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I happn to Like New York: An Exploration of the Relationship Between Dating Apps and Urban Users' Sense of Place

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Abstract / Abstrakt

Smartphones are continually creating new forms of interaction, coordination, and exchange in and through cities. These immensely popular portable devices weave themselves into the fabric of everyday urban life, becoming part of that very fabric. Within this context, the smartphone has become an important interface with the urban space, due to its ability to wirelessly connect users to people, places, ideas, and information. Location-based applications such as Google Maps, for example, enable users to access new layers of information about urban spaces in situ, offering them a transformed experience thereof. Scholars from a range of academic disciplines have, over the last ten to fifteen years, sought to understand the ways that smartphones affect people's relationships to place and space, with the vast majority focussing on orientation and wayfinding applications (or 'apps'). The aim of this thesis is to determine whether a different kind of application—namely, a dating app—influences urban users' sense of place. Due to the lack of research in this area, an exploratory approach was chosen for this thesis, with a methodology based on semi-structured interviews. It was found that though smartphones may, on the whole, distract people from their immediate environment, location-based dating applications allow users to explore urban spaces in remarkable new ways. By offering insights into the cultural dynamics of cities, these applications enable a greater awareness of one's social surroundings and contribute to an enhanced sense of place for the user.

Smartphones schaffen ständig neue Formen der Interaktion, Koordination und des Austauschs in und durch Städte. Diese immens beliebten tragbaren Geräte fügen sich in das Gefüge des städtischen Alltags ein und werden Teil eben dieses Gefüges. In diesem Kontext ist das Smartphone zu einer wichtigen Schnittstelle mit dem städtischen Raum geworden, da es in der Lage ist, NutzerInnen drahtlos mit Menschen, Orten, Ideen und Informationen zu verbinden. Standortbasierte Anwendungen wie beispielsweise Google Maps ermöglichen es NutzerInnen, vor Ort auf neue Informationsebenen von städtischen Räumen zuzugreifen und ihnen eine veränderte Erfahrung davon zu bieten. WissenschaftlerInnen aus verschiedenen akademischen Disziplinen haben in den letzten zehn bis fünfzehn Jahren versucht zu verstehen, wie Smartphones die Beziehungen der Menschen zu Ort und Raum beeinflussen, wobei sich die überwiegende Mehrheit auf Anwendungen (oder "Apps") zur Orientierung und Wegfindung konzentrierte. Ziel dieser Arbeit ist es festzustellen, ob eine andere Art von Anwendung—eine Dating App—das Ortsempfinden der städtischen NutzerInnen beeinflusst. Aufgrund von fehlender Forschung in dem Bereich wurde für diese Arbeit ein explorativer Ansatz gewählt, dessen Methodik auf semi-strukturierten Interviews basiert. Es wurde festgestellt, dass Smartphones zwar im Großen und Ganzen Menschen von ihrer unmittelbaren Umgebung ablenken können, dass ortsbasierte Dating Apps es den NutzerInnen jedoch ermöglichen, städtische Räume auf bemerkenswert neue Arten und Weisen zu erkunden. Indem sie Einblicke in die kulturelle Dynamik von Städten bieten, ermöglichen diese Anwendungen ein größeres Bewusstsein für die eigene soziale Umgebung und tragen zu einem verbesserten Ortsgefühl der NutzerInnen bei.

Contents

Chapter 1: Introduction

1.1 Background and context

The broad purpose of this thesis is to examine the role smartphones play in cities and urban life. Today, these devices are near-ubiquitous, used by approximately 270 million people in the United States alone (Statista, 2020). Through smartphones, users can communicate with people in far-flung places, access all manner of information, and upload their own data. Not only this, location-aware applications (or apps) now deliver content relevant to the user's physical location, marking a shift in perspective from 'anywhere, anytime' computing to 'here and now' computing (Kitchen, 2014). This place-specific content can include navigation information, news articles, Facebook posts, Instagram tags, Google Maps reviews, and so on. Researchers have, since the early 2000s, explored how smartphones and location-awareness may influence urban processes, producing fascinating theories that are elaborated in the forthcoming discussion. But besides exploring the historical development and social significance of smartphones, as many have done already, this thesis is mainly interested in the conditions that arise when these devices become part of the everyday lives of urban dwellers.

It is without question that smartphones are creating new forms of coordination, interaction, and exchange in cities. Now carried in most people's pockets, smartphones weave themselves seamlessly into the fabric of everyday life, becoming part of that very fabric (Pieber & Quan-Haas, 2019). In doing so, these devices have all but eroded the divides between physical and digital worlds, which were more apparent with the 'fixed' Internet. Two decades ago, one had to sit down

in front of a static computer and dial a connection to the World Wide Web, giving one the feeling of 'entering' a new realm or environment. This situation has changed completely: smartphones are now portable and wirelessly connected to the Internet, so users often do not perceive physical and digital spaces as separate. Indeed, it is now common for scholars to speak of the relationship between the physical and the digital—or, the real and the virtual—as a new, *hybrid* space (de Souza e Silva, 2006).

The fields of place-based digital information that users access via smartphones do not constitute separate virtual spaces. Quite the opposite: digital information now becomes *part of* the spaces it describes, interwoven with its sense of place (de Souza e Silva & Frith, 2010). Consider, for instance, a smartphone user standing in a city square. This person could at once investigate the space's historical significance; check reviews of its restaurants and bars; locate the nearest public transport interchanges, or view automobile traffic flows in and out of the area; read social media posts tagged to that particular spot; and see if any single people are nearby for a potential date. The smartphone has become an important interface with the space of the city, due to its ability to wirelessly connect people: to places, to other users, and to all kinds of information (Pieber & Quan-Haas, 2019). In that regard, smartphones provide additional layers of information to the urban spaces people inhabit at the times they inhabit them, offering users a transformed experience thereof.

Approaching from an urban studies perspective, this thesis focusses on the smartphone in an attempt to better understand how—contrary to the argument that these devices disengage people from space—smartphones enable a greater awareness of one's social surroundings and an enhanced sense of place for the user. Cultural media (books, newspapers, televisions) have been used as

interfaces with the material world for centuries; however, significant changes to this process have emerged with newer technologies, especially smartphones. Today, the average smartphone features Global Positioning Systems (GPS) technology; a digital compass and accelerometer; Wi-Fi connection; a camera, with audio and video capturing tools; and a high-resolution, touch screen interface. These capabilities, combined with those of third-party applications (e.g. Google Maps, Wikipedia, Facebook), provide users with remarkable new ways of seeing and interacting in cities.

Social theory on place and space was drawn upon by the researcher to explain the complexity of human relations with—and within—cities. Works by Henri Lefebvre, Michel de Certeau, and Doreen Massey proved instructive, and are discussed in detail in Chapter 2. For this introductory chapter, the work of Lefebvre on place and space is stated in brief. Lefebvre saw space as inherently social and transformative, distinguishing between three separate, but interconnected, levels of social space. Firstly, *perceived* space corresponds to the material spatial practices enacted by members of society. Secondly, *conceived* space refers to the ways that space is understood by scientists, planners, and architects, and represented in language, theory, maps, and communications systems. And lastly, *lived* or *representational* space is that which is passively experienced by inhabitants and other users (Fuchs, 2018). This trialectic draws attention to the relational and dynamic nature of space. For Lefebvre, space was not fixed or unchanging; rather, it was "socially produced, and hence, [could] be contested, reimagined, and remade." (Mills & Comber, 2009: 412)

Smartphones and their influence on hybrid urban spaces arguably represent an extension of Lefebvre's logic: beyond simply accessing or using the digital representations of place these devices provide, users can actively contribute to and edit this information (Zook & Graham, 2013). Never before has it been so easy to produce, consume, and contest the meanings of places. Drawing on

these ideas, the nature of which are sociological, this thesis seeks to better understand how smartphones alter the ways people perceive cities. The reading of place and space that underpins this thesis is a broad one, encapsulating not just the physical environment of the city, but also the various social influences that determine the reproduction of urban space and the ways it is experienced by people (Massey, 1994). Digital cartographic interfaces (often built into wayfinding, social networking, and dating applications) are of particular interest here, because of their potential to "mediate and re-orient our relation to, and understandings of, the cityscapes through which we and our data trails move." (Verhoeff et al, 2017: 299)

1.2   Purpose of thesis

Primary sources estimate that the number of smartphone users now numbers approximately 3.5 billion, or 45% of the global population. And, according to research from RescueTime (one of many apps for iOS and Android created to monitor smartphone use), Western users spend an average of three hours and fifteen minutes on their smartphones every day, with the top 20% of users spending upwards of four and a half hours (Matei, 2019). From the moment they wake up, people now use smartphones to do almost everything, from coordinating their schedules; to presenting themselves on social media to friends and relatives; to shopping for clothes and groceries. It is now widely acknowledged that smartphones negatively affect specific cognitive processes, blunting logic and reasoning; weakening memory; and reducing attention span (Maxted, 2017).

It is often claimed that smartphones distract and disengage people from the world around them, degrading their spatial cognition. Kupfer (2007), for one, argues that smartphones give rise to feelings of loneliness and 'urban alienation', whilst others, drawing on the augments of Relph

(1976), have suggested that mobile media contribute to a sense of 'placelessness'. These concerns intensified following the emergence of the Internet. Many thought this new medium would allow people to be everywhere all at once, thereby lessening the importance of being in any one place at a particular time. These sentiments were echoed in a 1994 television advertisement featuring a 12-year old Anna Paquin (*True Blood*), which described the new "Information Super Highway" (the Internet) as a road that will connect all points on the planet with no speed limit: "It will not go from here to there. There will be no more there. We will all only be here." (MCI, 1994)

In spite of this, it could be argued that smartphones improve users' awareness of their surroundings by facilitating deeper and more prolonged interactions with places. For example, social media applications with location-based features, such as Facebook, Twitter, and Instagram, enable users to assign meanings to places and create place attachment through 'check-ins' and geotags. This geotagged information can be retrieved by other users whilst at the location. By allowing users to provide place-based information and share experiences, smartphones arguably expand the meaning of places. And, as Özkul (2015: 112) states, "[n]o matter how mobile our everyday lives have become, we continue to value places, remember what they mean to us, identify ourselves with them, and communicate our identities through them." (Özkul, 2015, 112)

As a further matter, smartphones may enhance one's awareness of the *complexity* of urban places, because users can explore different aspects of a city that are not explicitly there in its visible fabric (Özkul, 2015). As Verhoeff et al (2017: 299) point out:

> *Every day, users discover transformative ways of using screens and mobile devices that encourage them to cast a curious, potentially critical perspective on the given world. But media are not mere refractors; they are not static scrims that interrupt the connection between subject and environment. Instead, they are generative, responsive*

interfaces that invite interaction across their surfaces and, by means of their connections, modify the lived environment. In so doing, they change the subjectivity of digital denizens by inculcating new historical, social, and infrastructural—that is, critical—awareness.

Do smartphones distract users from the 'real world'? Or, do they offer fresh perspective on urban places, thus enabling people to understand them more deeply? These questions, arising from the literature, guided this thesis.

As stated above, a growing body of research on smartphones has provided evidence of their effect on issues such as information retention (Maxted, 2017), navigation practices (de Souza e Silva & Frith, 2010), and public sociability (Gordon & de Souza e Silva, 2011). A small number of scholars have also sought to understand how location-aware smartphone apps affect urban users' relationships to place and space. However, most of these have examined wayfinding apps such as Google Maps and Uber. This thesis examines whether a different kind of app—a dating app— influences the way urban users perceive cities.

1.3   Research problem and question

Research problem

At the time this project began, few studies had attempted to draw out the social and urban implications of dating app use. Thus, the initial aim of this research was to provide some sort of qualitative evidence as to the influence (or lack thereof) of dating apps on urban users' perceptions of place and space. However, after an initial scan of the literature, it became clear that a scope as conceptually broad as this would be unviable for this thesis, because place and space (when

considered together) are vast ideas. Every scholar seems to have their own ideas about what place and space are, how they develop, and the factors that influence them. Additionally, the term 'perception' is seen by some academics as problematic when discussing people's relations with place, due also to its vagueness. There are a plethora of different concepts to describe people's relationships to place: place perception, place attachment, place identity, place dependence, and so on. Choosing the correct one(s) (i.e. the correct concepts, or analytical tools) was vital, as this would, to a considerable extent, define the outlook and scope of the thesis.

After further reading, the concept of sense of place emerged as a suitable analytical tool. Sense of place is often defined as one constituent of the broader phenomenon of place and refers to the thoughts, feelings, memories, and attachments one has towards a place. The concept of sense of place is highly relevant within the field of urban studies (see Chapter 2), and, by acting as the 'dependent variable' (i.e. the variable on which dating apps' influence are measured), allowed the scope of this research to be narrowed to a practicable level. One of the early challenges of this research was finding a framework for measuring or testing the concept of sense of place. Bott's (2000) framework fit these purposes well (see Chapters 2 & 3). Her work was essential to this research because it introduced a level of objectivity that would have been difficult to establish otherwise.

Research question

This thesis' research question arose from a body of literature that posits a relationship between digital media use and sense of place, the core arguments of which are well summarised by Mitchell Schwarzer (2010):

The contemporary convergence of mobile phone, camera, wireless Internet and satellite communication—the key ingredients of the digital handheld—accelerates the reconstitution of place from real, occupied space to a collage of here and there, past and present. But digital technology's effects do not only blast us out of place; they also bore us into the sights right in front of us—those in our viewfinder. Our sense of place is augmented by information wired from the World Wide Web. Part of the information comes from media conglomerates. Much of it streams at us from our social networks and online acquaintances. The information allows us to peruse unseen depths of the place we're in. We have the opportunity to gain a better or different sense of place anywhere we travel within the network's reach.

In addressing these issues, the following research question was posed:

RQ: In what ways, if at all, do location-based dating apps influence urban users' sense of place?

Academic theory on place and space; urbanism; and smartphones as locative is considered in relation to the case study of 'happn' (all lowercase): a dating app that uses the location histories of users to motivate them to meet. happn was selected mainly because of its large, predominantly urban user base (~70 million people) and novel interface (happn, n.d.). It should be noted that the analytical focus of this thesis is decidedly urban, in that its methodological and conceptual frameworks relate specifically to theories of global urbanism. It hardly needs to be said that the complex set of traits which make up different modes of life in cities are very different from those seen in 'rural' areas. Indeed, the size, density, and complexity of cities make possible forms of human interaction that would never emerge in small or isolated communities. Not only this, the introduction of smartphone technology and the onset of ubiquitous computing enable city dwellers to lead lives that are more diverse and interconnected than ever before.

Simmel, in *The Metropolis and Mental Life*, argued that urban dwellers adopt a blasé attitude, ignoring the people and spaces that surround them in order to protect their individuality and mental wellbeing. That smartphones contribute to said attitude is now widely regarded as true; however, on the contrary, smartphones may contribute to a greater awareness of one's physical and social surroundings and an enhanced sense of place for those that use them. These devices allow users to explore hybrid urban spaces in remarkable new ways, offering deep and unprecedented insights into the social dynamics of cities: a new mediation of urban spaces through digital technology (Verhoeff et al, 2017). The next sections will explicate some of the new relationships emerging between people, technology, and place.

1.4   Key concepts and definitions

The concepts of place and space; urbanism; and smartphones as locative media present many opportunities for research across a range of academic disciplines. And though the concepts of place and space have been intensively studied over the last five or so decades, the literature on locative media is still relatively new. For clarity, this section will provide definitions for a number of crucial concepts.

Place and space

The terms place, space, and sense of place are foundational to this study, and the discipline of urban studies more broadly. Cresswell (2009) defines *places* as meaningful sites that combine location, locale, and sense of place. The term *location* refers to a set of identifiable coordinates on the Earth's surface, whilst *locale* refers to the material setting for social relations, including the buildings,

streets, green spaces, and other tangible aspects of place. Additionally, places comprise all the material things that pass through them: from people, to vehicles, to commodities. Lastly, *sense of place*—the focus of this thesis—is that which gives space meaning, including the memories, feelings, attachments, and associations one ascribes to a particular location (Cresswell, 2009). In any place on Earth, one encounters a combination of materiality, meaning, and practice, which together make up the place and moderate one's experience of it. So, to sum up, a place is more than just a dot on a map; "it is the location plus everything that occupies that location seen as an integrated and meaningful phenomenon." (Relph 1976: 3)

In everyday situations, the terms place and space are often used interchangeably, or synonymously with words such as area, environment, or landscape. Human geographers, though, have largely sought to differentiate between place and space, suggesting that they are separate but interrelated concepts. Important here are two different strands of thought: "on the one hand, those humanistic accounts that emphasise the 'sense of place' immanent in different settings, and, on the other, those Marxist and materialist accounts that explore the relations of domination and resistance played out across different spaces." (Hubbard, 2005: 41) The former (e.g. Relph, 1976; Tuan, 1977) have focussed on the embodied experience of *place*, whilst the latter (e.g. Lefebvre, 1974; de Certeau, 1984; Massey, 1994) emphasise the importance of *space* as socially produced and consumed. As mentioned earlier, Lefebvre (1974) argued that space is 'made-up' through a three-way dynamic between perceived, conceived, and lived space (Purcell, 2003). Here, "place emerges as a particular form of space, one that is created through acts of naming as well as through the distinctive activities and imaginings associated with particular social spaces." (Hubbard, 2005: 42)

Sense of place—a distinct component of place—is a human quality that arises from one's experiences of physical and social worlds (Pocock & Hudson, 1978). Human beings receive information about the environment through the senses, either directly—via sights, sounds, smells, tastes, and textures—or indirectly—via accounts or representations. For example, within any given city, one might notice the clothes of its inhabitants or its architecture; the sound of wildlife, road traffic, or foreign languages; the aroma of different foods; or the odours of cigarette smoke, alcohol, or urine. Indirectly, one might read a newspaper article on crime in the area, speak with friends about the city's social life, watch a film set in a neighbouring province, or look at old pictures taken in a nearby town. A person's knowledge of all of these things—indeed, the entirety of their life experience—is employed when he/she/they encounter (or re-encounter) a city and attempt to make sense of the experience (Farrelly, 2017). "What begins as undifferentiated *space* becomes *place* as we get to know it better and endow it with value […] the ideas 'space' and 'place' require each other for definition." (Tuan, 1977: 6; emphases added).

