just a social construction? The contribution of the physical environment to sense of place. *Society and Natural Resources*, 16, 671-685.

Stefaniak, A., Bilewicz, M., & Lewicka, M. (2017). The merits of teaching local history: increased place attachment enhances civic engagement and social trust. *Journal of Environmental Psychology*, 51, 217–225.

Stevenson, D., & Magee, M. (2017). Art and space: creative infrastructure and cultural capital in Sydney, Australia. *Journal of Sociology*, 53(4), 839-861.

Stewart, D. W., & Shamdasani, P. N. (2014). *Focus groups, theory and practice* (Third Edition). London: Sage Publishing Inc.

Stokols, D., & Shumaker, S. A. (1981). People and places: a transactional view of settings. In J. Harvey (Eds.), *Cognition, social behaviour, and the environment* (pp.441-488). Hillsdale, NJ: Lawrence Erlbaum.

Tennekes, M. (2018). tmap: Thematic Maps in R. Journal of Statistical Software, 84(6), 1-39. doi: 10.18637/jss.v084.i06 (URL: https://doi.org/10.18637/jss.v084.i06).

The Australia ICOMOS. (1999). *The Burra Charter*. [Last accessed: November 13, 2020]. Accessed October 9, 2017. Available from: https://australia.icomos.org/wp-content/uploads/BURRA_CHARTER.pdf.

The City of Edinburgh Council. (2020). *[Conservation Areas]*. [Last accessed: January 30, 2020]. Available from: https://www.edinburgh.gov.uk/conservation-2/conservation-areas.

The City of Edinburgh Council. (2013). *Population distribution and density in Edinburgh: recent trends and comparisons with other cities across Scotland and the UK*. Edinburgh, UK: The City of Edinburgh Council.

Theodori, G. L. (2001). Examining the effects of community satisfaction and attachment on individual well-being. *Rural Sociology*, 66, 618-828.

Thompson, C. W., Aspinall, P., & Montarzino, A. (2008). The childhood factor, Adult visits to green places and the significance of childhood experience. *Environment and Behavior*, Volume 40 Number 1, 111-143.

Thurstone, L. L. (1947). *Multiple factor analysis: a development and expansion of vectors of the mind.* Chicago: University of Chicago Press.

Tuan, Y.-F. (1974). *Topophilia: a study of environmental perception, attitudes, and values*. Englewood Cliffs, NJ: Prentice Hall.

Tuan, Y.-F. (1975). Place: an experiential perspective. *Geographical Review*, Vol. 65, No. 2, 151-165.

Tuan, Y.-F. (1977). Space and place: *the perspective of experience*. Minnesota: The University of Minnesota Press.

Tulving, E. (1972). Episodic and semantic memory. In E. Tulving, and W. Donaldson (Eds.), *Organization of memory* (pp.381–403). New York: Academic Press.

Twigger-Ross, C. L., & Uzzell, D. L. (1996). Place and identity process. *Journal of Environmental Psychology,* 16, 205–220.

Tyler, I. (2013). *Revolting subjects: social abjection and resistance in neoliberal Britain*. London: Zed Books.

van der Klis, M., & Karsten, L. (2009). Commuting partners, dual residences and the meaning of home. *Journal of Environmental Psychology*, 29, 235-245.

van der Land, M. & Doff, W. (2010). Voice, exit and efficacy: dealing with perceived neighbourhood decline without moving out. *Journal of Housing and the Built Environment*, 25, 429–445.

von Wirth, T., Grêt-Regamey, A., Moser, C., & Stauffacher, M. (2016). Exploring the influence of perceived urban change on residents' place attachment. *Journal of Environmental Psychology*, 46, 67-82.

Vorkinn, M., & Riese, H. (2001). Environmental concern in a local context. The significance of place attachment. *Environment and Behavior*, 33, 249-263.

Wakefield, S. E., Elliott, S. J., Cole, D. C., & Eyles, J. D. (2001). Environmental risk and (re)action: air quality, health, and civic involvement in an urban industrial neighbourhood. *Health & Place*, 7, 163-177.

