Multisensory ethnography:

sensory experience, the sentient body and cultural phenomena

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

For my wife, Claire Jackson.

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ABSTRACT

This practice-led PhD offers two contributions to the emerging discipline of sensory ethnography: a new theoretical framework for understanding the relationships between sensory experience, the sentient body and cultural phenomena and a series of new sensory research methods. It comprises the thesis presented here, a number of practical projects and a 'dossier' of associated outputs, including conference papers, workshops and symposiums, public engagement activities and successful funding applications. For the purposes of assessment and dissemination, all of these components have been collated into a single online presence: www.multisensoryethnography.com. The primary piece of practice associated with this PhD is a multisensory and participatory virtual archive of Temple Works, a Grade I listed building in South Leeds (Jackson, 2016a). This project, hereafter *Experience Temple Works*, is a proof of concept implementation of all of the methodological innovations advocated in this thesis and also embodies the theoretical contributions detailed in the writing. *Experience Temple Works* was created as part of a 30-month ethnography with the community of artists and makers resident within the building, hereafter *Temple.Works.Leeds*. The theoretical arguments presented in this thesis and the associated practice were developed in parallel and it is therefore recommended that they are 'read' in concert, allowing the relationships between them to be revealed. In order to facilitate this, the footnotes in this thesis regularly include links to pertinent 'locations' within the practice. The structure of this document intentionally blurs the conventional distinctions between the review of literature, methods and findings. These aspects of the research are inextricably linked and cannot effectively be addressed in isolation.

The thesis offers an analysis of the potentialities and problems which sensory ethnography introduces, arguing that it offers new and innovative ways of understanding the lives of others but will only be established as an enduring and meaningful development within anthropology if a number of significant challenges can be overcome. Synthesising theoretical perspectives from numerous different disciplines, the thesis argues that *multi*sensory research methods are central to understanding the complex and interdependent relationships between the senses and culture, bringing into question ethnographic studies which attempt to separate out individual sensory modalities from the multisensory matrix of perception. A new theoretical framework for sensory ethnography is introduced which attempts to unify key concepts from a range of cognate disciplines and is based upon a helical model of evolving and reciprocal correlations between sensory experience, the sentient body and cultural phenomena. Methodological contributions are made through the evaluation of a series of new technological modes of representation (developed by the author) which

not only have the potential to significantly impact upon the production, dissemination and reception of ethnographic studies, but which might also become a platform through which ethnographic knowledge is co-created with the research participants. Finally, the practical projects which implement and embody all of the methodological and theoretical contributions in this thesis are situated, with specific reference to the impact they have attained. The salient argument of this thesis is that sensory ethnography is an exciting but profoundly challenging new discipline. It has the potential to significantly impact upon any research project which implements fieldwork methods in the study of cultural phenomena but its future is dependent upon the rethinking of long-established practices related to the production and dissemination of ethnographic knowledge.

RESEARCH QUESTIONS

1. How might multisensory, participatory and 'virtual' technologies impact upon the execution, dissemination and reception of ethnographic studies?

2. Given the fundamental limitations of representing sensory experience in language and writing, how might technological modes of representation create new ways of communicating the fieldwork experiences upon which ethnographic knowledge is founded?

3. Do multisensory and embodied technologies have the capacity to engage non-academic audiences in the processes of ethnographic research and to represent the resulting findings in ways which are meaningful to those audiences?

4. To what extent might a more cohesive and integrative theoretical framework inform the analysis of the relationships between sensory experience, the sentient body and cultural phenomena?

5. What social, cultural, technological and academic impact might be attained by the creation of a multisensory and participatory virtual archive of Temple Works, a Grade I listed building in South Leeds?

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CHAPTER 1

THE POTENTIALITIES AND PROBLEMS OF SENSORY ETHNOGRAPHY

> "The growing awareness of the role of sensory expression and experience in communicating and shaping culture has been one of the most exciting developments in recent anthropology."