Sense of place is not simply a positive, negative, or neutral feeling towards a place. It comprises more than that, derived as it is from the totality of one's life, and may take myriad forms based on individual perception (Özkul, 2015). Over time, with new influences and experiences, sense of place becomes "richly textured—a nexus of past and present that is connected and networked; it is an ever-shifting terrain of histories and narratives (personal and shared), interactions and transactions, disseminations/dispersals, and arrivals." (Verhoeff et al, 2017: 95) Unsurprisingly, it is often the people with whom one comes into contact that dominate one's sense of place. Sometimes these people are friends and family, but for the most part, and particularly in public spaces, "the individuals who affect us are ones that we repeatedly observe and yet do not directly interact

with" (Paulos & Goodman, 2004: 1); in other words, one's familiar strangers (Milgram, 1977). A progressive conceptualisation of place, as expressed by Cresswell and Massey, underpins this study.

Smartphones as locative media

Smartphones are digital mobile devices used to place phone calls, send instant messages, browse the Internet, navigate using GPS, and run third-party apps (Frith, 2015). Through smartphones, billions of people can digitally exchange information in real-time whilst moving through urban spaces. These devices have enabled a dynamic relationship between users and the Internet, embedding it in their everyday lives and activities (Gordon & de Souza e Silva, 2011). The possibility of an 'always-on' connection when one moves through a city has the potential to transform one's experience by enfolding digital information inside the present context (de Souza e Silva, 2006). As such, the borders between digital and physical spaces have in the Age of the Smartphone become blurred. Equally, the notion of the web as a metaphorical city has given way to the reality of the web as *part of* the city (Gordon & de Souza e Silva, 2011).

Smartphones are now widely considered to be an interface with hybrid spaces, described by Harrison and Dourish as a new type of mobile space "which comprises both physical and virtual space." (1996: 6). Hybrid space is a useful theoretical tool because it "refuses the urge to separate location-based digital information from the physical place it describes." (Frith, 2015: 8) Indeed, smartphones add an important element to the way we interact with digital information: physical location (Gordon & de Souza e Silva, 2011). They do so because smartphones are an example of the powerful new phenomenon of *locative media*. Locative media refers to any form of media (from smartphones to in-car GPS displays) that feature location-awareness: that is, a device's ability to

locate users in physical space and provide them with information about their surroundings (Frith, 2015). Not only this, many smartphone apps allow users to assign meanings to places by attaching geo-annotations (i.e. geotags) to locations which others can then access. These apps include everything from mapping services such as Google Maps to social networking tools like Instagram.

Smartphones enable people to create and consume geolocated information, and, in doing so, foster bidirectional relationships between people and place (Farrelly, 2015). When a person opens an app to provide themself with information about their surroundings, they are accessing layers of digital information that are "intertwined with the physical space they experience." (Frith, 2015: 3) Similarly, applications that enable users to attach geographical coordinates to pictures, videos, sounds, and other digital information allow them to embed social knowledge into the fabric of the city. And more than just augmenting physical *space*, digital information becomes a part of it, interwoven with its sense of *place* (Gordon & de Souza e Silva, 2011). In sum, location-aware smartphones have the potential to impact not only the types of digital information people access but also the very ways that they engage and understand cities. But questions remain: do smartphones contribute to, or detract from, awareness of one's surroundings? How do different applications and interfaces affect this? The following section expands on these issues through the case study of happn.

happn, and other dating apps

happn continuously collects users' location traces as they move around, recording with whom they have 'crossed paths' (i.e. overlapped with, within 250 meters). These profiles are then suggested to the user and can be viewed singly and in succession or through an interactive mini-map which

condenses multiple profiles (sometimes hundreds) into 'hotspots'. For each person they cross paths with, the happn user can view two kinds of data: firstly, the number of overlaps (i.e. how many times the user has crossed paths with that individual over the last two weeks); and secondly, the time and location of the most recent overlap. Location data used in happn are both retroactive *and* longitudinal, leading Xiao et al (2017) to label it as a location-based, post-hoc dating (LBPHD) app. By contrast, the recently popular location-based, real-time dating (LBRTD) app model is based on matching individuals who are *currently* located nearby to one another (Xiao et al, 2017).
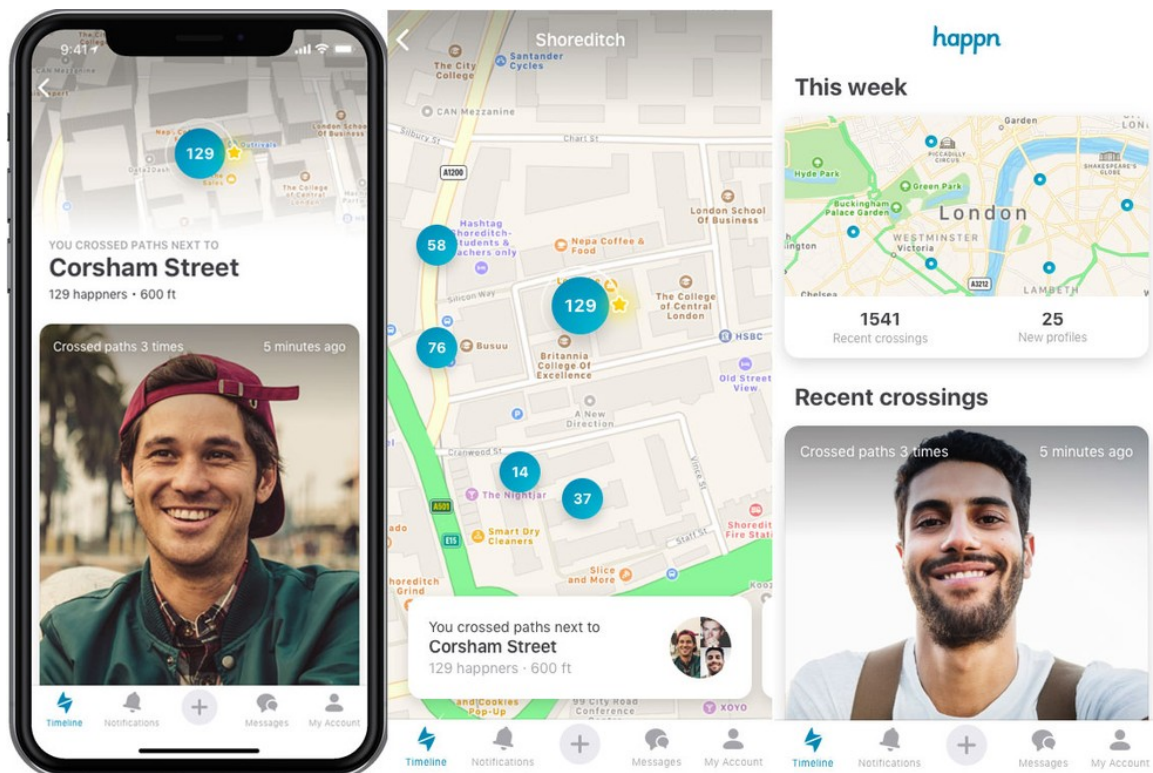
Figure 1: happn dating app, from the perspective of User A. **Left image**: User A has opened the profile of a male happn user with whom they have crossed paths. The app shows that User A has crossed paths with this person three times, the most recent of which was approximately five minutes ago. The location of their most recent overlap—Corsham Street—is also visible, as is the number of other happn users at that location. **Middle image**: User A has opened the mini-map. Here they can see the number of people they have crossed paths with at different locations, clustered into hotspots. **Right upper image**: The app shows User A all the people they have crossed paths with in the last week, breaking the data down into 'recent crossings' and 'new profiles'. **Right lower image**: One of User A's 'recent crossings'.

happn's distance setting is very small (≤250m) and cannot be adjusted, so users must get out and walk around if they wish to connect with others. The case is different with LBRTD apps such as Tinder, that allow users to configure their distance setting within a radius of 1km—100km (Figure 2). Raising or lowering this radius on Tinder causes the app to search across a larger or smaller area, which has the effect of increasing or decreasing the size of one's online dating pool. It is important to note that Tinder and other LBRTD apps users have no way of knowing precisely where other users are, only that they are located somewhere within a certain radius. The LBRTD app model thus co-situates users in a way that transcends and conflates socially defined places, such as neighbourhoods, districts, cities, and even countries (Blackwell & Birnholtz, 2015). To illustrate, if a Tinder user living in Maastricht was unsatisfied with that city's online dating pool, they could, from the comfort of their home, reach out to other users as far away as Brussels, Cologne, and Eindhoven (Figure 2).

happn, by contrast, is far more locationally precise. This LBPHD app capitalises on geolocation to match users together based on ≤250m overlaps, giving them the advantage of being able to distinguish between adjacent areas and socially defined places (e.g. neighbourhoods or districts) that may be very different in character or socioeconomic composition (Blackwell & Birnholtz, 2015). As stated above, happn continuously collects the location traces of users and uses them to generate overlap data. The app then provides one with a personalised map that is geo-annotated with hundreds of other dating profiles, which themselves are typically rich with information pertaining to—or suggestive of—one's background, occupation, and social class. Users can engage in a sort of 'digital people watching' through happn, in that they can observe what 'sort' of people inhabit specific streets, neighbourhoods, and districts. This grants them access to new layers of information about urban places, which may alter their perception thereof.
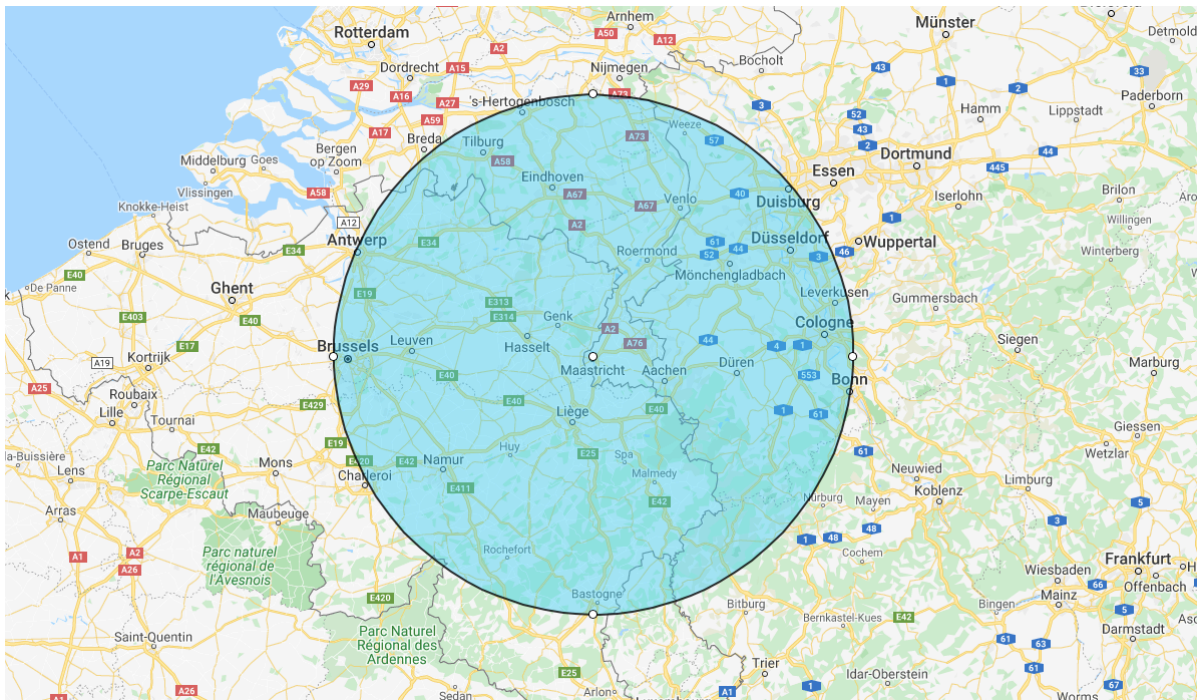
Figure 2: This image shows a circle of 100km radius, the centre of which is located in Maastricht (marking the location of the user). This radial distance mechanism allows Tinder users (and users of other LBRTD apps) to configure an extremely large catchment area (highlighted in blue), which in this case spans across three countries.

Figure 3: This image shows the area that would be captured (highlighted in blue) by a happn user on a walk through Copenhagen (route in black; starting point marked by the white circle). happn's maximum radius is comparatively tiny (≤250m), so the total area in which overlaps could feasibly occur is much smaller. In other words, the size of the 'net' the happn user can cast is comparatively tiny and dependent on their level of mobility.

To illustrate, here is a simple example. Imagine that a user signs into happn, opens their mini-map, and selects a hotspot. Based on the user's pre-existing sense of that place, they might have certain expectations as to what sort of people they would see in that area. However, if for whatever reason those expectations were not reflected in happn, the user's perception of that place might change. Crawford (2012) terms this process *defamiliarisation*: that is, the process of making familiar places strange. As she relates, "unlikely insertions or juxtapositions of uses can unsettle our existing perceptions of urban life […] opening up new possibilities and invigorating the idea of what a city can be." (Crawford, 2012: 84) A happn user might, for example, be disappointed to see a low proportion of attractive people in their home district, thinking of it as more 'boring' from that point onwards. Alternatively, they might be excited to see lots of young and 'creative-looking' people mingling around a nearby neighbourhood that they had previously perceived as dull. In these ways and more, location-aware smartphone apps like happn have the potential to re-represent urban places in new ways.

It should be noted that happn does not use algorithms to 'push' certain kinds of profiles towards one other, as in the case of Tinder. Instead, matchmaking is facilitated through the use of location data alone. happn's model operates on the assumption that individuals who frequent the same locations and inhabit the same areas of a city, are likely to share similar lifestyles and, by extension, personal histories, cultural interests, and character traits (Xiao et al, 2017). Notionally, then, individuals whose locations overlap probably have things in common, and as a consequence are more likely to be socially or romantically interested in one another. Whether overlap data alone is enough to establish a sense of social similarity has not been conclusively proven. However, happn likely promotes matching within the same (or similar) socioeconomic strata through its 'software-sorted geographies', because people with similar location traces (i.e. those who inhabit the same, or

similar, areas of a city) are more likely to share similar socioeconomic characteristics (Graham, 2005). Thus, as Veel and Thylstrup (2018) suggest, dating applications such as happn may work to repeat and reinforce geographical, gender and racialised inequalities.

Whatever the case, location-aware smartphone apps have become embedded in daily routines, pedestrian movement, and interaction with the familiar strangers inhabiting urban spaces. Fundamentally, "the mobile interface modifies what we pay attention to, what we 'turn to' and face (and turn away from) in the everyday lifeworld, and the modalities and duration of that attentiveness." (Hjorth & Richardson, 2017: 5) Hjorth and Richardson's point is evidenced by the widespread popularity of hybrid-reality games such as Pokémon GO!, which superimpose an imaginary playful layer on the cityscape, but perhaps more significantly by location-based mobile dating apps like happn, which offer users a new experience of urban space customised to their abilities and backgrounds. Through happn's mini-map, every user can visualise the contours of their own 'sociosexual landscape' overlaid on, and merged with, the urban space. The application may accentuate feelings of loneliness and alienation for some, or facilitate successful connections for others. It may also encourage exploration of urban space, but reinforce existing inequalities for those less socially and economically mobile.

1.5 Thesis overview

This thesis contains six chapters. The first chapter, Introduction, has provided context for the study; set out its background, purpose, and significance; posed one central research question; and explained some fundamental theoretical concepts. Chapter One also described in detail the case study through which the thesis' research question will be examined.

Chapter Two, Literature Review, identifies several texts that are foundational to the theory surrounding sense of place and smartphones as locative media. Key themes and debates are drawn out, in addition to several unresolved issues that require further academic attention.

In the third chapter, Methodology, the methods underpinning the study are outlined, including information regarding the choice of semi-structured interviews; the recruitment of participants; data collection and analysis; and so on. Importantly, Chapter Three also sets out in detail the analytical framework of the study, which is based on Bott's (2000) sense of place framework.