Walker, A. J., & Ryan, R. L. (2008). Place attachment and landscape preservation in rural new England: a Maine case study. *Landscape and Urban Planning*, 86, 141-152.

Walton, K. L. (1990). *Mimesis as make-believe*. Cambridge, MA: Harvard University Press.

Ward K., & England, K. (2007). Introduction: reading neoliberalisation. In K. England, and K. Ward (Eds.), *Neoliberalisation: states, networks, peoples* (pp.1-27). Oxford: Blackwell Publishing.

Waterton, E., & Smith, L. (2010). The recognition and misrecognition of community heritage. *International Journal of Heritage Studies*, 16 (1–2), 4–15.

Wells, J. C. (2015). Making a case for historic place conservation based on people's values. *Forum Journal*, 29 (3), 44-62.

Wells, J. C. (2017). How are old places different from new places? A psychological investigation of the correlation between patina, spontaneous fantasies, and place attachment. *International Journal of Heritage Studies*, 23(5), 445-469.

Wells, J. C. (2020). The affect of old places: exploring the dimensions of place attachment and senescent environments. In D. Kopec, and A. M. Bliss (Eds.), *Place meaning and attachment: authenticity, heritage and preservation* (p.1-17). New York: Routledge.

Wells, J. C., & Baldwin, E. D. (2012). Historic preservation, significance, and age value: a comparative phenomenology of historic Charleston and the nearby new-urbanist community of I'On. *Journal of Environmental Psychology*, 32, 384-400.

Wells, J. C., & Stiefel, B. L. (2019). *Human-centered built environment heritage preservation, theory and evidence-based practice*. London: Routledge.

Wheeler, R. (2017). Local history as productive nostalgia? Change, continuity and sense of place in rural England. *Social & Cultural Geography*, Vol. 18, No. 4, 466–486.

Whittington, V. (2020). Bicentenaries and belonging: public heritage of the lower Blue Mountains and the politics of place attachment. *Journal of Community Archaeology & Heritage*, 7:1, 54-72.

Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis*. New York: Springer-Verlag.

Williams, D. R. (2014). Beyond the commodity metaphor, revisited e some methodological reflections on place attachment research. In L. C. Manzo, and P. Devine-Wright (Eds.), *Place attachment: advances in theory, methods and applications* (pp.89-99). London: Routledge.

Williams, D. R., Patterson, M. E., Roggenbuck, J. W., & Watson, A. E. (1992). Beyond the commodity metaphor: examining emotional and symbolic attachment to place. *Leisure Sciences*, 14, 29-46.

Williams, D. R., & Roggenbuck, J. W. (1989). Measuring place attachment: some preliminary results. In *Paper presented at the session on Outdoor Planning and Management, NRPS Symposium on Leisure Research*, San Antonio, Texas.

Williams, D. R., & Vaske, J. J. (2003). The measurement of place attachment: validity and generalisability of a psychometric approach. *Forest Science*, 49, 830-840.

Woosnam, K. M., Aleshinloye, K. D., Ribeiro, M. A., Stylidis, D., *et al*. (2018). Social determinants of place attachment at a World Heritage Site. *Tourism Management*, 67, 139-146.

Yin, R. K. (2013). Validity and generalization in future case study evaluations. *Evaluation*, 19(3), 321–332.

Yin, R. K. (2018). *Case study research and application (Six Edition)*. London: Sage Publishing Inc.

Zhang, R., & Smith, L. (2019). Bonding and dissonance: rethinking the interrelations among stakeholders in heritage tourism. *Tourism Management*, 74, 212-223.

Zia, A., Norton, B. G., Metcalf, S. S., Hirsch, P. D., *et al*. (2014). Spatial discounting, place attachment, and environmental concern: toward an ambit-based theory of sense of place. *Journal of Environmental Psychology*, 40, 283-295.

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, 99(3), 432-442.