(Howes, 2010b, p.338)

The emerging discipline of sensory ethnography has the potential to make very meaningful contributions to all academic disciplines which involve using fieldwork methods to study cultural phenomena. However, in order to effectively realise those contributions, a number of fundamental problems need to be addressed. These potentialities and problems will be the primary focus of this introductory chapter. Drawing together a literature review, a critique of contemporary academic practices and reflections on my own experiences of implementing sensory research methods, I will attempt to plot a path for the future of this discipline. The challenge to be overcome is arriving at a new conceptual framework for sensory ethnography and a new set of sensory research methods whilst simultaneously avoiding the many pitfalls associated with issues of representation, the inherent complexities of sensory experience and some recent developments within anthropology which have undermined some of the theoretical impulses upon which sensory ethnography is founded.

The definition of sensory ethnography which may be the most tangible and unambiguous is that "It involves answering anthropological questions in ways that are informed by theories of the senses" (Pink, 2010b, p.337). However, this definition only attends to the ways of knowing and, as this thesis later attests, issues of representation are also of central concern. It should not be identified as a sub-discipline (see Classen, 1997; Pink, 2010b and 2012; Howes, 2010a) but rather as a rethinking and reframing of ethnography using the relationships between sensory experience and cultural phenomena as the foundation of the research design. Whilst this shift in perspective might impact upon all aspects of an ethnographic study, questions regarding research methods and modes of representation are inevitably foregrounded. In order to study such complex, subjective and embodied experiences, sensory ethnography calls for "innovative methods" (Pink, 2010c), acknowledging that

data which is central to the research question(s) might be "inaccessible to ethnographic observation or interview" (Bendix, 2000, p.41). Having identified ways of knowing through these unconventional methods, "the conundrum we are faced with is how we might extract them to represent them as academic knowledge" (Pink, 2012, p.40). Innovative modes of representation need to be developed, allowing scholars to present the research findings in ways which implicate embodied sensory experience again, facilitating a 'closeness' to the research encounters in the field (see section 1.2, below). However, it is important to note that advocating for all ethnography to be sensory is not the intention (Stoller, 2004, p.821). Not all ethnographic work can nor should foreground the role of sensory experience. The ethnographer must identify when the relationships between sensory experience, the sentient body and cultural phenomena are central to the anthropological question(s) being addressed.

> "a fully sensuous scholarship not only propels social scientists to reconsider the analysis of power-in-the-world but also compels them to rethink their scholarly being-in-the-world"
>
> (Stoller, 2004, p.817)

As Stoller vividly states, wholly embracing sensory approaches to ethnography not only changes the nature of the study, it also changes the ethnographer. New ways of understanding how "people's knowledge of themselves, others and the world they inhabit, is inextricably linked to and shaped by their senses" (Sparkes, 2009, p.23) is clearly the central aim but as a corporeal and vulnerable practice that calls for ethnographers to submit their sentient bodies to the field of study (Stoller, 1989, p.39), it also has the potential to 'transform' the body of the ethnographer in enduring and meaningful ways[1]. The combined impact of these two potentially very significant developments is the reason why sensory ethnography has generated such a wealth of academic interest. The intentions of any ethnography are to provide both a "way of knowing what it was like to be there (or even be the subject(s)) [and a] theoretical narrative that informs scholarly knowledge" (Pink, 2012, p.153). Sensory research materials have the potential to impact upon the former by facilitating "a richer understanding of the complexities of lived experience, encompassing the 'immaterial', the 'phenomenal'" (O'Neill and Hubbard, 2010, p.48) and the latter by questioning the place of language and writing in relation to the construction of knowledge based upon sensory experience (see section 1.1, below). The theoretical narratives presented in the publications which employ sensory research methods are also likely to be altered by the increased reflexivity, self-awareness and 'authorial humility' (Stoller, 1989, p.56) that sensory ethnography implies.

[1] See for instance Spencer, 2013, p.17; Pink, 2011, p.347 and my own auto-ethnographic reflections in section 5.5 (below).