Chapter Four, Findings, gives information on the findings from each interview. Findings are discussed in three separate but interrelated sections: smartphone use and urban life; dating apps; and happn.

The following chapter, Discussion, considers the above findings in relation to the thesis' central research question. Theories on place and space; urbanism; and smartphones as locative media are revisited to provide further insight.

Finally, in Chapter Five, Conclusion, summations of the study's key findings and contributions are given. The limitations of the study are also identified, in addition to suggestions for potential further research.

Chapter 2: Literature Review

2.1 Chapter overview

This chapter will discuss literature relating firstly, to place and space, and secondly, to smartphones as locative media. The concepts of place and space are far older than smartphones, as the subsequent sections make clear. However, the emergence and increasing sophistication of digital technologies—of which smartphones are one—are beginning to alter the ways scholars think about place and space. The use of smartphones and other digital tools has become an essential part of everyday life for billions of people. Indeed, almost all human activities (communication, movement, consumption) are now mediated in some way by smartphones or other digital devices. These technologies add digital layers of representation to our understandings of place, which individuals can edit and contest (Zook & Graham, 2013).

This chapter begins by defining place and discussing the history of the concept of place, before delving deeper into its physical and social aspects. Two of this thesis' analytical pillars are then identified: firstly, a progressive conceptualisation of place, as detailed by Massey (1994); and Bott's (2000) sense of place framework, that was briefly mentioned earlier. These two components pave the way for much of what comes afterwards, conceptually and analytically. Then, in Section 2.3, the literature relating to smartphones as locative media is covered. Here, discussion highlights not only the salient points of this particular branch of research, but also how it feeds from, correlates with, and influences the scholarship on place and space. The chapter concludes with a summary and a

clear outline of firstly, where the gaps in the literature are, and secondly, how this research plans to

address some of them.

2.2 Place

> *I happen to like New York*
> *I happen to like this town*
> *I like the city air, I like to drink of it*
> *The more I know New York, the more I think of it*
> *I like the sight and sound and even the stink of it*
> *I happen to like New York*

> — Cole Porter (1930), *The New Yorkers*

The above quote—also seen in this thesis' title—is taken from a 1930s musical. In it, the character

sings about their memories of New York City, and the positive feelings they have developed for the

city's sights, sounds, and smells. Essentially, the song describes the ways that New York has

become meaningful to the character; in other words, how the city has become a *place*. According to

Cresswell, "a place is a meaningful site that combines *location*, *locale*, and *sense of place*." (2009:

169; emphases added) Places are created when locations and their spatial settings mix with human

ideas, values, and principles (Najafi & Kamal, 2011). Here, 'location' refers to a specific point in

space with a set of coordinates. 'Locale' means the material setting for social relations, including

the buildings, streets, green spaces, and other tangible aspects of place (Cresswell, 2009). 'Sense of

place'—the focus of this thesis—refers to the more nebulous meanings associated with place:

namely, the feelings, emotions, attachments, and memories a place evokes (Farrelly, 2017). Place

meanings can be personal or shared, though most are a combination of the two. When one sees the

word 'New York', for instance, a particular sense of place starts to arise regardless of whether one

has visited that place. Place meanings are derived from all manner of sources, including films, television, and literature (Cresswell, 2004).

In the seminal *Human Aspects of Urban Form*, Rapoport (1977) argues that places—in addition to physical features—include messages and meanings that people perceive and decode based on their roles, experiences, expectation and motivations. Firstly, and perhaps most obviously, places have a material structure. Think of Paris' buildings, boulevards, and parks, or its most famous monument: the Eiffel Tower. Completed in 1889 and rising over 300 meters, the Eiffel Tower has little to no function other than as a symbol; it is "an utterly useless monument." (Barthes, 1964: 5) But the Tower's lack of a predetermined function also makes it a pure symbol, "ineluctable because it *means* everything." (Barthes, 1964: 5; emphasis added) The Eiffel Tower is often the first thing that comes to mind when one thinks of Paris. It is deeply embedded within understandings of Paris as a *place,* symbolising what the city has come to represent internationally: namely, romance, culture, and luxury.

Places are also practiced. In other words, what people do in places is partly responsible for the meanings those places acquire (Cresswell, 2004). These practices can be mundane and ostensibly insignificant. In *The Practice of Everyday Life*, for example, de Certeau (1984) offers a cogent theoretical framework for understanding the production of urban space and the way it is 'written' through the everyday practice of walking. Places, in this respect, are "continuously *enacted* as people go about their everyday lives—going to work, doing the shopping, spending leisure time, and hanging out on street corners." (Cresswell, 2009: 170; emphasis added) On the other hand, practices of place can be highly significant or even historical. For instance, a person's perception of St. Peter's Square, Manchester is likely to change after they learn about the Peterloo Massacre

which took place there in 1819, even though the events are not reenacted daily. In sum, materiality, meaning, and practice are all interlinked in the construction of place.

A brief history of the concept of place

The origins of the concept of place can be traced back to Ancient Greece, to the writings of Plato and Aristotle (Cresswell, 2009). Plato developed the notions of *chora* (i.e. regions) and *topos* (i.e. the shape of the land surface); however, it was his student, Aristotle, who was fundamental in developing an abstract notion of place as a site of being or *becoming* (Farrelly, 2017). 'Progressive' concepts of place emerged in the late 1950s and '60s. At this time, humanist scholars began to examine people's lived experiences to deepen the concept of place. From the disciplines of geography and sociology, these included Relph (1976), Tuan (1977), and Rapoport (1977), though scholars working in other academic disciplines would also draw upon humanist conceptions of place and space to examine such things as urban planning (Jacobs, 1961; Whyte, 1980) and environmental psychology (Ittelson, 1978; Pocock & Hudson, 1978).

In the 1990s, the concept began to evolve once again, with post-structuralist scholars promoting more fluid, dynamic notions of place. Massey (1994), for one, argues against static or essentialised interpretations of place, suggesting that places are never singular nor frozen in time; instead, they are *processes*, with multiple identities. Subsequent scholarship by Graham (1998); Amin and Thrift (2002); Gandy (2005); and others have advanced the notion that cities are hybrid phenomena, combining people, technology, and nature in a series of interconnected life-support systems. Building on this, geographical research on digital networks has attempted to broaden understandings of the relationships between technology, place, and space. The work of de Souza e

Silva (2006, 2009, 2010, 2011, 2012) on locative media as interfaces of hybrid spaces has been particularly influential here. Smartphones, she argues, generate practices of *hybrid place-making*, wherein digital and physical spheres interact mutually and influence one another (de Souza e Silva, 2006; Carta, 2019). The next two sections will delve deeper into these ideas, exploring the physical and social aspects of place in isolation.

The physical aspects of place

Features of the built environment, including buildings, roads, parks, bridges, monuments, and waterways, can all foster a sense of place; one need only imagine their home street or neighbourhood in order to understand this (Tuan, 1977). As Lynch proclaims, "[e]very citizen has had long associations with some part of his city, and his image is soaked in memories and meanings." (1960: 1) In his seminal work on *The Image of the City*, Lynch (1960) analysed the physical features selected and remembered by urban residents. He argued that one of the most important conditions for a liveable and enjoyable city is a high level of 'imageability': that is, the ability of inhabitants to form a coherent picture of the overall structure of the city (Pocock & Hudson, 1978). His study was not expressly concerned with a sense of place and concentrated more on the common cognitive images shared by a city's inhabitants. Still, it provides some valuable perspective for this study.

Demonstrably, built settings can also create feelings of repulsion. Many places are not designed to engender positive attachment—at least, not for everyone (Cresswell, 2009). Much of the architecture, infrastructure, and urban engineering visible in the Western world was constructed to serve the interests of profit-making or built with money made from lopsided, exploitative economic

ventures (Mitchell, 2003; Smith, 1996). The Black Lives Matter (BLM) campaign has drawn attention to these issues in recent months. By tearing down a 19th-century monument dedicated to Edward Colston (1636-1721)—a slave trader—BLM protestors in Bristol demonstrated their fury with a systemic form of racism concretised in the city's buildings, monuments, and public spaces. A society's built environment arguably reflects its values, and for some groups (e.g. those subjected to racism), the presence of certain built elements may give rise to a sense of place repulsion or exclusion (Harvey, 2008; Relph, 1976).

Placelessness, as a further matter, can be engendered by homogeneity and sameness in the built environment (Relph, 1976). For example, in the last fifty years or so, neoliberal globalisation has encouraged mass production and consumption, which, in turn, has led to cultural homogenisation and 'McDonaldization' (Cresswell, 2009). These processes lessen the individuality and meaning of places. Indeed, humanistic geographers such as Relph (1976) and Tuan (1977) are particularly critical of suburbanisation, out-of-town shopping centres, and theme parks for these reasons. Disney World is often said to be the quintessential placeless location, "so inauthentic in its pastiche simulation of other cultural structures that no sense of place could develop there." (Farrelly, 2017: 37) Modern built settings can, in these ways, prevent a unique sense of place from developing.

The social construction of place

The physical and social aspects of place are interlinked, and cannot exist without each other. Rather than having a fixed identity, structure, or meaning, social constructivist scholars argue that places are in a permanent state of *becoming*, continuously made (and remade) in and through the practices to which they give rise (Lefebvre, 1974). "Thus", Farrelly summarises, "sense of place is seen as

socially shaped rather than being derived entirely by individual interpretation." (2017: 39) These arguments are echoed by Harvey, who asserts that: "[t]he first step down the road is to insist that place, in whatever guise, is like space and time, a social construct. The only interesting question that can be asked is, by what social process(es) is place constructed?" (1993: 5) When attempting to answer Harvey's question, it first makes sense to examine the cultural and social structures into which we are born. The following quote from Cresswell (2004: 30) is particularly instructive:

> *The meanings we ascribe to [places] come out of a social milieu dominated by Western cultural values and the forces of capitalism. They are produced by the media, by politicians and by people who live there. We might have read in the paper about riots in Tompkins Square Park and be (unreasonably) afraid to go there. We might see the graffiti, murals, cafés and shops and think it's an invigorating and diverse place to be. Whatever meaning it appears to have, there is little doubt that it comes from 'society'.*

Here, Cresswell argues that human beings do not create their own notions of place from nothing. Instead, they are born into predetermined social environments, each with unique cultural, political, and linguistic structures. Barnett and Casper (2001: 465) offer a clear explanation of this concept, which they call the 'social environment':

> *Human social environments encompass the immediate physical surroundings, social relationships, and cultural milieus within which defined groups of people function and interact. Components of the social environment include built infrastructure; industrial and occupational structure; labour markets; social and economic processes; wealth; social, human, and health services; power relations; government; race relations; social inequality; cultural practices; the arts; religious institutions and practices; and beliefs about place and community.*

These social structures are absorbed consciously and unconsciously as a person grows from childhood into adulthood, providing the lens through which a person eventually comes to see the world. Sense of place, then, is about more than one's feelings or preferences. It is derived from the

totality of one's experiences and lies, at one level, within a person's existential relationship to the world (Cresswell, 2004).

Every person has unique senses of place that are shaped by the events and processes that occur around them. In *The Practice of Everyday Life*, Michel de Certeau (1984) argues that space is 'written' through everyday practices. Places, in this analogy, are "continuously *enacted* as people go about their everyday lives" (Cresswell, 2009: 170; emphasis added). de Certeau read the built environment as if it were a script: "in relation to place, space is like the word when it is spoken, that is, when it is caught in the ambiguity of an actualisation." (1984: 117) In this analogy, *place* is that which is drawn out, mapped, and delimited by city planners, and is comparable to the structure and grammatical rules of a language. On the other hand, what de Certeau termed *space* is that which occurs when users negotiate places: when they spell out letters, articulate words, and formulate sentences. "The act of walking," he suggested, "is to the urban system what the act of speech is to language." (de Certeau, 1984: 98)

Additionally, de Certeau (1984) distinguished between strategies and tactics. *Strategies*, he argued, relate to static, predetermined places or structures, whereas *tactics* are the practices of everyday life which engage with, manipulate, or subvert this structure. De Certeau focussed on the act of walking, "whose irregularities and limited access to visibility creatively evade the organisations of a distantly surveying mode of domination." (Hardy, 2008: 30) Walking was considered to be fundamental: the essential urban experience. And if the city is a text that can read from above, as Roland Barthes (1964) suggested, walking constitutes the writing of that text. Following this analogy, de Certeau juxtaposed the map-like, God's-eye view of Manhattan experienced by standing atop the World Trade Centre with the lived and embodied perspective of the pedestrian immersed at

street level. On a day-to-day basis, he wrote, citizens "follow the thicks and thins of an urban 'text' they write without being able to read it. These practitioners make use of spaces that cannot be seen; their knowledge of them is as blind as that of lovers in each other's arms." (de Certeau, 1984: 93)

Seamon (1980) provides a similar analogy to de Certeau, using the term 'body-ballet' to describe the habitual movement of bodies through urban spaces as they carry out everyday tasks (such as walking, driving, exercising, and so on). These body-ballets become 'time-space routines' when they extend through considerable portions of time (Seamon, 1980). In a suitable physical environment, time-space routines and body-ballets coalesce, "creating a space-environment dynamic called a *place-ballet*." (Seamon, 1980: 159; emphasis added) The result of this, Seamon explains, "may be an environmental vitality like that found in the streets of Boston's North End or New York's Greenwich Village. [This] generates a strong sense of place because of its continual and regular human activity." (Seamon, 1980: 159) Indeed, "the meaning of a place may arise out of the constant reiteration of practices that are simultaneously individual and social." (Cresswell, 2009: 175) Places, in this sense, are not only practiced but *embodied*.

As well as visible social practices, stories, media, and other accounts and representations also influence sense of place. These include literature, poetry, film, television, news, and all forms of second-hand information one receives about a location. For example, when one thinks of the city of Baghdad, Iraq, certain meanings and associations arise. And though most Westerners would have no first-hand experience of this place, the thought of it is likely to evoke strong feelings for some. Imaginations of Baghdad carry negative associations, because media outlets, particularly newspapers, portray it as a place of war and danger. Buchanan (2009) explores this idea, arguing that a newspaper "is a cultural representation, creating an environment through which readers

experience and share the local." (Buchanan, 2009: 41) The nature of a newspaper's stories, and the language used by its reporters, contribute to a place's image and reputation.

Others have emphasised the socially constructed nature of sense of place as it is produced and sustained through personal interaction. Stokowski, for one, argues that places are "socially constructed, always in the process of being created, always provisional and uncertain, and always capable of being discursively manipulated towards desired (individual or collective) ends." (2002: 368) Whether they are aware of it or not, people *create* meaningful places through their everyday interactions, be they verbal or nonverbal. Indeed, observing people and making sense of their encounters—an activity often referred to as people-watching—is widely recognised as a form of place-based learning. "By analysing mere appearances and overt behaviour," Quadflieg and Penton-Voek elaborate, "people-watchers form intricate impressions about those they witness without directly getting to know them." (2017: 384) Not only this, witnessing social encounters between people can elicit far-reaching social impressions about the places to which those people belong. Observations of this kind "perpetuate meanings and reinforce *habitus* by confirming and validating symbolic meanings, refreshing memories, renewing rituals, and reinforcing myths and traditions." (Campelo et al, 2013: 156; emphasis added)

The concept of habitus, conceptualised by Bourdieu (1977), comprises socially ingrained habits, skills, and values. It represents "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: 86) The habitus represents the ways that power structures, cultural norms, and personal histories shape the body and the mind, and influence individual action (Gillespie, 2019). Put simply it mediates between place, body, and self (Casey, 1991). Habitus is a "way of

understanding how the body requires settled dispositions of various sorts—some social, others psychological, still others discursive—for its ongoing emplacement in the world." (Casey, 2001: 716) Habitus ultimately refers to the ways individuals perceive the social world around them and react to it. Through the notion of habitus, one can approach the concepts of place and space through a broader theory of society.

Massey's (1994) progressive approach to place also proved useful. She argues that places are inherently social; they are locations in which a multiplicity of influences and experiences combine to form an unstable whole. For Massey, places are neither static nor self-contained: "what gives a place its specificity is not some long internalised history, but the fact that it is constructed out of a particular constellation of social relations, meeting and weaving together at a particular locus." (1994: 154) Indeed, "[u]nderstanding place as open rather than closed, as dynamic rather than static, allows for the analysis of how the social construction of place happens from both the inside and the outside." (Frith, 2015: 17) The reading of place that underpins this study is based fundamentally on Massey's work, which itself arose from the theories of the other scholars mentioned in this chapter. Massey's ideas encapsulate not just the physical environment of the city, but also the various social influences that determine the reproduction of urban space and the ways individuals experience it.

Bott's (2000) sense of place framework

The literature examining space and place is extensive and highly complex. Many scholars from a wide range of academic disciplines have utilised these concepts, yet most fail to provide clear definitions in their work. One of the central challenges of this thesis was finding a comprehensive

framework against which sense of place might be objectively measured, in accordance with its central research question. Fortunately, Bott (2000) provides exactly this. Her items—that indicate the presence of a sense of place—are grouped under categories, such as the natural and built environments; sociocultural; existential; memory; wellbeing; and so on. In that, Bott recognises the multifaceted nature of places as they are read and experienced by human beings. Her framework proves that sense of place is a phenomenon that can be assessed empirically and not just abstractly.

Physical Setting Domain

1. Natural Setting: Does the setting have a presence of nature with sunshine (and shade)? Is there flowing water? Does it have trees and grass or flowers?
2. Built Environment: Are buildings made of native materials which are appropriate in colour and which fit the setting? Does the setting have attractive buildings?
3. Character: Is the setting clean, alive, peaceful, distinctive, harmonious, balanced, well-maintained, simple, spacious, and open?

Cultural Setting Domain

1. Inherent Social Relations: Is the area historic, and does it retain authenticity? Does it have a spirit of the people? Does it fit within the larger context of the area and support the activities?
2. Transactional Social: Does the setting offer a sense of belonging and provide opportunities for interaction? Does it offer civility and generate respect for the individual? Does the site have a distinct energy?

Person-Related Affective Domain

1. Significance: Is the site personally meaningful? Is it viewed as significant and valuable?
2. Existential: Does the site invoke a sense of connection or a sense of one's own identity? Are there feelings of attachment?
3. Memory: Is the setting familiar? Does it provide a sense of connection or nostalgia?
4. Aesthetics: Is the setting beautiful, aesthetically pleasing, or awe inspiring? Does it generate a positive sensory experience and feelings of appreciation?
5. Transcendental: Is the setting inspirational or magical? Does it offer a sense of the sacred, a *Spirit of Place*? Does it make one feel alive or connected to a higher power? Is there a sense of romance or strong emotions?

> **Person-Related Functional Domain**
>
> 1. Purposive: Does the setting meet expectations for what is needed? Does it support the role of what is intended?
> 2. Informational: Is the site or setting understandable? Is there a sense of direction, distinct landmarks, and is it easy to find one's way around in it? Does it make wayfinding seem intuitive?
> 3. Prospect: Does it appear that there are options or opportunities here? Does one feel like exploring, and is there a sense of mystery?
> 4. Refuge: Is the setting non-threatening? Does it have obvious boundaries? Does it offer shelter and a sense of refuge? Does the setting feel safe?

It is important to note that Bott intended this research instrument to be used in surveys, to assess whether different locations evoked a sense of place. However, the framework is adaptable and was reinterpreted slightly to fit the purposes of this thesis. The way this was accomplished is described fully in Chapter 3, but a short description is also given now. Fundamentally, Bott's research focusses on the relationship between human beings and places. She suggests a range of physical, cultural, and personal factors that, when applied to a given location, may indicate the presence of a sense of place. Her framework poses these factors as questions, which participants in her study were required to answer. Bott's framework is built around what she refers to as a 'positive' sense of place: in other words, those locational factors that produce positive thoughts and feelings. This thesis, by contrast, does not impose one type of sense of place; instead, it explores the components of sense of place as described by Bott, and the influence happn dating app may have on them.

2.3   Locative media

As section 2.2 demonstrated, one's sense of a place can be influenced by a wide range of physical, social, and personal factors, including air quality; architecture; historical context; day-to-day use; racial and ethnic homogeneity or heterogeneity; media coverage; and even one's character and

personality. These processes have, however, been jolted by the emergence of locative media. Locative media refers to any form of media—from smartphones, to smartwatches, to in-car GPS displays—that features location-awareness: that is, a device's ability to locate users in physical space and deliver relevant information. Smartphones are the focus of this thesis. These devices have dramatically increased the volume of information to which people are exposed. But this digital, place-based information is not a separate, virtual space that one can inhabit. Quite the opposite: it becomes *part of* the space it describes (de Souza e Silva & Frith, 2010). And within this context, smartphones and their applications provide additional layers of information to the urban spaces people inhabit whilst they inhabit them, offering users a transformed experience thereof. To quote Gordon and de Souza e Silva (2010: 172):

> *Our physical location determines the types of information we retrieve online, and the people and things we find around us. It is true that technologies have become location-aware, but it is also true that we have become more aware of our locations. We are more location-aware because we are connected in new ways through these technologies to the spaces and people around us. We can attach information to places, map our surroundings, and connect to people around us. Being aware of location means being aware of all the information and people that exist in that location. And it means making different use of that location.*

Thirty or more years ago, before smartphones and other digital media, a person's experience of urban space was entirely different from today. If one wished to experience a place, they would have to research it in libraries, newspapers, and magazines, or go there, walk around, and talk to people. By contrast, consider a smartphone user standing in a city square at the present moment. This person could at once research the space's history, use, and cultural significance; check reviews of its restaurants and bars; locate the nearest public transport interchanges, and plan a route to a different area; view social media posts tagged to that particular spot; and see if any single people are nearby for a potential date, amongst many other things. Moreover, applications that enable users to attach

geographical coordinates to pictures, videos, sounds, and other digital information allow them to embed social knowledge into the fabric of the city wherever they are. Mobile media have become an important interface with the urban space due to their immense popularity and ability to wirelessly connect users to people, places, ideas, and information (Pieber & Quan-Haas, 2019).

A good example of an early locative media project was Jabberwocky. Developed in 2002 by Eric Paulos and Elizabeth Goodman, two academics, Jabberwocky was a Bluetooth-based mobile phone application that allowed users to connect with nearby strangers. Each user had a unique digital tag or 'scent', that was detectable by other Jabberwocky devices. Every Jabberwocky device tracked how often familiar scents and tags crossed paths with its own, identifying and storing the familiarity of strangers (Thompson, 2017). The application did not disclose any personal information about users; rather, it sought to render public spaces more 'familiar' by merely making users aware of strangers they had crossed paths with more than once (Gordon & de Souza e Silva, 2011). Though nearly twenty years old at the time of writing, Jabberwocky demonstrated some of the ways that "urban computing can […] shift citizens' perceptions of interpersonal relationships in ways that were not possible before ambient technology." (Thompson, 2017)

Today, smartphones are the dominant locative medium, with applications such as Google Maps, Instagram, and Snapchat all incorporating forms of location-awareness. These types of programmes can map information because the digital data they receive from individuals are implanted with latitude and longitude metadata, meaning that they can be located relative to the position of the smartphone (Frith, 2015). The broad argument throughout this thesis is that smartphones increasingly influence the everyday lives of urban dwellers, including their patterns of movement and sociability, and, crucially, their perceptions or sense of place. Cities now exist in both physical

and digital forms, and through smartphones, digital layers of geolocated information have become increasingly intertwined in the construction of place (Zook & Graham, 2013). Wi-Fi connection, GPS tracking, Bluetooth pairing, and other smartphone capabilities create a layered richness to the maps and chats people near-constantly use, granting them the ability to experience urban places in new and unprecedented ways (Verhoeff et al, 2017). The next two sections will outline how specific locative media applications (both past and present) have sought to link the physical, the digital, and the social.

Information, place, and space

In 1996, Jim Spohrer—a computer scientist—envisioned a system called WorldBoard, which would use GPS to annotate physical sites with digital information. The following extract details Spohrer's (2012) original idea:

> *WorldBoard can be thought of as special paper that you can write on and place anywhere—floating in the air, on a wall, ceiling, floor, tree, rock, or surface of a lake. The paper stays put anywhere it's placed and only authorised people who want to see it can see it. This description of a WorldBoard sounds a bit like virtual post-it notes, and to some degree it is. However, a WorldBoard stretches over the entire planet so it's also like a planetary chalkboard for the 21st century. Furthermore, WorldBoard supports not only handwritten messages, but also dynamic media-rich Web pages, audio messages, and stereoscopic 3-D images. A WorldBoard is in some sense bigger than the World Wide Web because it allows cyberspace (the digital world of bits) to overlay and appropriately register with real space (the physical world of atoms).*

Spohrer suggested that notions of place might be altered by the use of location-aware technologies, a radical idea at the time. WorldBoard, he said, would allow users "to experience any information any in place, *co-registered* with reality." (Spohrer, 2012; emphasis added) And rather than merely labelling the physical space, Spohrer argued that the nonphysical, disembodied information would

become a part of it, bound up with its sense of place. These ideas speak to the broader themes of this thesis and to a longstanding human interest in hybrid space. Spohrer believed that by merging the physical and the digital, one's experience of space could be enhanced.

Another early locative media project, Urban Tapestries, was developed in 2002 by the UK-based art group Proboscis. They aimed to investigate how the combination of location-awareness and mobile technologies could enable users to share their knowledge, experience, and information, creating what they called "public authoring" (Proboscis, n.d.). The group were interested creating opportunities for an "anthropology of ourselves", by "adopting and adapting new and emerging technologies for creating and sharing everyday knowledge and experience; building up organic, collective memories that trace and embellish different kinds of relationships across places, time and communities." (Proboscis, n.d.) Urban Tapestries allowed participants to attach geographical coordinates to stories, videos, pictures, and sounds, weaving their knowledge into the fabric of the city (Gordon & de Souza e Silva, 2011). It was claimed that users would then experience an enhanced version of space, in which physical and digital information combined to produce something new.

Similar arguments can be made for currently popular applications like Wikipedia and TripAdvisor, that enable mobile users to access place-specific information and upload their own data. These tools expand urban places: not in a physical sense, but in terms of the traffic of information exchange and network activity. As put by Verhoeff et al (2017: 299):

> *The contours of place are established—and challenged, and refined, and blurred, and shared, and made again—in and through the practices of presence that mobile technologies and geomedia afford. Experience-based and location-oriented, such practices are enabled by, embedded in, and performed through maps and other*

cartographic representations. The resulting 'mappings' of what has been called performative cartography necessarily evoke dynamic, emergent, experiential, and transformational relationships with place. Place becomes richly textured—a nexus of past and present that is connected and networked; it is an ever-shifting terrain of histories and narratives (personal and shared), interactions and transactions, disseminations/dispersals, and arrivals.

The term 'mapping', as it is used here, relates to more than just cartography or processes of navigation. Indeed, mapping "has changed from something that can spatialise social information to something that can socialise spatial information. Once information is geolocated, it becomes the context and content for social interaction." (Gordon & de Souza e Silva, 2011: 28) Smartphone maps have become indispensable social tools, and now perform a wide range of functions.

Networking

It has often been said that human beings want to be aware of location because spatiality provides cognitive grounding for information and communication (Özkul, 2015). For example, when on the phone to a person, it is a common refrain to ask where they are. Knowing the location of the other person, in addition to what they are doing there, contextualises the interaction. The same is true for other digital media, and even for dating apps: knowing where someone lives, works, and socialises reveals information about their personality. And when a person creates a dating app profile and enables geolocation, they link themself to physical locations. In doing so, the person attaches social information (about themself) to the places they inhabit. This information—like any other geotag or geo-annotation—can then be retrieved by proximate others, who may be socially or romantically interested.

Many dating apps now incorporate some form of mapping feature; notwithstanding, these platforms tend to fall under the broad umbrella of 'networking applications', in that they are designed to connect people to other people. Location-based dating applications allow users to locate one another in physical space, communicate, and share information (de Souza e Silva & Frith, 2010). They are not unique in this sense, as nearly all social networking platforms (e.g. Facebook, Instagram, Foursquare) now feature some form of location-awareness. Where dating applications differ from social networking applications is in the kind of interactions they facilitate. Whilst dating applications connect proximate strangers pursuing social and romantic connections, digital social networks typically allow people who are already friends to broadcast their location via check-ins and geotags. Social networking platforms have incorporated different forms of location sharing over the years, with varying levels of success.

One of these, Loopt (2005-2012), was a location-based social network that enabled users to access and upload place-specific information, and share their location with others via background location tracking (see Figure 4). Loopt offered users 'insider information' about places, as well as the ability to ask questions in real-time to an online community: for example, "Is there a long queue? What's the best happy hour special?" (LooptMix, n.d.) In this way, Loopt combined mapping and informational services with social networking capabilities:

> *Loopt improves your experience in the real world. With Loopt, you can see (literally, see!) where your Loopt and Facebook friends are on the Loopt Friends Map. Also, your "I'm running late!" or "happy hour?" text messages are paired with your location (a 'Ping'), making meeting up an absolute breeze. Loopt can alert you with a "Friend Alert" when a pal is nearby, creating exciting moments of serendipity that, without Loopt, might never happen.*

Figure 4: Loopt. The programme's mini-map interface is visible, as are its location sharing capabilities. Users could enable background location tracking, at which point their current location would be visible to friends and strangers on the mini-map. Users could also 'check-in' at different locations, in a similar way to Foursquare and Facebook.

Figure 5: Several parts of the LooptMix interface, from the perspective of User X. **Left image**: People nearby to User X. Each person's name, age, sex, fans (the number of other users who have indicated that they 'like' this person), activity status, and distance are visible. **Centre-left image**: A conversation between User X and a nearby user, Christopher. This person is apparently a stranger, and, having been alerted of their location and enjoyment of basketball by the Loopt application, User X has asked Christopher whether he would like to join their sports game. **Centre-right image**: A list of nearby LooptMix 'Celebs'. These are the people in User X's area who have been 'liked' by other users the most (i.e. the most 'popular' users). **Right image**: User X's Loopt profile.

A further addition to Loopt was the LooptMix feature, which changed the app from a permission-based network into an open network. This allowed users to see all the other LooptMix users in the immediate physical environment—not just their friends (de Souza e Silva & Frith, 2010). Users could even adjust their settings if they wished to target a particular type of stranger (e.g. single women) (LooptMix, n.d.). LooptMix effectively allowed users to use Loopt as a dating application, adding to the programme's remarkable range of capabilities. As shown in Figure 4, the Loopt app allowed one to search for nearby strangers and view their precise location. Then, as demonstrated in Figure 5, one could contact these strangers and ask them place-specific questions, such as "would you like to join our basketball game?". Loopt was an example of a true locative media social network. The programme allowed users not only to locate one another in physical space and communicate, but also to use local knowledge to digitally annotate places (de Souza e Silva & Frith, 2010).

Snapchat (2011-present)—a more current example—is an instant messaging social networking app that enables photo and video sharing. Snapchat's popularity has exploded since its launch in 2011, with the app reporting ~218 million daily users in 2020 (Aslam, 2020). In June 2017, Snapchat released a new feature called 'Our Story', which allows users to submit 'Snaps' (photos and videos) to a publicly-accessible forum. By allowing users to create, browse, and view geotagged posts, Snapchat promotes user-generated, place-specific content (Juhász & Hochmair, 2018). These snaps are browsable on a map interface known as 'Snap Map', through which users can access heat maps that display where the highest number of Snaps are being uploaded. A high concentration of snaps usually indicates some sort of major event; for example, the Parkland shooting in Florida on February 14, 2018 (Constine, 2017). Users also have the option to share their location with friends. These users are represented on Snap Map by their 'Actionmoji' avatar, which displays their exact

location—down to the street address (Tait, 2017). In these ways, Snapchat combines informational and social networking tools, using geolocation to produce place-specific content and connect users across the world.

2.4   Chapter summary

This chapter has attempted to elucidate the concepts of place and sense of place through discussion of relevant literature. It began by offering a working definition of place as described by Cresswell (2009), before delving deeper into the physical and social aspects of place. The factors that may influence a person's sense of place were discussed, including smartphones. Next, the fluid, multifaceted nature of place was underscored. This section drew on the ideas of Massey (1994), which are essential to the overall analytical framework of this thesis. Massey argues that places are inherently social; they are locations in which flows of information and experiences combine to form an unstable whole. This progressive conceptualisation of place allows for an open, holistic view of the factors that may influence one's sense of place, whether they are structural or personal; global or local; singular or cyclical; digital or physical. Ultimately, a person's sense of a place—whether that be the neighbourhood in which they lived as a child, their nearest town centre, or a foreign city—is a continuous process, shaped by directly and indirectly by a lifetime of experiences (Cresswell, 2004).

The next portion of the chapter covered the literature relating to locative media. To recap, the popularity of the smartphone has exploded in the last ten years. Nearly every adult in the Western world now carries with them a device (or devices) that grant access to the Internet and the sum total of human knowledge. The informational power of today's smartphones is immense, and it is now

widely acknowledged that these devices have the potential to radically intervene in our understandings of place (Verhoeff et al, 2017). According to Frith, a leading place scholar, smartphones "show how physical places have begun to affect the mobile Internet and how the mobile Internet has begun to affect physical places." (2015: 3) Indeed, the various applications and projects detailed throughout this chapter show why the conceptual separation of the physical and the digital into two separate realms or spheres is no longer tenable. Smartphones merge the physical and the digital, creating what are known as hybrid spaces (de Souza e Silva, 2006). And, as stated earlier, the digital information people access within hybrid spaces is not external to that place; it becomes a part of its very fabric. Modern cities are in this way inseparably digital and non-digital; online and offline; virtual and real.