In order to assess the impact that sensory ethnography might have on the production and dissemination of knowledge, it is helpful to evaluate and reflect upon some recently published studies. This not only offers an evolutionary context but also illustrates the unique ways of knowing which sensory research methods reveal. In 2001, Law examined how diasporic communities of Filipino domestic workers in Hong Kong establish a 'sense' of belonging in an unfamiliar environment through the "active creation of places in the city that emulate a 'sense' of home" (p.264). Not only does this paper address a fascinating[1] and contentious cultural phenomena, it epitomises the contributions that sensory ethnography is able to make. It illustrates the centrality of sensory experience in answering specific anthropological questions whilst simultaneously revealing insights into wider issues related to the senses and society. It is only through the lens of sensory experience that this specific cultural phenomenon can be understood. However, the research findings also speak to the relationships between the senses and cultural identity and how sensory experience might be a way in which power relationships are negotiated in contested spaces. Whilst Law does not identify her study as a sensory ethnography, but rather as 'cultural geography', her methods bear a striking resemblance to those advocated by the key proponents of this emerging discipline.

A sensory ethnography with lab technicians (Mody, 2005) uncovered that tacit and non-linguistic knowledge of auditory cues was essential in correctly operating and identifying problems with scientific equipment. Sensory research methods were, of course, essential in revealing these findings which, in turn, questioned the assumption that such equipment produces "invariant and universal scientific truth" (p.193). Numerous studies have similarly investigated the relationships between sensory experience and sports[2]. During Spencer's study of mixed martial arts, he found that all five senses had to be engaged in order to fully understand the motivation to participate in the sport. Spencer clearly articulates that it was only "through the perception of the rhythm of my opponent's hands, sight of bloody noses, taste of water, sound of the coach and ringing bell, smell of sweat, and the feel of my opponent's legs around my waist that I came to comprehend and know the sport" (2013, p.2). All of these examples illustrate how the rethought methodologies of sensory ethnography have the potential to reveal new ways of knowing, making original contributions to scholarly knowledge. However, it is interesting to note that of all the studies cited here, only de Garis (1999) evaluates the impact upon himself as an ethnographer, as Stoller (1989) and Pink (2011) advocate, and as I have done in section 5.5 (below).

1 I have experienced the subject of Law's study first-hand on numerous occasions and discussed the conflict it has caused with residents of Hong Kong in order to better understand its social significance.

2 See for instance de Garis, 1999; Hockey and Collinson, 2007; Sparkes, 2009; Spencer, 2013.

> “Perception has nothing to do with [ethnography] … [It] is not a record of experience at all; it is the means of experience. That experience became experience only in the writing of the ethnography. Before that it was only a disconnected array of chance happenings.”

(Tyler, 1986, p.137)

As a discipline that calls for long-standing methods to be revisited, the emergence of sensory ethnography has, unsurprisingly, been met with some resistance. The questions it asks regarding the place of the ‘ethnographic text’[1], the potential it has to ‘objectify’ the senses (see Ingold, 2011) and even, fundamentally, whether or not perception has anything to do with ethnography (see Tyler, 1986) are all points of contention, which will also be addressed here. Most notably though, two of the key proponents of sensory ethnography, Pink and Howes, seem unable to concur regarding the derivation, definition or future of the discipline. Pink’s article ‘The future of sensory anthropology/the anthropology of the senses’ sparked a heated exchange between Pink and Howes in the debate section of Social Anthropology (2010, pp.331–333). Whilst there are many issues around which they seem unable to find common ground, the most fundamental and revealing difference between their respective arguments is centred around the senses as the subject of study, or the method of study. Whilst Howes intends to create knowledge *of* the senses, Pink intends to create knowledge *through* the senses. Although these intentions are not necessarily oppositional, they do reflect very significantly different perspectives on this emerging discipline, which scholars might wish to align with[2].