Since the time of Lefebvre, de Certeau, and Massey's writings, new technologies have altered people's relationships to place and space. In Google Maps, for example, one can view almost any location in the world on a map, through a satellite, or even from the street; locate themselves in space with extreme precision; generate directions to anywhere from anywhere; access all manner of place-related information; and upload their own data. Applications of this kind—and there are many out there—grant users a dual perspective: that of the God's-eye view *and* the blind lovers (de Certeau, 1984). Effectively, one can be "both a distanced spectator, reading the city and its teeming erotic life as an image, and a pedestrian moving on the pavement, creating and writing the city." (Veel & Thylstrup, 2018: 48) The writings of Lefebvre, de Certeau and the like are, of course, seminal; however, new theories of space and place are needed that take into account the remarkable social developments that digital technologies have brought about.

2.5 Gaps in the existing literature

The central thread of this thesis tying all its sections together is the argument that smartphones affect urban processes and shape users' sense of place. The examples detailed in this chapter have demonstrated just some of the ways this takes place. Mapping applications, like Google Maps, allow users to retrieve social information and embed their knowledge into the fabric of the city. This digital information becomes a part of the space it describes, interwoven with its sense of place (de Souza e Silva & Frith, 2010). Moreover, locative media social networks (e.g. Loopt) demonstrably change the ways users move through and interact in urban places. Other platforms combine mapping and networking capabilities. Instagram, for example, now works as a photo- and video-sharing platform; a blogging and streaming tool; an instant messaging service; and a news outlet. These different features exist side by side, blending through the app's seamless interface. Applications such as these provide a window into the social dynamics that characterise particular areas, influencing the ways those places are perceived.

The same could be said of dating applications like happn, which allow users to observe the different types of people that inhabit different areas of a city (i.e. people-watch). Indeed, by attaching dating profiles and all the personal information they contain to particular parts of a city's socioeconomic landscape, happn arguably generates a new form of place-based information. And it is probable, based on similar claims made in the literature, that this information influences urban users' sense of place. Little to no academic literature has, however, explored this possibility. The purpose of this thesis is to do so, and to highlight the enhanced awareness that dating apps arguably promote. These apps give rise to new relationships between people, technology, and place, transforming everyday urban landscapes into sites of encounter and surprise. Moreover, happn features an interesting

interface and matching mechanism that has never been seen before. By allowing users to visualise with whom they have crossed paths in real life (within 250m) on an interactive mini-map, happn invites people to cast a curious, potentially critical perspective on the world its interface reflects (Verhoeff et al, 2017).

Chapter 3: Methodology and Research Design

3.1 Chapter overview

In this chapter, the methodological underpinnings of the study will be outlined, in addition to other practical and academic considerations. This study is fundamentally an exploratory one; hence, qualitative methods of data collection and analysis were chosen. The chapter begins by explaining and justifying this choice, before detailing the specific methods used to answer the study's central research question. Semi-structured interviews formed the basis of the methodology. Interview transcripts were then subject to multiple stages of coding and analysis, which are elaborated later. This chapter will also discuss other elements of the research process, such as the recruitment techniques used.

This methodology was developed in discussions between the researcher and Mathieu van Criekingen as supervisor. The original methodology—which was based on field reports, semi-structured interviews, and cognitive mapping exercises—had to be altered due to complications caused by the coronavirus pandemic. With modifications to the initially proposed methodology, the interview process began in June 2020 and was completed by mid-August 2020.

3.2   Research approach

In academic research, quantitative methods are often employed when 'factual' data are required to answer a research question. Variables in quantitative studies tend to be relatively clearly defined, and research problems are usually unambiguous. An example of a typical quantitative study might be one that looked at a population's spatial distribution in terms of age or sex. By contrast, qualitative methods are used to answer research questions about experience and meaning, often from the viewpoint of the participant. These concepts are more slippery and require a different methodological approach.

The purpose of this research is to explore the relationship between location-aware smartphone applications and urban users' sense of place. It was clear from the beginning that the data the project sought to obtain would not be amenable to counting or measuring, or any style of quantitative collection. Locative media devices mediate amongst the various actors (people, objects, images, and information) engaged in the production of urban places. These processes are highly complex and could not be fully elucidated using a solely quantitative approach. Aside from recording usage statistics, quantitative data collection would offer little insight into participants' motivations for using smartphones, or their influence on sense of place (Pieber & Quan-Haase, 2019). These decisions were made after an extensive review of the relevant literature had been conducted. Only a small number of studies were found that explored the relationship between locative media use and users' sense of place, and most of these employed an exploratory approach. Hence, an exploratory approach was chosen for this study, the main goal of which is to provide a new perspective on an elusive phenomenon—sense of place—and its relationship to locative media and urban life.

Sense of place has been studied across many different disciplines, with scholars employing a range of qualitative approaches, including narrative analysis, content analysis, and ethnography. Locative media, on the other hand, are often studied through the lens of human-computer interaction theory, or other models that focus on the individual functionalities of devices. Such methods, valuable though they have been to other studies, did not fit the purposes of this research. This is due in large part to the fact that one's sense of a place—the thoughts, memories, and feelings one attributes to a particular location—is formed internally (Cresswell, 2009). Therefore, participants in this study had to be able to communicate their thoughts, feelings, and experiences freely. A methodology based on semi-structured interviews was chosen for these reasons.

3.3   Semi-structured interviews

Semi-structured interviews are widely thought of as useful for investigating complex behaviours, opinions, and emotions. This type of interview unfolds conversationally, allowing participants the chance to explore issues that are important to them. Krueger and Casey explain that this kind of interviewing is about talking, but it is also "about listening. It is about paying attention. It is about being open to hear what people have to say. It is about being nonjudgmental. It is about creating a comfortable environment for people to share." (2000: xi) This attitude was assumed by the researcher leading up to and during the interview process. Online dating practices and romance are highly personal topics, making sensitivity important in each interview.

Five people were interviewed, for around forty-five minutes to an hour each. Interviews were conducted on video calling platforms (Skype, Facebook). Each conversation began in more or less the same way, with the participant being greeted by the researcher, followed by some light

conversation about matters irrelevant to the thesis. After each participant had 'warmed up', the conversation was then steered towards online dating; if this could not be accomplished naturally, a polite question was posed by the interviewer about the participant's social life during the coronavirus lockdown. Participants were then asked to express their thoughts on smartphones and dating apps and outline their experiences using them. A semi-structured approach was utilised from roughly this point onwards. Participants all received similar questions from a predetermined interview framework but were also allowed to explore their thoughts and ideas. This approach felt natural and was effective as it enabled free and frank discussion.

Interviews generally followed a similar track. Each person discussed their thoughts on dating apps generally; their history and patterns of use; their experiences using happn; and their feelings about the relationship between dating app use and urban life. A fair amount of each discussion focussed on the dimensions of dating app use in situ; that is, how the experience of smartphone dating changes from place to place. Questions were structured in a way that encouraged participants to reflect on their experiences and feelings, rather than merely eliciting basic descriptions. Some participants offered anecdotes, including 'horror stories' they had experienced when meeting an individual in-person. Others were more reserved, treating the discussions as more academic and less personal. In both cases, interesting information was obtained by the researcher.

Recruitment of participants

During the recruitment process, selection criteria for participants were established first. These were as follows:

- Present or past happn users. Use of other locative media or location-aware smartphone apps was not a requirement; however, every participant had done so.

- Adults (over the age of 18) capable of providing informed consent to interview protocols.

- Competent English speakers.

Suitable participants were initially difficult to find. Requests for participation were posted on several Internet forums, with little success. The COVID-19 pandemic may have hindered efforts to recruit participants in this way, with people possibly too busy or distracted to respond. Furthermore, happn dating app—and its central mechanism, based on ≤250m overlaps—relies on the normal circulation of people in society. Needless to say, this was not the case during lockdown periods. So, after consultation with Mathieu van Criekingen, a small sample size of a minimum of five was agreed upon, taking these mitigating circumstances into account. Convenience sampling was then attempted.

Three participants were recruited from the researcher's existing social network. This was accomplished through posts on the social media websites Facebook and Instagram. A further two participants, unknown to the researcher, were recruited via snowball sampling. Participants were asked to recommend other people that might wish to take part in the study and to post small advertisements on their social media accounts, which their contacts might see and respond to. This strategy proved successful in procuring two more suitable participants and was an appropriate one for the modest purposes of this research. Moreover, a 'representative' sample was not a methodological objective for the project; with such a small sample size, this could never have been achieved. It is unclear whether a more extensive, more diverse, or more randomly-recruited set of

participants would have benefitted the project's aims. Data saturation would likely have occurred had five or ten more interviews been conducted.

Research tools

All interviews were recorded on the researcher's smartphone or laptop with permission obtained from participants. Transcription and coding were then conducted on a laptop. During each interview, different kinds of notes were taken. Firstly, timestamps were recorded at several points during each interview that were perceived by the researcher to be significant. This allowed those points in the interview recordings to be easily revisited, listened to, and examined. Secondly, because discussions were long and complicated, several important points of information were noted by hand during each interview so that if the discussion moved on, they could be revisited later. Finally, comments that participants expressed with particularly strong emotion, or that were repeated several times, were also noted by hand. The importance of these was considered later, during the data analysis phase.

3.4 Data analysis

This short section outlines the methods used during the data analysis phase of this thesis. Data analysis involved firstly, converting the interview recordings into text (i.e. transcription); secondly, applying a multi-step coding process to the data in order to extract emergent themes and patterns; and thirdly, summarising the mass of coded data and communicating its salient features. This process of analysis was carried out to establish what one might call the 'big picture'; in other words, the overall findings of the research.

Transcription

All interviews were carried out on the researcher's laptop through video call applications (Skype, Facebook). Permission to record the interviews was granted by each participant. Transcription was then carried out in two phases. The first phase, conducted using a paid online transcription programme (Wreally), captured the bulk of each interaction rather accurately. This programme automatically converted each interview to a text format, to then be processed by the researcher. The second phase of transcription involved a replaying of each interview, with the researcher simultaneously combing through the transcripts produced by the online programme. This was done to better organise and label each transcript; to note down inflexions, tones, and pauses; and to ensure that the programme had not made any mistakes. Finally, a small number of handwritten notes taken by the researcher during each interview were combined with their respective digital transcripts in order to condense all the thesis' findings.

Open coding

Before coding began, the researcher read through each transcript several times in order to establish a greater sense of familiarity with the participants' answers. These read-throughs also allowed the overall meaning of each answer and each conversation to be considered. Next, open coding was initiated. This process was unstructured, with no predetermined frames or labels. Codes were established as they emerged from the data, allowing the data to 'speak for itself'. This strategy proved effective, for it enabled a more open-minded approach and is known to reduce researcher bias (Auerbach & Silverstein, 2003). The purpose of this first phase of coding was to allow patterns and themes to freely emerge, which would be refined later on.

Focussed coding

A focussed phase of coding followed the initial open phase. At this point, some of the initial codes were split, some were linked, and some were merged, with the new codes effectively summarising the bulk of the data. After a new, refined set of codes had been produced and patterns in the data had been identified, relevant literature was revisited to link these to the broader themes of the research. Bott's (2000) sense of place framework was brought into consideration here—this was necessary to reorient and redirect the coding process towards the project's central research question. As stated earlier, the purpose of this coding process, and its combination with Bott's (2000) sense of place framework, was to contribute towards the overall analytical rigour of the thesis and its methodology. Much of the literature on sense of place is abstract and discursive to the point where it arguably becomes vague. Hence, an important aim of this research was to produce (and analyse) empirical evidence, insofar as this would be possible.

It was thought that this aim could be achieved through the use of a structured methodology, and multiple phases of progressively more focussed coding; however, this proved more difficult than anticipated. Though the initial phases of coding illuminated some interesting patterns and themes, it was at times difficult to establish concrete links between the data and Bott's (2000) sense of place framework. Links were made, though these were often based more on the researcher's reasoning and interpretation than, for example, direct overlaps in the specific language used by participants on the one hand and Bott on the other. With that being said, the links made between the interview data and Bott's (2000) framework—one of this thesis' main empirical tools—were far from tenuous, and ultimately produced a coherent set of findings. The process of analysis applied to the data had a

definite sense of empirical grounding, in that it arose from a predetermined sense of place framework.

To illustrate how this process took place, here are two simple examples. If a participant suggested that using happn (or another dating app) resulted in feelings of interest or excitement for a city or area, then this was coded as relating to Bott's "Prospect" category, under the "Person-Related Functional Domain" heading. This category (see Section 2.2) describes those aspects of sense of place that relate to feelings of excitement, opportunity, and mystery; hence, labelling the data with this code made sense. Put simply, if a participant's use of happn produced some or all of the feelings mentioned above towards a city or an area, it was concluded that the app must have influenced the participant's sense of that place. Similarly, if a participant expressed that happn had increased their capacity for social interaction, then this was coded as relating to Bott's "Transactional Social" category, under the "Cultural Setting Domain" heading. This category describes those aspects of sense of place that relate to feelings of belonging, opportunities for social interaction, and the 'energy' of a place.

From coded data to findings

After two stages of coding had been completed, the next step was to condense and reformulate this data into meaningful findings. The literature on place and space; urbanism; and smartphones as locative media was again revisited here, to help generate theoretical ties. The small sample size of this thesis allowed the researcher to consider each conversation in significant depth, breaking down patterns of meaning in the data and relating them to the broader conceptual themes of this research. Key ideas were written down as they arose, along with supporting quotes, theoretical ties, and

broader societal considerations. This process was time-consuming, for in order to tie together all the strands of the thesis and condense them into coherent segments, much thought and reflection was required on the part of the researcher.

3.5   Chapter summary

This chapter has elaborated the methods used to complete this exploratory thesis. It began by explaining and justifying the choice of methods, before outlining the specific elements that comprised each section of the methodology. As stated earlier, this methodology had to be revised, since the original methodology would have been impracticable—or, indeed, impossible—to carry out at this difficult time. With that being said, though, and in light of the difficult circumstances the global COVID-19 pandemic has created, the revised methodology proved effective. Positive and engaging conversations were held with a socially-diverse group of participants. Furthermore, the sample size, though small, yielded some interesting findings that are discussed in detail in the following section.

Chapter 4: Findings

4.1   Chapter overview

This chapter details the findings of this thesis. A total of five people participated, all of whom were students in their mid-twenties. Interviews lasted around forty-five minutes and generally followed a similar structure. Smartphones were covered first. Here, participants discussed their personal use of smartphones, their thoughts on smartphone culture, and how these devices fit into the grand scheme of urban life. Next, dating apps were discussed, and after that, happn. At this point, participants were given a chance to elaborate their thoughts on smartphone dating, and the role dating apps have come to occupy in society. This chapter follows a simple structure that is based on that of the interview conversations, which began broadly and then became more specific. All participants shared personal anecdotes as a means of explaining and contextualising their views. These stories were interesting to hear and added colour to each conversation.

4.2   Participant profiles

This short section provides some details about the five people who participated in this research. Of the five, three are male and two are female. All five are in their mid- or late-twenties and are currently students at different institutions around the world. Originally, two are from the Netherlands, two are from Mexico, and one is from Austria. The table below lists these details, for

future reference. Each participant has been given a pseudonym to preserve their anonymity. A random generator corresponding to each participant's country of birth produced these names.

Identifier	Pseudonym	Age	Sex	Occupation	Nationality
M1	Max	24	Male	Student	Netherlands
M2	Victor	24	Male	Student	Netherlands
M3	Karl	27	Male	Student	Austria
F1	Maria	27	Female	Student	Mexico
F2	Felipa	27	Female	Student	Mexico

All participants had used happn dating app in the past, but only one had used the app for an extended period of time (more than three months). All participants had used other dating apps (e.g. Tinder) more extensively, though not all in the same way. Some participants had used dating apps relatively infrequently, or in a more 'practical' manner (i.e. more efficiently, to meet certain needs). Others seemed to engage with the applications in a different way, using them out of a sense of social curiosity.

4.3 Findings

Smartphone use and urban life

As stated above, each interview began with a discussion of participants' smartphone use. Participants all agreed that smartphones have become essential to urban life; in particular, for navigation, social coordination, entertainment, and education. Maria stated that she has developed a

"dependence" on her smartphone, using it "basically for everything." She explained that smartphones are particularly important in new or unfamiliar places:

> *When you arrive in a new city you don't have a social circle, you don't have housing…*
> *So I think it begins even before moving to a new place, when you have to look for things.*
> *And I think in those moments, being connected with a cell phone is very relevant.*
> *Especially women that have arrived on their own. […] I think it gives you a certain*
> *reassurance that you're connected to other people, even though you might be alone.*

Similarly, Victor—having broken his smartphone a few years ago—described some of the difficulties that not having a smartphone can cause. Said difficulties amounted to a sense of social anxiety and disconnection for him: "for making agreements on where to meet, interacting with people online is really important. […] If something is changed, you need to know things right away… If you don't have a smartphone that's really tough." Within this context, Victor argued that mapping and wayfinding apps are extremely important. Not only to "not get lost", but also for a broader sense of orientation; an awareness of one's position and wider place within the city:

> *I like to get to know a new city… Now that I'm here, I want to see if there are interesting*
> *spots around me, how I can travel around, where I am located. So yeah, basically to*
> *look at myself.*

Without a smartphone, participants felt that this would be almost impossible. Felipa commented:

> *I always try to remember how it felt, how I used to locate myself before the smartphone.*
> *I am from Mexico City. So of course, the city is big, it is complex, it has more streets.*
> *And really, to be honest, I cannot remember how I was able to do that.*

Whilst acknowledging the usefulness of smartphones, Karl expressed a strong dislike for them, lamenting the dependence on smartphones observable amongst young people today: "Nowadays, your smartphone is like a part of your body—you cannot be without it. If it's not in your trousers, it

feels like something is missing." He did, however, state: "I think that smartphones have helped a lot to get people organised, and maybe some people have more security now… especially women."

Participants all thought that smartphones, in one way or another, make life in cities and urban processes more efficient. Maria explained:

> *If I want to go for a nice coffee, then I just Google 'coffee', and see the closest ones. […] And I know it takes 12 minutes or whatever it is. And then if I know I'm going to the university, I just check Google Maps again and I know that it will take me 22 minutes to cycle from there to the university at that time, because there's a bit more traffic.*

Victor communicated similar feelings, stating that the remarkable capabilities of smartphones allow him to explore facets of cities that he might not be able to, or would not have the confidence to, otherwise:

> *I used to use these maps that have walks spread throughout the city, with interesting spots, cool places for bars, and stuff like that. And I would just do this for walks or cycle around, find them on the Internet, and find something interesting or hidden. Like a short trip, in the afternoon or evening. And then afterwards, I would keep track of those places in my phone.*

All participants keenly expressed how much they value and enjoy the connectivity smartphones provide: to places, to information, and to other people. With that being said, each participant also communicated some negative aspects of smartphone use and dependence. Karl said that his smartphone makes him feel distracted, and less connected to the 'real' world:

> *You have this feeling very often: you are somewhere, enjoying the moment, in the moment, and then your brain tells you that you have to grab your smartphone and check something on the Internet, although there's no need to do that. […] I hate that feeling; it distracts me from life.*

58

Maria stated that she is trying to use her smartphone less, because using it too often makes her feel like her life is too predictable or "programmed":

When my day is all based on something that Google Maps told me, it's all very… calculated. So I think in that way we lose a bit of that human spontaneity. The phone helps us to programme our lives and activities, but it is also programming us as human beings, because we're just responding to what a machine is telling us. [...] I think we lose a bit of the curiosity to just see things as they are, because we're always seeing them through the lens of a phone.

Contrary to arguments made in the literature, all participants said they felt a clear delineation between their online and offline lives. Furthermore, most felt strongly that offline experiences are more valuable than online ones, and that whilst online experiences do have significance, offline experiences should be prioritised. Karl expressed a strong desire to reduce his smartphone 'screen time' (the time spent on one's smartphone):

If it were up to me I'd abolish them all I think… I feel like it's just impossible to escape right now, especially in the West. I'm thinking more and more that I might just have my smartphone for home, and connect it to Wi-Fi, then have an old mobile phone that can only do calls when I'm away from home.

To sum up, participants generally felt that whilst smartphones are extremely useful, they do also detract from one's experience of the physical, or 'real', world. All participants expressed dislike for the distraction and detachment that excessive smartphone use creates, and the culture of information overload these devices arguably give rise to. Furthermore, three of five participants signalled an intention to actively eschew smartphones in future in order that they might engage with their respective cities in a slower, deeper, and more meaningful way. Two participants lamented the way in which smartphones push users to consume images, information, people, and places. Here, Instagram was mentioned by several participants as a main culprit. Instead of provoking thought,

reflection, and imagination, this platform was criticised for promoting superficiality and self-absorption. Though these findings were not explicitly related to dating apps, they helped to contextualise each participant's engagement with said apps, and with smartphone culture more broadly. The following section deals with participants' use of dating apps specifically.

Dating apps

In addition to happn, participants had all used several other dating apps, including Tinder, Bumble, Hinge, OKCupid, and CandyDate. Participants had all used dating apps in more than one city, with three participants having used them in five or more cities. All participants said they had at times enjoyed using dating apps. Max, for example, has experience using happn, Tinder, and Bumble, and said that he has used dating apps for different purposes at different times in his life:

> *Sure, there's been times when I've been swiping a lot. Actually, during the lockdown period—I was really bored. It's not that I'm that active [on dating apps]; often it's more fun to just swipe around. Sometimes you have a fun chat, sometimes you're interested in someone, maybe you have a date with them. But it hardly ever gets to that situation where you actually meet up with somebody.*

Moreover, Maria recognised that dating apps now cater to people of all sexual and gender identities. She discussed the example of Feeld, a dating app designed for 'ethical non-monogamy' that is currently popular in Copenhagen:

> *There's quite a famous dating app here that a lot of people are using called Feeld. I think it's more of a progressive, liberal kind of thing because you can be more open about what you want: if that's an open relationship, or if you're in a couple, or something casual, whatever. So you can design the kind of relationship you want, and be more specific in that way.*

Three out of five participants stated that it is especially fun to use dating apps in new places. Victor said that this is firstly because it is exciting to see nearby singles in a new location, and to feel a sense of opportunity; and secondly, because dating apps tell one something about the character of a place and its inhabitants:

> *If you go to a new place, and, you know, you look at people and maybe get in touch with some people through the dating app. Then let's say you go to an artistic district, and you've seen people there and met some people that can tell you a bit more about the place. Through all those experiences you can learn a lot more about the city, and then depending on what kind of people you meet through the app, you're going to get to know different kinds of stories about the city. Or, just by looking at people. By looking at people you're looking at the city, because they represent the culture, and they represent the places where they live, or at least where they take their photos.*

Max expressed similar opinions on this matter, having used dating apps in four different cities:

> *Assuming that the people on the app are, like, somewhat of a good reflection of the people in that city, [dating apps] can give you a sense of their style and fashion; their social media and aesthetics; their general looks; that kind of stuff. And maybe as well, if you can get some personal information out of the profiles, some of the personality traits and cultural stuff that's trending in that country.*

All participants felt that location-based dating apps create certain opportunities: to learn about places and their inhabitants, to arrange new encounters, and to explore areas of a city that one might not usually engage with. Felipa communicated this in the form of an anecdote:

> *When I arrived [to Brussels—the city in which she is completing her Master's degree], I met up with two guys from Tinder. And I think that was a different way to get to know the city, because that was my first time there. For instance, this one guy took me to a really nice bar to meet. And this was a really nice way to see a different part of the city, because I probably would never have gone there. So I think it facilitates a lot of encounters in the end.*

61

At different times, all participants were also critical of dating app culture. A common critical theme that emerged from the interview data was that the format of dating apps makes it difficult to establish meaningful connections with other users. Participants said that the interactions they have had with people through dating apps usually feel shallow and superficial, and that it is difficult firstly, to communicate one's personality to another user; and secondly, to get a sense of another person's personality from their dating profile. This is partly because the information people use to create dating profiles is easily manipulated, and cannot be fully trusted. Many dating app users design profiles that exaggerate 'positive' traits whilst hiding traits that might be perceived as negative (e.g. acne, obesity). Moreover, two participants made the point that dating app users do not necessarily reflect society, and may in some places be unrepresentative. Max commented that in Copenhagen, the dating app Tinder seems to disproportionately represent a particular type of person:

> *Here [in Copenhagen] all the Danes are concentrated on Tinder, and on the other two [happn and Bumble] I'm seeing a completely different image of the people around me. From what I've experienced in the last year is that of these Danish girls are really pretty, but all really similar. I mean, they all have blonde hair, they all look rich and well taken care of. And you never match with them. So I would guess that in general, that would give me the feeling that most girls here are really pretty, but can be very monotonous in their style. There's not a lot of diversity in there.*

Despite feeling that dating apps give a "really skewed image" of one's social environment, using Tinder had clearly negatively affected this participant's impression of young Danish women, leading him to perceive them as superior and slightly snobbish. Ultimately, participants all had mixed feelings with respect to dating apps. Most had enjoyed using them at some time in the past, usually to get to know people when arriving in a new city. Participants spoke to the usefulness of dating apps in facilitating new encounters and exploring new places, yet also lamented them for their addictiveness, unreliability, and superficiality. All participants, in one way or another, also said

that they did not take dating apps completely seriously, regarding them instead as 'a bit of fun', or simply as a means to an end. Discussion of this continues below, in Chapter 5.

happn

Similar comments were made of happn during interviews. Every participant had used happn at least briefly, and sometimes for longer periods. happn was in no case a participant's 'go-to' (i.e. favourite, or most-used) dating app. Most participants said they had downloaded happn out of curiosity, or to engage with a different social group. Furthermore, when asked about their principal reason for downloading happn, no participants cited its unique use of geolocation and matching mechanism, though four out of five participants were aware of this. happn's mini-map feature was of little interest to participants, who had used it relatively infrequently. Although, participants did express interest in the different locations where they had crossed paths with other users, and seemed to enjoy contemplating their meaning and symbolism. Max and Victor agreed (separately) that by allowing one to visualise where they have crossed paths with others, happn provides something new: a concrete spatial element to online dating. One participant was, however, unaware that there was any difference between happn and other location-based dating apps, and had downloaded it more or less randomly. In this case, happn's functionality had to be explained by the researcher.

Participants broadly thought that dating apps should promote encounters between similar people (i.e. those with similar backgrounds and interests), in agreement with happn's mission statement. Victor commented of the app:

> *The whole thing about different people types of people being in different locations makes sense. And it's nice to be in the same place, and meet people from the same place.*

[…] There seems to be, especially in my peer groups, a sort of agreement that apps where you can filter people, and get to see more clearly what girls are part of your social class and your group, are better. You know, people that are a bit younger, kind of trendy, educated, all that stuff. The dating apps that show that well, and that are exclusive in that way, I see as nicer because you have to go through less effort to find people that you're interested in.

However, he went on to say:

I haven't really experienced that in Amsterdam though, because Amsterdam doesn't have that level of, like, segregation, where I really have to stick to one area for dating. What you've got is more mixed, more spread out. […] But I've definitely had that thing where we've crossed paths, and we could resonate with each other. Because I feel like with Tinder, it can be just like a whole city of people you're getting on that app; it's so big and complex, and you have no idea who you're getting. And so I understand that happn gives a nice counterbalance with the distance thing. But I could easily get that same connection with people that live in other parts of the city as well.

Maria criticised happn, and dating apps more broadly, for their excessive emphasis on filtering:

The fact that you can programme and prepare everything the way you want it can be harmful I think. For example, if I want to go out with a guy that is between 25 and 32, I can filter that. And then if I want a guy that is Danish, I can also filter that. I can choose who I want to be surrounded by, like exact profiles. And, you know, everything is just so planned, so programmed.

By allowing users to filter the people, information, and locations suggested to them, Maria felt that smartphone applications—dating apps included—lessen the authenticity of one's experiences. Randomness and heterogeneity, she argued, are essential parts of urban life, and should not be designed out by smartphone applications. Though if this were a person's intention, "dating apps can help you design the experience of the city that you want." With that being said, she did express interest in the different locations where she had crossed paths with other happn users, as did Max:

In lockdown, I matched with this girl who said she was at her parents' house somewhere, probably far away. But then the app was saying we had crossed paths like forty times at the exact same spot, my parents' place. Maybe then she was just visiting a friend who lived nearby or whatever, I don't know. It was just weird that she was saying she lived somewhere else, but she was registered by the app forty times.

He later said that he was shocked to have crossed paths with another user in two different countries:

We crossed paths in Copenhagen, but we only matched when I was back in Amsterdam. She was also Dutch and had just been visiting Copenhagen in March, before the lockdown. And then I was in the same neighbourhood that she was as well. It was sort of a conversation starter, but then on the other hand, it makes you think about everyone you match when you're at home. It's like "Oh, hi, you must have cycled past my house!"

Participants all conveyed a sense of unease with regard to happn's constant location tracking, which for them give rise to privacy concerns. Max labelled happn's overlap mechanism as "creepy", in the sense that it allows other users to map one's movements with a disturbing level of precision. On this topic, Victor stated:

In happn I felt uncomfortable with the close distances sometimes. What I like about dating apps, what a lot of people like about dating apps, is how it sort of, you know, allows you to start a dating life in a very free way, without consequences. No one's around, no one's watching you, you're not showing yourself to anyone explicitly. Or at least, you're not aware of it. With happn it makes that distance really small, and concrete, and physical, when maybe we don't want things to be that real yet.

The participant relayed an anecdote in which he matched with a nearby girl on happn after crossing paths with her extremely frequently. They began talking, but eventually, after deciding he was not interested in pursuing things with the girl, he stopped replying to her messages. This led him to feel a slight sense of anxiety, given that the girl lived so close to his home:

So even though we weren't talking anymore, I still knew that there was this person that I had ignored, and that this person was a bit indignant about that. I felt like I could walk into her when I went outside, which made me feel a bit anxious.

In this example, happn's use of overlap data, far from creating a sense of closeness and similarity, caused the user to feel anxious and stifled by his own location. Overall, then, participants' feelings towards happn were similar to those they expressed towards dating apps in general: mixed. Whilst they appreciated what happn is trying to achieve through its use of geolocation and overlap data (namely, romantic connections between socially similar, proximate individuals), participants had not downloaded the app for that reason, nor were they particularly impressed by it. Indeed, participants' engagement with the app was apparently rather shallow and unsustained.

4.4 Chapter summary

This chapter has detailed the findings of this thesis' interview process. Participants generally had mixed feelings about smartphones, dating apps at large, and happn more specifically. For instance, whilst feeling that smartphones are extremely useful, and perhaps indispensable, participants argued that these devices detract from one's experience of the real world. And despite having all used dating apps at multiple times in their lives and with some success, participants seemed reluctant to take these platforms seriously, downplaying their influence and significance. happn did not escape these negative judgements, and though several participants thought it interesting, the app was ultimately deemed to be more or less inconsequential in the grand scheme of urban life. In the next chapter, Discussion, these findings provide the basis for exploring the role that dating apps can play in shaping urban users' sense of place. This thesis' central research question is revisited, as are academic theories on place and space; urbanism; and smartphones as locative media.

Chapter 5: Discussion

5.1 Chapter overview

This chapter will break down and discuss the findings identified in the previous chapter, linking these firstly, to the literature on place and space, urbanism, and smartphones as locative media; and secondly, to this thesis' central research question, which reads as follows:

RQ: In what ways, if at all, do location-based dating apps influence urban users' sense of place?

Since the literature in this area is still relatively new, the purpose of this chapter—and indeed, of this thesis as a whole—is to shed light on the new relationships and connections that are, in an age of ubiquitous computing, emerging between people, technology, and place. Bott's (2000) sense of place framework is used to formulate three key sections of this thesis' findings, which are as follows:

1. The place-specific sociocultural information accessed by participants through dating apps influenced the ways they perceived the social relations of different cities (see Bott's 'Cultural Setting Domain');

2. Dating apps facilitated encounters that contributed to a greater sense of belonging for participants, especially when one was living in a new or unfamiliar place (again, see Bott's 'Cultural Setting Domain');

3. And thirdly, dating app use created a sense of excitement for participants, turning the ordinary space of the city into something more playful and surprising (see Bott's 'Person-Related Functional Domain').

For clarity, these three points are discussed separately and in turn. Each small section bears out the final stage of this thesis' methodology, by linking its findings (condensed and summarised as they have been by multiple stages of coding) to Bott's (2000) sense of place framework (one of this thesis' most important analytical tools) and to the literature on place and space; urbanism; and smartphones as locative media.

5.2   Discussion of findings

Perception of social relations

Participants expressed that dating app use may contribute to an increased awareness of one's social environment. One perspicacious participant, Victor, commented: "By looking at people you're looking at the city, because they represent the culture, and they represent the places where they live". Indeed, Quadflieg and Penton-Voek (2017) argue that observations of this kind can be attributed to the 'science of people-watching'. "By analysing mere appearances and overt behaviour," they explain, "people-watchers form intricate impressions about those they witness without directly getting to know them." (Quadflieg & Penton-Voek, 2017: 384) Using qualitative methods of research, the authors demonstrate that the visible attributes of passersby—including facial appearances and expressions—elicit judgements from people-watchers about their social group memberships, emotional states, personalities, and the places to which those people belong. If

the same logic is applied to the context of dating apps, it makes sense that users' perceptions of cities could be influenced by these platforms via a process of what one might call 'online people-watching'.

Unsurprisingly, participants stated that clear differences are visible between dating app users from different countries, and sometimes between cities in the same country. For each population, these differences may include physical features and relative levels of attractiveness (though this is, of course, subjective); racial and ethnic diversity; fashion and cultural trends; and taste in music. Smartphone dating platforms enable users to observe these attributes and form detailed impressions about the people they are witnessing, their backgrounds, and the lifestyles they lead. These impressions may, in turn, influence users' perceptions of the place in which they are using the dating app (or apps). To give an example from this research, Max said that the generally conservative, well-groomed appearance of young women on dating apps in Copenhagen had likely contributed to his sense of that place—and of Danish people more broadly—as wealthy and beautiful, but "a little bit cold" and "kind of distant". In this way, impressions of places that arise from dating app use may merge with users' pre-existing thoughts, feelings, memories, and attachments, influencing their overall sense of a place.