The potential impact of sensory ethnography becomes increasingly apparent as new approaches, applications and outputs are realised. However, an analysis of the relevant theoretical literature, and the sensory ethnographies that have been published to date, reveals numerous significant problems:

- The relationships between sensory experience and cultural phenomena are inherently complex, subjective and interdependent and “As yet, we lack the conceptual framework to codify how these complex inter-relationships work to produce particular kinds of meaning.” (See Dicks et al., 2006, p.78 and chapter 3 below.)

1 See Stoller, 1989 and 1997; Seremetakis, 1989; Dicks et al., 2006; Majid and Levenson, 2011; Vannini et al., 2012 and section 1.1 below.

2 All of the ethnographic work associated with this practice-led PhD (Elliott et al., 2016; Jackson, 2016a and Jackson et al., 2017) is aligned with Pink’s concept of creating knowledge through the senses. The senses are situated as a way of knowing and the research findings are not intended to generate knowledge regarding the senses themselves.

- Established methods of ethnographic research (such as participant observation and interview) might not, alone, be sufficiently revealing ways of knowing when sensory experience is central to the anthropological questions being addressed. (See Howes and Classen, 1991; Bendix, 2000; Brady, 2004; Pink, 2012 and chapter 2 below.)

- In providing accounts of sensory fieldwork experiences that are central to the theoretical argument, published ethnographies often rely upon modes of representation (typically language and writing) which fail to effectively communicate the vivid, embodied and affective nature of those experiences. (See section 1.1 and chapter 4 below.)

- A number of recent developments in anthropology have undermined some of the theoretical impulses of sensory ethnography:

    - Despite the intention to challenge the ocularcentric nature of the majority of ethnographic research, vision remains dominant in many 'sensory' studies. As MacDougall describes "To anthropology the visual often seems uncommunicative and yet somehow insatiable." (2006, p.26). (See chapter 2 below.)

    - In an attempt to dispute the dominance of vision, other modality-specific studies of culture have emerged such as ethnomusicology, olfactory geographies, gustatory ethnographies of food cultures etc. The problem this presents is that it simply replaces one privileged modality with another. Neurological studies of cross-modal perception also illustrate that it is not possible to 'separate out' individual modalities in this way. (See section 2.2 below.)

    - In analysing the meaning of sensory experiences, some scholars highlight differences in the 'sensory order' of specific cultures. (See for instance Howes and Classen, 1991; Classen, 1997; Vannini et al., 2012). This argument is problematic for two reasons. It might signal a return to comparative practices in anthropology, which were largely abandoned by the 1990s, and it might imply that the interpretation of sensory experiences is more culturally informed, and less individualised, than is actually the case. (See section 2.1 below.)

In order to establish sensory ethnography as a consequential and enduring development in anthropology, these problems need to be overcome and, as the many references to different sections of the thesis included within the text above illustrate, they will each be addressed here. However, not only do they all represent formidable challenges, compounded by their

complex interdependencies, the changes that may be required to progress their resolution are likely to cause further contestation given the "widespread anthropological resistance to change" (Manners and Kaplan, 2007, p.164).

In conclusion, the number of recent publications intended to elucidate what is meant by sensory ethnography and what the future of the discipline might be[1] clearly demonstrate an increased academic interest in 'attending to the senses' in the study of culture. Scholars from numerous disciplines (including sensory studies (Classen, 1997), cultural, social and human geography (Law, 2001; Middleton; 2010; Rodaway, 2013), contemporary arts (Marks, 2002), sound design and acoustics (Levack Drever, 2002), cultural studies (Choo, 2004), sociology (Vannini et al., 2012) etc.) are making theoretical and methodological contributions to this emerging discipline. However, numerous significant problems remain. The conceptual framework used to interpret and analyse the meaning of sensory experiences is not sufficiently developed, the sensory research methods being employed during fieldwork encounters remain largely modality-specific and the modes of representation used to disseminate those experiences in published studies are unable to effectively communicate the complex, subjective and embodied experiences that are central to the research questions. The potential therefore exists to make very meaningful contributions to this emerging discipline by tackling some of these challenges.