Participants commented that dating apps might only influence their perception of a place's social relations at the national or perhaps city scale; anything smaller than this did not make sense for them. This may be because modern cities, though segregated in many other ways, are not sufficiently spatially segregated to produce the smaller-scale (i.e. between neighbourhoods and districts) differences in apparent social relations the researcher had assumed might be visible through happn or other dating apps. Cities are simply too dense and too heterogenous for this to be

the case, and if anything, happn demonstrates this fact. The movement patterns of the app's users are extremely varied and seemingly adhere to no perceived spatial, social, cultural, or economic boundaries. Moreover, Max noted that each dating app conveys a slightly different impression of a place and its inhabitants, since "different types of people use different dating apps". Altogether, what one discovers is a fairly complex ecosystem of dating apps in each different city, and patterns of use that vary across time, space, and within and amongst societies.

Indeed, whilst exploring the dating apps gay men use in London, MacKee found that Tinder is said to be a site where the 'nice guys' go, rendering the platform as a "socially constructed environment where gay men behave in a diametrically opposed way to the normative hyper-sexualised behaviour of widespread gay hook-up apps." (2016: 1) People are known to use multiple dating apps to satisfy a range of needs and desires. Thus, a single user might present themself on two, three, or even four separate dating apps, each time in a different way. Profile information can be easily manipulated to construct a particular image of oneself or boost one's perceived attractiveness, and dating app users often bend the truth to suit their own purposes (Fitzpatrick, Birnholtz & Brubaker, 2015). The phenomenon of 'catfishing'—that is, the process of luring someone into a relationship by using a fictional online persona—has recently generated a huge amount of media interest, and demonstrates just one of the ways that online dating platforms and their users are vulnerable to deception and misrepresentation.

For these reasons, it could be argued that dating apps do not truthfully represent cities and their inhabitants, and so cannot be considered as 'valid' influences on users' sense of place. Maria seemed to agree with this contention, lamenting the way in which online dating platforms allow users to present themselves as "apparently happier, or more productive, or whatever you want to be.

In the end, well, it's all fake!" Maria may be correct, but at the same time, something does not necessarily have to be 'true' in order to affect the way people feel about cities or their inhabitants. Rumours, conspiracy theories, and misinformation can all shape people's perceptions; one need only look to sensationalist news reporting and other questionable media outlets for proof of this (Buchanan, 2009). In some cases, 'fake news' may spread faster and reach more people than trustworthy information; indeed, social media platforms such as Facebook have been heavily criticised in recent years for allowing clickbait, hyperbole, and misinformation to proliferate (Solon, 2016). When the same logic is applied to dating apps, it stands to reason that these platforms could influence users' sense of place regardless of whether they accurately reflect them.

Sense of belonging

Participants felt that the most important way in which dating apps enable one to learn about a city is through other people, especially when in a new place. Three participants stated that they had dated locals after moving to a new city and that these encounters helped them to create new relationships to place. Specifically, dating locals caused participants to discover areas and dimensions to the cities they were living that they otherwise may not have. When in a new place, meeting and spending time with locals—or 'doing as the locals do', a now-common refrain within the discourses of travel and tourism—is often thought to constitute a more authentic experience. These encounters help one to feel less like an outsider, and engender a greater sense of connection or belonging to the place one is in. Maria described her feelings about dating a Danish native whilst living in Copenhagen: "it wasn't a super deep connection, but it was just exciting to meet someone in this new place. And the way I saw it at that moment was, like, discovering the culture through this guy." She felt as though

she had been granted access to the inner, more special parts of the city through this man, who—having lived there his whole life—had spent decades accumulating an intimate knowledge thereof.

The excessive size, density, and complexity of today's cities are often said to prohibit a sense of place or belonging from developing (Pocock & Hudson, 1978; Cresswell, 2009). If, however, dating apps can help to familiarise users with new places in the way described above, they arguably have some value in social and cultural terms. Victor confirmed: "your, kind of, familiarity, and those mental marks that shape your overall image of the city, can also grow a bit from these apps." Moreover, dating apps may enhance users' awareness of the complexity of urban places, by enabling them to explore aspects of a city that are usually inaccessible or invisible to tourists (Özkul, 2015). These processes would, of course, depend on the user's level of experience with the place they were in, and the extent of their knowledge about it. Victor was the first to suggest this: "in Amsterdam I already know a lot about my environment, so there wouldn't be a lot to discover [through dating app use]." He did, however, state that in a new environment, one might be more likely to learn something about the city and its inhabitants through dating apps.

In addition to processes of familiarisation, it was initially assumed that dating apps had some potential to provide information about places that might *defamiliarise* people with them: defined by Crawford (2012) as the process of making familiar places strange. She explains that "unlikely insertions or juxtapositions of uses can unsettle our existing perceptions of urban life [...] opening up new possibilities and invigorating the idea of what a city can be." (Crawford, 2012: 84) Contrary to these ideas, though, Maria asserted that because dating apps now allow users to stringently filter the people that are suggested to them as possible romantic interests, they may actually have a blinkering effect, narrowing one's interests and perspective on the city's diversity. Indeed, urban

72

places are increasingly defined by digital layers of representation that are created, accessed, and filtered via smartphones and their applications. But far from uniform and consistent, "these digital dimensions of places are fractured along several axes such as location, language, and social networks, with correspondingly splintered representations customised to individuals' unique sets of abilities and backgrounds." (Zook & Graham, 2013: 78) The resulting representations offered to users, as they make their way through hybrid urban landscapes, offer experiences of place that may be highly fragmented and specialised.

Sense of excitement and possibility

Aside from these more concrete aspects, participants also expressed that dating apps add another, intangible element to their experience of the city, though at times struggled to precisely define what this was. Some alluded to a background sense of excitement; a feeling that some new interaction or encounter could pop up and surprise them at any time. Presumably what was meant by this was that the constant chance of a new connection—or 'match'—generates a slight thrill, as though some attractive, single person could contact one at any moment. Indeed, as de Souza e Silva (2006), Frith (2015), and others have explained, the technological capabilities of smartphones allow for the possibility of an 'always-on' connection as the user moves through the city. Several participants mentioned that when they receive a notification alert from a dating app, they feel a small 'buzz' (i.e. a sense of pleasure) and are interested to see who the person is that they have matched. They might then open the person's profile; scan through their photos and profile information; and, in happn, examine the locations at which they have crossed paths.

In this way, location-based applications—such as happn, other dating apps, and interactive mobile games—arguably influence people's perceptions of place and space by transforming the ordinary or 'serious' space of a city into a playful, surprising environment (de Souza e Silva, 2009). Revisiting the idea of hybrid space, which has been mentioned several times in this thesis, location-based applications such as these interweave our everyday experience of place with playful virtual realities, connecting people who did not previously know one another according to their movement in and through physical spaces (Hjorth & Richardson, 2017). Whilst we might engage with dating applications absentmindedly, or amidst other, more important daily activities, they nevertheless can (and do) intervene with those activities, affecting users' movement through space as well as their perceptions of it (de Souza e Silva & Frith, 2010). Simply put, dating apps may make the city more fun for those who achieve successful connections, encouraging them to explore and engage with urban space. However, for those who are less socially or economically mobile, or less physically attractive (in a narrow sense), these applications may accentuate feelings of loneliness and alienation, acting as a constant reminder of one's lack of success in this particular area of life.

5.3   Chapter summary

The broad aim of this thesis was to explore, within an urban context, some of the new relationships that are emerging between people, technology, and place. In this chapter, and the previous Findings chapter, elements of these new relationships have been highlighted and discussed. Although participants said they mainly saw dating apps as 'a bit of fun', the findings of this thesis indicate that participants are engaged—albeit at different times and to varying extents—in using the features and content that dating apps provide. Not only this, analysis suggests that these engagements have influenced participants' sense of place, particularly concerning their senses of belonging,

excitement, and possibility within cities, as well as their perceptions of the social relations of places, outlined by Bott (2000) in her sense of place framework. The overall impact of dating apps on urban users' sense of place may be small, but it is not insignificant, for these ideas feed into larger discussions on the role of digital technology in shaping cities and urban life. The next and final chapter of this thesis, Conclusion, will summarise the relevant findings and analyses, discuss the contributions they make to the wider literature, identify several limitations, and suggest avenues for future work.

Chapter 6: Conclusion

6.1   Chapter overview

As the final chapter of this thesis, the conclusion revisits the previous chapters, tying together their individual contributions. This chapter begins by summarising the literature review; research problem and question; and methodology, highlighting the main points of each. The thesis' findings and analytical contributions are then restated. Some concluding comments are given, including the researcher's final thoughts and impressions. After this, the thesis' limitations are outlined and suggestions for future work made.

6.2   Summary of the thesis

This thesis began by sketching a new and exciting area of urban sociological research: namely, that which explores the emerging relationships between people, technology, and place in an era of smartphone ubiquity. The researcher's interest in these topics arose from an interest in urban culture and sociology, and the shaping of urban spaces by digital technologies. The research problem—out of which this thesis' central research question arose—was then identified. To recap, sense of place was introduced as a fundamental human need that is being jeopardised by sociospatial fragmentation, wanton capitalism, and unfettered globalisation. The meteoric rise of smartphones has in the last fifteen years radically altered users' relationships to place and space—especially in cities. The role of these technologies in influencing urban users' sense of place is, however, poorly

understood, as are the differential effects of individual applications, interfaces, and tools. Thus, this thesis' central research question arose:

RQ: In what ways, if at all, do location-based dating apps influence urban users' sense of place?

To answer this question, a qualitative, exploratory approach was deemed necessary. This methodology entailed the recruitment of a total of five participants, with whom semi-structured interviews were conducted. The findings of these interviews were analysed using a two-stage coding process, the results of which were related firstly, to Bott's (2000) sense of place framework, as an essential analytical tool for this thesis; and secondly, to the literature on place and space; urbanism; and smartphones as locative media. These processes produced some interesting findings regarding people's engagements with dating apps and their relationships to urban places.

The first of these suggests that dating apps may contribute towards an increased awareness of one's social and cultural environment, by allowing users to observe, and form impressions about, nearby people (i.e. people-watch). It was found that these judgements feed into users' overall perceptions of the places they are in, influencing them to a greater or lesser extent. The second set of findings relates to users' sense of belonging, and the ways that dating apps can strengthen these feelings by, for example, facilitating encounters with locals. Here it was also established that the filtering of one's experience and influences—that many smartphone applications now allow—may have a blinkering effect, narrowing one's perspective on the city's diversity. The third and final part of this thesis' findings address a less tangible aspect of one's experience of a city: that sense of excitement one may feel when in a place that presents new opportunities or prospects. By creating a situation in which users can be alerted by a new 'match' at any time, dating apps arguably influence people's

perceptions of place by transforming the 'serious' space of the city into a more playful, surprising environment.

6.3   Concluding comments

To conclude, it is clear that dating apps do have some influence on urban users' sense of place. This influence may, however, be negligible when compared to other life experiences. All things considered, it is extremely difficult to determine the exact extent to which one factor—be it dating apps, newspapers, television, architecture, or whatever—shapes a person's sense of place. This thesis has attempted to examine, with the highest level of objectivity possible, something that is inherently intangible, idiosyncratic, and continually changing. As Massey (1993) states, places— and people's perceptions of them—are never static, closed, or complete; instead, they are dynamic, open processes, in a permanent state of becoming (Lefebvre, 1974). Sense of place evolve as people receive new information. These inputs may be small or large; mundane or extraordinary; or digital or physical. What matters here is that a person's sense of a place—whether that be the neighbourhood they lived in as a child, their local town centre, or a foreign city—is shaped directly and indirectly by a lifetime of experiences and that it may be difficult, or even impossible, to separate. Perhaps, then, the influence of dating apps on urban users' sense of place is best conceptualised as adding, in some small way, to an endlessly intricate tapestry, woven throughout a lifetime.

6.4   Limitations

This thesis has a number of limitations that will now be briefly discussed. Firstly, and most significantly, the research processes detailed throughout this thesis were all carried out during the global COVID-19 pandemic, which presented several challenges: methodologically, analytically, and personally. The original methodology devised for this research project had to be scrapped, because of the stringent lockdown rules enforced in Madrid from the end of February 2020 onwards. This original methodology was based on field reports, semi-structured interviews, and cognitive mapping exercises, and would have been conducted in, and focussed on, Madrid. In these ways, the methods intended initially may have elicited a broader, and perhaps more interesting, range of responses.

The COVID-19 pandemic also made it more difficult to recruit suitable participants for semi-structured interviews. happn users were not easy to come by during this thesis' recruitment phase, due probably to the fact that this particular app is dependent on the normal circulation of people in society. happn's distance radius is extremely small ($\leq$250m) and cannot be altered, meaning that users must get out into the world if they wish to connect with others. Dating apps such as Tinder, Bumble, and Hinge are more flexible in this regard, allowing users to cast a far wider net ($\leq$100km) from the comfort of their homes. These other platforms are actually understood to have experienced increases in user traffic during the various lockdowns that have been enforced in countries across the world.

6.5 Suggestions for future work

It seems likely that the ubiquity and ever-increasing popularity of smartphones will strengthen their influence on the representation, perception, and awareness of place and space—especially in cities (Brantner, 2018). Because of this, future work could examine the particularities of other popular applications and how they allow users to consume and contest the meanings of urban places. As regards dating apps, further research could investigate the social impacts of the (increasingly aggressive) monetisation of these platforms. Online search results are already heavily influenced by one's preferences, languages, geographic location, and online social network, and by offering new hyper-fragmented and specialised experiences of place, processes of monetisation will probably result in the reinforcement of class-based divisions in and through dating apps (Zook & Graham, 2013).

Bibliography

- Amin, A. and Thrift, N. (2002) *Cities: Reimagining the Urban*. Cambridge: Polity Press.

- Aslam, S. (2020) 'Instagram by the Numbers'. *Omnicore*. Available from: https://www.omnicoreagency.com/instagram-statistics/. [Accessed: 20th July, 2020].

- Aslam, S. (2020) 'Snapchat by the Numbers'. *Omnicore*. Available from: https://www.omnicoreagency.com/snapchat-statistics/. [Accessed: 20th July, 2020].

- Auerbach, C. and Silverstein, L. (2003) *Qualitative Data: An Introduction to Coding and Analysis*. New York: New York University Press.

- Barnes, T. (2009) 'The Quantitative Revolution'. In: Kitchen, R. and Thrift, N. (eds.) *International Encyclopaedia of Human Geography*. London: SAGE. pp. 33-38.

- Barnett, E. and Casper, M. (2001) 'A Definition of "Social Environment"'. *American Journal of Public Health*, 91 (3): 465.

- Barthes, R. (1994 [1964]) *The Eiffel Tower and Other Mythologies*. Berkeley: University of California Press.

- Beekmans, J. (2015) 'Happn Turns Urban Spaces into Dating Markets'. *Pop-Up City*. Available from: https://popupcity.net/observations/happn-turns-urban-spaces-into-dating-markets/. [Accessed: 12th March, 2020].

- Bentley, F. et al (2012) 'Drawing the City: Differing Perceptions of the Urban Environment'. In: *Proceedings of the Conference on Human Factors in Computing Systems*. Austin, USA. 5th-10th May. pp. 1603-1606.

- Blackwell, C. and Birnholtz, J. (2015) 'Seeing and Being Seen: Co-situation and Impression Formation Ssing Grindr, a Location-Aware Gay Dating App'. *New Media & Society*, 17 (7): 1117–1136.

- Brantner, C. (2018) 'New Visualities of Space and Place: Mapping Theories, Concepts and Methodology of Visual Communication Research on Locative Media and Geomedia'. *Westminster Papers in Communication and Culture*, 13 (2): 14-30.

- Browning, R. (1845) 'Home Thoughts, from Abroad'. Available from: http://www.bbc.co.uk/poetryseason/poems/home_thoughts_from_abroad.shtml. [Accessed: 12th June, 2020].

- Buchanan, C. (2009) 'Sense of Place in the Daily Newspaper'. *The Journal of Media Geography*, 4: 62-84.

- Campbell, C. (2016) 'Space, Place and Scale: Human Geography and Spatial History'. *Past & Present*, 239 (1): e23-e45.

- Campelo, A. et al (2013) 'Sense of Place: The Importance for Destination Branding'. *Journal of Travel Research*, 53 (2): 154-166.

- Carta, S. (2019) *Big Data, Code and the Discrete City: Shaping Public Realms*. London: Routledge.

- Casey, E. (2001) 'On Habitus and Place'. *Annals of the Association of American Geographers*, 91 (4): 716-723.

- Ceccato, V. and Haining, R. (2005) 'Assessing the Geography of Vandalism: Evidence from a Swedish City'. *Urban Studies*, 42 (9): 1637-1656.

- de Certeau, M. (1984) *The Practice of Everyday Life*. Berkeley: University of California Press.

- Churchill Semple, E. (1911) *Influences of Geographic Environment, on the Basis of Ratzel's System of Anthropo-Geography*. New York: H. Holt and Co.

- Constine, J. (2017) 'Snapchat launches location-sharing feature Snap Map'. *TechCrunch*. Available from: https://techcrunch.com/2017/06/21/snap-map/. [Accessed: 30th July, 2020].