1.1 THE SENSES, LANGUAGE AND WRITING

> "our exposure to and engagement with the multisensoreality of the places we encounter ... leads us to doubt the adequacy of the existing methods and genres of ethnographic representation for the task of communicating about these ways of knowing."
>
> (Pink, 2012, p.153)

Despite the fact that the senses "are not reducible to language" (Seremetakis, 1994), established methods of ethnographic research and the traditional paradigms of academic publishing greatly encourage, if not require, scholars to attempt to represent sensory experiences using only language and writing. This translation is not only ineffective, it is also potentially harmful and, as academic interest in the relationships between sensory experience and culture proliferates[2], it is both imperative and timely that these models for

[1] See for instance Howes and Classen, 1991; Dicks et al., 2006; Pink, 2010c, 2012 and 2015; Ingold, 2011; Vannini et al., 2012; Nakamura; 2013; Low, 2015.
[2] See Pink, 2012; Vannini et al., 2012; Howes and Classen, 2013; Nakamura, 2013; Low, 2015 and many others.

the production and dissemination of ethnographic knowledge are brought into question. Here, I will argue that the value of language and writing in the analysis and interpretation of research encounters must be recognised whilst simultaneously challenging its excessive use for descriptive purposes, for which it may not be the most appropriate mode of representation.

It is helpful to situate this debate within the development of anthropology and its sub-disciplines, as this historical context reveals insights into the contemporary challenges. The arguments presented here might be conceptualised as the latest incarnation of the 'writing culture' debate, epitomised by the collection of essays edited by Clifford and Marcus (1986) and created largely in response to the work of Geertz (see primarily 1973). This debate regarding the 'poetics and politics' (Clifford and Marcus, 1986) of ethnographic representation, whilst perpetually important, is inevitably foregrounded when trends in ethnography more directly implicate embodiment and sensory experience. Just as the developments in visual ethnography in the 1990s revealed the "general reluctance that exists within anthropology … to engage beyond a narrative textual paradigm" (Schneider, 2008, p.172), this latest 'sensorial turn' highlights the extent to which contemporary academic practices lack the capacity to communicate the sensory experience of the field of study and its associated affects (Pink, 2012, p.132). Historically, these discords have polarised opinion regarding the ethnographic text (Zenker, 2014) and it is likely that the emergence of sensory ethnography will have a similar effect. However, the argument presented here is intended to be nuanced, recognising the place of language and writing in the construction of knowledge whilst also challenging its dominance as the singular output of an ethnographic study.

The implications of this debate extend beyond issues of representation. If sensory experience is central to the anthropological question(s) being addressed, attempting to represent embodied, intimate and subjective experiences in language and writing has the potential to adversely impact upon the production of knowledge in many ways, including:

- The descriptive methods and linguistic constructs used might impact upon the analysis of meaning, increasing the likelihood of research encounters being misinterpreted.

- Tacit, emplaced and ineffable knowledge might be absent. (Pink, 2012, p.130)

- Descriptive, metaphoric and poetic writing might be adopted in an attempt to rescue the affective nature of sensory experience, where a more direct form of sensory 'elicitation' might be used to greater effect.

- The translation of culturally significant sensory experiences into academic writing might not be meaningful to the research participants, who should be engaged in the co-creation of, not alienated from, the design of ethnographic studies and the production of ethnographic knowledge.

All of these issues, which are elucidated below, highlight the necessity to question language and writing as the singular output of an ethnographic study and to embrace other modes of representation in academic publishing.