- Crawford, M. (2012) 'Urban Interventions and the Right to the City'. *Architect*, 101 (8): 84-85.

- Cresswell, T. (2004). *Place: A Short Introduction*. Malden: Blackwell.

- Cresswell, T. (2009). 'Place'. In: Kitchin, R. & Thrift, N. (eds.) *International Encyclopaedia of Human Geography*. Oxford: Elsevier. pp. 169-177.

- Denzin, N. and Lincoln, Y. (2008) *Collecting and Interpreting Qualitative Materials*. London: SAGE.

- Farman, J. (2015) 'Infrastructures of Mobile Social Media'. *Social Media + Society*, 1 (1): 1-2.

- Farrelly, G. (2012). The role of location-based services in shaping sense of place. *Proceedings of the American Society for Information Science and Technology*, 49 (1): 1-3.

- Farrelly, G. (2014) 'Irreplaceable: The Role of Place Information in a Location-Based Service'. *Journal of Location-Based Services*, 8 (2): 123-132.

- Farrelly, G. (2015) 'Which Way is Up? How Locative Media May Enhance Sense of Place'. *International Journal of Mobile Human Computer Interaction*, 7 (3): 55-66.

- Farrelly, G. (2017) 'Claiming Places: An Exploration of People's Use of Locative Media and the Relationship to Sense of Place'. *PhD Thesis*. Canada: University of Toronto.

- Fitzpatrick, C., Birnholtz, J. and Brubaker, J. (2015) 'Social and Personal Disclosure in a Location-Based Real Time Dating App'. In: *Proceedings of the 48th Hawaii International Conference on System Sciences*. Kauai, Hawaii. 5th-8th January. pp. 1983-1992.

- Frith, J. (2015) *Smartphones as Locative Media*. London: Wiley.

- Frizzera, L. (2014) 'Mobile Media: New Mediations in the Urban Space'. *PhD Thesis*. Canada: University of Alberta.

- Fuchs, C. (2018) 'Henri Lefebvre's Theory of the Production of Space and the Critical Theory of Communication'. *Communication Theory*, 29 (2): 129-150.

- Gandy, M. (2005) 'Cyborg Urbanization: Complexity and Monstrosity in the Contemporary City'. *International Journal of Urban and Regional Research*, 29 (1): 26-49.

- Gillespie, L. (2019) 'Pierre Bourdieu: Habitus'. Available from: https://criticallegalthinking.com/2019/08/06/pierre-bourdieu-habitus/. [Accessed: 20th June, 2020].

- Golledge, R. (1978) 'Learning About Urban Environments'. In: Carlstein, T., Parkes, D. and Thrift, N. (eds.) *Timing Space and Spacing Time*. London: Wiley.

- Gordon, E. and de Souza e Silva, A. (2011) *Net Locality: Why Location Matters in a Networked World*. Oxford: Wiley-Blackwell.

- Graham, S. (2005) 'Software-Sorted Geographies'. *Progress in Human Geography*, 29 (5): 562-580.

- happn (n.d.) 'About'. Available from: https://www.happn.com/en/about/. [Accessed: 10th March, 2020].

- Hardy, S. (2008) Relations of Place: Aspects of Late 20th Century Fiction and Theory. Brno: Masarykova Univerzita.

- Harrison, S. and Dourish, P. (1996) 'Re-Place-ing Space: The Roles of Place and Space in Collaborative Systems'. In: *Proceedings of the ACM Conference on Computer Supported Cooperative Work*. Boston, USA. 16–20th November. pp. 67–76.

- Harrison, J. and Howard, W. (1972) 'The Role of Meaning in the Urban Image'. *Environment and Behaviour*, 4 (4): 389-411.

- Harvey, D. (1989) 'From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism'. *Geografiska Annaler. Series B, Human Geography*, 71 (1): 3-17.

- Harvey, D. (1993) 'From Space to Place and Back Again'. In: Bird, J. et al (eds.) *Mapping the Futures: Local Cultures, Global Change*. London: Rout§ledge. pp. 3-29.

- Harvey, D. (2008) 'The Right to the City'. *New Left Review*, 53: 23-40.

- Heidegger, M. (1996). *Being and Time*. Albany: State University of New York Press.

- Hjorth, L. and Richardson, I. (2017) 'Pokémon GO: Mobile Media Play, Place-Making, and the Digital Wayfarer'. *Mobile Media & Communication*, 5 (1): 3-14.

- Hubbard, P. (2004) 'Revenge and Injustice in the Neoliberal City: Uncovering Masculinist Agendas'. *Antipode,* 36(4): 665-686.

- Hubbard, P. (2005) 'Space/Place'. In: Atkinson, D. et al (eds.) *Cultural Geography: A Critical Dictionary of Key Concepts*. London: I.B. Taurus & Co Ltd. pp. 41-48.

- Ittelson, W. (1978) 'Environmental Perception and Urban Experience'. *Environment and Behaviour*, 10 (2): 193-213.

- Jacobs, J. (1961) *The Death and Life of Great American Cities*. New York: Random House.

- Juhász, L. and Hochmair, H. (2018) 'Analysing the Spatial and Temporal Dynamics of Snapchat'. *VGI-Alive Pre-Conference Workshop—AGILE 2018*. Lund, Sweden. 12th June.

- Kennedy, C. and Zube, E. (1991) 'Attitudes Towards Vegetation in a Desert Urban Forest: Creating a Sense of Place. *Journal of Arboriculture*, 17 (6): 159-166.

- Kitchin, R. (2014) 'The Real-Time City? Big Data and Smart Urbanism'. *GeoJournal*, 79 (1): 1-14.

- Krafta, R. and de Faria, A. (2003) 'Representing Urban Cognitive Structure Through Spatial Differentiation'. In: *Proceedings of the 4th International Space Syntax Symposium*. London, United Kingdom. pp. 53.

- Krueger, R. and Casey, M. (2000) *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks: SAGE.

- Kupfer, J. (2007) 'Mobility, Portability, and Placelessness'. *The Journal of Aesthetic Education*, 41 (1): 38-50.

- Lefebvre, H. (1991 [1974]) *The Production of Space*. Oxford: Blackwell.

- Lei, R. and Bodenhausen, G. (2017) 'Racial Assumptions Colour the Mental Representation of Social Class'. *Frontiers in Psychology* 8 (519): 1-7.

- Lekkas, Z., Rizopoulos, C. and Charitos, D. (2013) 'The Influence of Locative Media Use in an Urban Environment on Spatial Perception and Cognition'. In: *Proceedings of 9th International Conference on Intelligent Environments*. Athens, Greece. 16-17th July. pp. 240-244.

- Leszczynski, A. (2015) 'Spatial media/tion'. *Progress in Human Geography*, 39 (6), 729-51.

- Lynch, K. (1960) *The Image of the City*. Cambridge: Massachusetts Institute of Technology Press.

- MacKee, F. (2016) 'Social Media in Gay London: Tinder as an Alternative to Hook-Up Apps'. Social Media + Society, 2 (3): 1-10.

- Massey, D. (1994) *Space, Place, and Gender*. Minneapolis: University of Minnesota Press.

- Matei, A. (2019) 'Shock! Horror! Do you know how much time you spend on your phone?'. *The Guardian*. Available from: https://www.theguardian.com/lifeandstyle/2019/aug/21/cellphone-screen-time-average-habits. [Accessed: 16th June, 2020].

- Maxted, A. (2017) 'Is your smartphone making you stupid? Psychologists say that not only are phones shortening our attention spans, they are changing our brains'. The Times. Available from: https://www.thetimes.co.uk/article/is-your-smartphone-making-you-stupid-vmhx9f6rr. [Accessed: 29th May, 2020].

- MCI (1994) 'No More There'. [Advertisement on USA television]. Available from: https://www.youtube.com/watch?v=nJhRPBJPO0. [Accessed: 10th July, 2020].

- Milgram, S. (1970) 'Psychological Maps of Paris'. In: Gieseking, J. and Mangold, W. (eds.) *The People, Place, and Space Reader*. New York: Routledge. pp. 45-50.

- Milgram, S. (1977) 'The Familiar Stranger: An Aspect of Urban Anonymity'. In: Milgram, S. *The Individual in a Social World: Essays and Experiments*. Reading: Addison-Wesley. pp. 51-53.

- Mills, K. and Comber, B. (2009) 'Space, Place, and Power'. In: Hall, K. et al (eds.) *International Handbook of Research on Children's Literacy, Learning and Culture*. London: Wiley. pp. 412-416.

- Mitchell, D. (2003) *The Right to the City: Social Justice and the Fight for Public Space*. New York: The Guilford Press.

- Moore, G. (1979) 'Knowing About Environmental Knowing: The Current State of Theory and Research on Environmental Cognition'. *Environment and Behaviour*, 11 (1): 33-70.

- Mumford, L. (1938) *The Culture of Cities*. San Diego: Harcourt-Brace.

- Najafi, M. and Kamal, M. (2011) 'The Concept of Place and Sense of Place in Architectural Studies'. *International Journal of Human and Social Sciences*, 6 (3): 187-193.

- Nitins, T. and Collis, C. (2013) 'Grounding the Internet: Categorising the Geographies of Locative Media. *Media International Australia*, 146: 69-78.

- Özkul, D. (2015) 'Location as a Sense of Place: Everyday Life, Mobile and Spatial Practices in Urban Spaces. In: de Souza e Silva, A. and Sheller, M. (eds.) *Mobility and Locative Media: Mobile Communication in Hybrid Spaces*. New York: Routledge. pp. 101-116.

- Panko, R. (2018) 'The Popularity of Google Maps: Trends in Navigation Apps in 2018'. *The Manifest*. Available from: https://themanifest.com/mobile-apps/popularity-google-maps-trends-navigation-apps-2018. [Accessed: 25th July, 2020].

- Pew Research (2019) 'Mobile Fact Sheet'. Available from: https://www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/. [Accessed: 6th June, 2020].

- Pieber, D. and Quan-Haase, A. (2019) 'Up Close and Impersonal: Locative Media and the Changing Nature of the Networked Individual in the City. In: Neal, Z. and Rozenblat, C. (eds.) *Handbook on Cities and Networks*. Cheltenham: Edward Elgar. pp. 1-18.

- Pocock, D. and Hudson, R. (1978) *Images of the Urban Environment*. New York: Columbia University Press.

- Podmore, J. (1998) '(Re)Reading the "Loft Living" *Habitus* in Montréal's Inner City'. *International Journal of Urban and Regional Research*, 22 (2): 283-302.

- Proboscis (n.d.) 'Urban Tapestries'. Available from: http://urbantapestries.net. [Accessed: 29th July, 2020].

- Purcell, M. (2003) 'Citizenship and the Right to the Global City: Reimagining the Capitalist World Order'. *International Journal of Urban and Regional Research*, 27 (3): 564-590.

- Quadflieg, S. and Penton-Voek, I. (2017) 'The Emerging Science of People-Watching: Forming Impressions From Third-Party Encounters'. *Current Directions in Psychological Science*, 26 (4): 383-389.

- Rapoport, A. (1977) *Human Aspects of Urban Form*. Oxford: Pergamon Press.

- Relph, E. (1976) *Place and Placelessness*. London: Pion.

- Rueb, T. (2001) 'The Choreography of Everyday Movement — 2001'. Available from: http://terirueb.net/the-choreography-of-everyday-movement-2001/. [Accessed: 01/06/2020].

- Ruppert, E. (2006) 'Rights to Public Space: Regulatory Reconfigurations of Liberty'. *Urban Geography,* 27: 271-92.

- Salesses, P., Schechtner, K. and Hidalgo, C. (2013) 'The Collaborative Image of The City: Mapping the Inequality of Urban Perception'. *PLoS ONE*, 8 (7).

- Sassen, S. (2016) 'How Jane Jacobs Changed the Way We Look at Cities'. *The Guardian*. 4th May. Available from: https://www.theguardian.com/cities/2016/may/04/jane-jacobs-100th-birthday-saskia-sassen. [Accessed: 12th June, 2020].

- Scannell, L. and Gifford, R. (2010) 'Defining Place Attachment: A Tripartite Organizing Framework'. *Journal of Environmental Psychology*, 30: 1-10.

- Schwarz, R. and Halegoua, G. (2015) 'The Spatial Self: Location-Based Identity Performance on Social Media'. *New Media & Society*, 17 (10): 1643-1660.

- Schwarzer, M. (2010) 'A Sense of Place, A World of Augmented Reality: Part I'. *Places Journal*. Available from: https://placesjournal.org/article/a-sense-of-place-a-world-of-augmented-reality-part-1/. [Accessed: 16th June, 2020].

- Seamon, D. (1980) 'Body-Subject, Time-Space Routines, and Place-Ballets'. In: Buttimer, A. & Seamon, D. (eds.) *The Human Experience of Space and Place*. New York: St. Martin's Press. pp 148-165.

- Smith, N. (1996) *The New Urban Frontier: Gentrification and the Revanchist City*. London: Routledge.

- Solon, O. (2016) 'Facebook's failure: did fake news and polarised politics get Trump elected?'. The Guardian. Available from: https://www.theguardian.com/technology/2016/nov/10/facebook-fake-news-election-conspiracy-theories. [Accessed: 2nd August, 2020].

- de Souza e Silva, A. (2006) 'Mobile Technologies as Interfaces of Hybrid Spaces'. *Space & Culture*, 9 (3): 261-278.

- de Souza e Silva, A. (2009) 'Hybrid Reality and Location-Based Gaming: Redefining Mobility and Game Spaces in Urban Environments'. *Simulation & Gaming*, 40 (3): 404-424.

- de Souza e Silva, A. and Frith, J. (2010) 'Locative Mobile Social Networks: Mapping Communication and Location in Urban Spaces'. *Mobilities*, 5 (4): 485-505.

- de Souza e Silva, A. and Frith, J. (2012) *Mobile Interfaces in Public Spaces: Locational Privacy, Control, and Urban Sociability*. New York: Routledge.

- Spohrer, J. (2012) 'WorldBoard'. *Service Science*. Available from: http://service-science.info/archives/2060. [Accessed: 29th May, 2020].

- Stanton Fraser, D. (2012) 'My Neighbourhood: Studying Perceptions of Urban Space and Neighbourhood with Moblogging'. *Pervasive and Mobile Computing*, 9: 722-737.

- Statista (2020) 'Smartphones in the U.S. — Statistics and Facts'. Available from: https://www.statista.com/topics/2711/us-smartphone-market/. [Accessed: 20th August, 2020].

- Stock, F. (2009). 'Identity, Image and Brand: A Conceptual Framework'. *Place Branding and Public Diplomacy*, 5 (2): 118-125.

- Stokowski, P. (2002) 'Languages of Place and Discourses of Power: Constructing New Senses of Place'. *Journal of Leisure Research*, 34 (4): 368.

- Suthasupa, S. (2012) 'The Portrayal of a City's Image by Young People'. *Social and Behavioural Sciences*, 38: 284-292.

- Tait, A. (2017) 'Snapchat Snap Map: what happens when teenagers track each other's exact locations?'. *New Statesman*. Available from: https://www.newstatesman.com/science-tech/social-media/2017/07/what-is-snapchat-snap-map. [Accessed: 1st August, 2020].

- Thompson, K. (2017) '"Familiar Strangers" in the Age of Urban Computing'. *Mediapolis*, 4 (2). Available from: https://www.mediapolisjournal.com/2017/10/familiar-strangers/. [Accessed: 9th July, 2020].

- Thrift, N. (2008) 'Space: The Fundamental Stuff of Human Geography'. In: Clifford, N. et al (eds.) *Key Concepts in Geography*. London: SAGE. pp. 95-107.

- Tuan, Y. (1977) *Space and Place: The Perspective of Experience*. Minneapolis: University of Minnesota Press.

- Turkle, S. (2011) *Alone Together: Why We Expect More from Technology and Less From Each Other*. New York: Basic Books.

- Veel, K. and Thylstrup, N. (2018) 'Geolocating the Stranger: The Mapping of Uncertainty as a Configuration of Matching and Warranting Techniques in Dating Apps'. *Journal of Aesthetics & Culture*, 10 (3): 43-52.

- Verhoeff, N., Cooley, H. and Zwicker, H. (2017) 'Urban Cartographies: Mapping Mobility and Presence'. *Television & New Media*, 18 (4): 298-304.

- Whitlock, D. (2018) 'happn Launches New Feature to Find Crushes by Geolocation'. *Global Dating Insights*. Available from: https://www.globaldatinginsights.com/news/happn-launches-new-feature-to-find-crushes-by-geolocation/. [Accessed: 10th November, 2019].

- Whyte, W. (1980) *The Social Life of Small Urban Spaces*. New York: Project for Public Spaces.

- Xiao, M., Sun, E. and Naaman, M. (2017) 'What Happens in happn: The Warranting Powers of Location History in Online Dating'. In: *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*. Portland, USA. 25th February—1st March. pp. 41-50.

- Zook, M. and Graham, M. (2013) 'Augmented realities and uneven geographies: exploring the geolinguistic contours of the web'. *Environment and Planning A*, 45: 77-99.