> "Changing the language of our descriptions, as Wittgenstein (1974) said, also changes the analytic game itself"
>
> (Wittgenstein, 1974 cited in Brady, 2004, p.628)

There is a large body of academic literature from a range of disciplines which supports the notion that choices regarding descriptive methods and linguistic constructs might alter the interpretation and analysis of experiences that are described in language and writing. In language studies and cognitive science, the Sapir-Whorf Hypothesis (also known as 'linguistic relativity') argues that language might determine patterns of thought and that linguistic constructs might determine cognitive constructs. Although "few ideas generate as much interest and controversy" (Lucy, 1997, p.291) and although the concept does not specifically relate to sensory experience, the questions this asks about linguistic accounts of embodied, intimate and subjective experiences, even if only a partly valid hypothesis, are highly apparent. In neuroscience, numerous experiments have demonstrated that linguistic descriptions of sensory stimuli alter our perception of them. For instance, de Araujo et al. (2005) demonstrated that altering the linguistic description accompanying an olfactory stimulus produced both different 'ratings' of the odour and, most significantly, measurably different neurological activity in response to it. So, as persuasive and poetic as the notion might be, "that which we call a rose" (Shakespeare, 1597) is actually unlikely to smell as sweet if referred to "By any other name". In sociology, Zerubavel's concept of 'lumping and splitting' (1996) examines the role of linguistic constructs in the formation of cognitive 'groupings'. The evidence resulting from this study suggests a human propensity to "carve seemingly discrete categories" of meaning, even though "the world in which we live is essentially continuous" (p.421) and highlights the role that language plays in this process. In ethnography, where complex, unsystematic and interrelated experiences need to be

analysed, these conceptual groupings created by the translation into language and writing could be problematic.

> "Language is an extraordinary system of public representations for private sensations, but with its digital form and relatively coarse finite vocabularies, it is never able to capture all the rich, particularistic essence or qualia of sensory experience."

(Majid and Levenson, 2011, p.16)

Of course, the inability of language and writing to adequately represent sensory experiences might also change the 'analytic game' and this inability is similarly documented across numerous academic disciplines. In contemporary arts, the challenge of describing artistic practices within academic publications is regularly problematised. As Marks (2002) recognises "When translating from … the relatively more sensuous audiovisual media to the relatively more symbolic medium of words, the task is to make the dry words retain a trace of the wetness of the encounter" (x). Unsurprisingly, within the discipline of ethnography itself, the limitations of linguistic modes of representation are addressed. Okely (1994), Dicks et al. (2006) and Pink (2010c; 2012; 2015) are all key proponents of this argument but it was Stoller (1989; 1997) who pioneered a rethinking of the ethnographic 'text' asking "Are there other dimensions of ethnographic discourse, other conventions of representation which may carry anthropology deeper into the being of the others? Are there other modes of representation that better solve the fundamental problems of realist ethnographic representation: voice, authority, and authenticity?" (1989, p.27). In summary, if research encounters are translated into fieldwork notes and fieldwork notes are translated into a written transcript for publication, it is important to acknowledge how the multisensory experience of the field has been 'reduced' (Dicks et al., 2006, p.89) and the impact this translation might have on the production and reception of the ethnographic study.

An inevitable outcome of conducting ethnographic studies which foreground the role of sensory experience, is that research encounters in the field will quickly reveal experiences that simply cannot be translated into language and writing: aspects of "Knowledge beyond language" (Okely, 1994), "things that we talk about but cannot adequately sum up" (Witmore, 2004, p.59) and "ineffable elements of sensate practices" (Tucker and Goodings, 2014, p.67). Acknowledging this problem and attempting to address the impact it might have on the production of ethnographic knowledge is of central concern to sensory ethnography and, consequently, brings into question the adequacy of linguistic modes of representation once more. As Pink (2010a and 2012) argues, sensory research materials (such as audiovisual forms of media) might provide ways of accessing aspects of experience which are fleeting,

tacit and incommunicable through language and writing. Modes of representation beyond the ethnographic text might be a way to 'rescue' these ineffable sensory experiences and integrate them more effectively into ethnographic research methods and the resulting publications. However, it is important to acknowledge that audiovisual media simply offer another mediated form of representation and cannot possibly recreate the experiences of the field, a limitation that will be elucidated below. They might offer a more direct form of 'sensory elicitation' though, more likely to create shared understandings between author and audience, particularly in relation to affective, embodied and subjective experiences. As Feld (2004) argues "you can grasp something at a sensuous level that is considerably more abstract and difficult to convey in a written ethnography." (p.465)

In 2000, Goodall's *Writing the New Ethnography* attempted to address the challenge of representing embodied, intimate and subjective experiences in language by advocating that affective writing (inspired by the conventions of fictional and creative nonfiction works) should be adopted in ethnographic publications. Whilst the intention of this approach is clearly aligned with the problem being addressed here, I do not believe it to be a helpful suggestion. Although the writing style that Goodall advocates is undoubtedly engaging and persuasive, it exacerbates the issues associated with descriptive writing and linguistic constructs addressed above, as the ethnographic text becomes yet more reliant upon 'translation' into metaphor and evocation. This affective style of writing also has the potential to orient ethnography along a trajectory that is not conducive to its continued recognition as a credible source of theoretical contributions. It might direct ethnographic publications towards descriptive, narrative and individualised accounts, rather than the construction of intellectual arguments that inform scholarly knowledge. This could be particularly problematic within the development of sensory ethnography as the temptation for ethnographers to "season their prose with the non-theoretical senses to evoke a world" (Stoller, 1989, p.31) rather than addressing key questions regarding the relationships between sensory experience, the sentient body and cultural phenomena, has been identified and problematised for some time.

> "The textual practice in ethnography, which concerns the translation of an alien culture into a written academic language (predominantly English), describes a society in such a way that, the chances are, members of that society will probably not be able to appreciate."
>
> (Levack Drever, 2002, p.23)

As Levack Drever effectively summarises, another potential problem with the translation of research encounters into language and writing (and particularly into the 'academic'

diction often necessary for publication) is the potential to alienate, rather than integrate, the research participants. Whilst this concern might be applicable to all ethnographic work, it has particular relevance to sensory ethnography which "demands a form of reflexivity that goes beyond the interrogation of how culture is written" (Pink, 2012, p.15) and which might greatly benefit from forms of 'dialogic editing' (Feld and Brenneis, 2004, p.465) in which the research participants are involved in the selection, editing and interpretation of sensory research materials. As each of these arguments illustrate, an imperative clearly exists within sensory ethnography to collaborate with the research participants in the design of the ethnographic study and the production of the research findings. Adopting modes of representation that are more accessible, relatable and participatory than the traditional ethnographic text might be one of the ways in which the participants are co-opted.

In making this case for a rethinking of ethnographic methods, care must be taken not to reject ethnographic writing or lionise new technological modes of representation, but rather acknowledge that "a combination of both textual and non-textual methodologies" might "in synchrony elucidate the importance of the senses in terms of their social meanings and values" (Low, 2015, p.309) It is essential to value what language can reveal, to acknowledge the place that language and writing have in the production and dissemination of ethnographic knowledge and to address the limitations of new technological modes of representation through an equally critical lens (see chapter 4 below).

> "Sometimes it is the inability of writing to capture experience that is the most evocative. Over some years of attempting to achieve these translations, the best moments have been when my writing did not master the object but brushed it, almost touched it."
>
> (Marks, 2002, ix)

Although the primary thrust of the argument presented here is intended to problematise linguistic modes of representation, it is important to highlight what language itself can impart regarding sensory experience. The fundamental limitations of language may have, in fact, been one of the catalysts for the recent emergence of academic interest related to sensory experience (Majid and Levenson, 2011), illustrating a complex, revealing and interdependent relationship between the senses, language and writing. Whilst avoiding entering into any form of comparative analysis regarding the 'sensory order' (see section 2.1 below), the failings of certain languages in relation to specific sensory modalities can reveal cultural values (which might relate to the research aims of a sensory ethnography) and should be carefully considered when making decisions regarding the research design. For example, the English language has a very limited vocabulary for the description of olfactory stimuli,

often relying upon adjectives associated with other modalities (such as describing a smell as 'sweet') or entering into the problematic realm of ostensive definitions in which meaning is communicated through illustrative examples (such as describing a smell as 'like cut grass'). When conducting research with diasporic communities, in which olfactory geographies might be central to the creation of a sense of community in an unfamiliar environment (see for instance Law, 2001), the inability to articulate olfactory experiences linguistically might offer "key insights into how other peoples conceptualize the senses" (Majid and Levenson, 2011, p.5) and should certainly encourage reflexivity and "a dose of intellectual humility" (Stoller, 2004, p.832) in the ethnographer.

Low (2015) argues that "language, instead of forming an obstacle towards capturing and conveying the varied meanings of social life, is a useful tool when utilized suitably to reflect on sensory experiences and encounters" (p.301). However, it might be more appropriate to distinguish between the research processes of 'capturing/conveying' and 'reflecting upon' sensory experiences. Whilst language and writing are inherent to the analysis of fieldwork encounters and the construction of theoretical arguments based upon them, there is little evidence to suggest that they might be an appropriate form for the representation of sensory experiences. Appendix 1 is the most recent version of an ever-expanding collection of quotations from published ethnographic studies in which scholars have attempted to represent sensory experiences in linguistic form. In each of these examples, the authors have failed to communicate experiences to the reader that are central to their intellectual argument. Rather than attempting to describe these experiences, multisensory research materials could have been presented as part of the publication. For instance, sound recordings could have directly engaged the reader in the act of listening, allowing the writing to provide the annotation, analysis and argumentation. This combination of technological modes of representation and the linguistic construction of a theoretical argument might prove to be the most persuasive. However, this proposition is dependent upon both the engagement of scholars working within anthropological disciplines and the willingness of journal editors to be open to change.

> "Rather than assuming that multimedia automatically gives us multimeaning, satisfactorily reflecting the multimodality of the field, we might consider how different modes are transformed when translated into different media."
>
> (Dicks et al., 2006, p.94)

Whilst the argument presented here clearly advocates for the inclusion of technological modes of representation in the design, creation and publication of ethnographic studies, these media forms must also be critically evaluated in order to avoid replacing one

problematic simulacrum with another. As Pink (2008) highlights, sensory experiences are "represented with different intensity in different media" (p.190) and scholars of the senses must carefully consider the impact of the 'translation' of experiences into different modes of representation. Although audiovisual forms of media might be more engaging and relatable than the ethnographic text, they also have the potential to atrophy rather than enhance our sensory engagement with place (Vannini et al., 2012), to create disembodied experiences (Tucker and Goodings, 2014) and to encourage mimetic practices "in tension with reason, rationality and objectivity" (O'Neill and Hubbard, 2010, p.47), all of which will be elucidated in chapter 4 (below). However, in their collective analysis and interpretation, these concerns might also reveal an arena in which the tensions between ethnography and modes of representation can be interrogated (Poole, 2005).

In conclusion, appropriately situating the role of language and writing is imperative to the emerging discipline of sensory ethnography. The argument presented here is that language and writing should continue to be used for the analysis of research encounters and for the construction of theoretical arguments but that ethnographic practices and paradigms of academic publishing which necessitate linguistic descriptions of embodied, intimate and subjective experiences must be brought into question. Whilst acknowledging that all modes of representation "are the results of the conscious and unconscious adoption of subjective perspectives" (Dicks et al., 2006, p.79), audiovisual forms of media might offer a more direct 'sensory elicitation' than is possible through language and writing. This combination of textual and non-textual modes might be the most effective approach for engaging the research participants throughout the processes of research design, fieldwork and analysis and might create stronger shared understandings between author and audience as the findings are disseminated. As technological modes of representation become more sophisticated, more accessible and more widely adopted, the place of language and writing in ethnography may change. As Dicks et al. (2006) suggest, writing might "begin to lose its long-established monopoly in ethnography and start to be used for more mode-specific functions – for explaining sounds and images, for example, or for pointing to them" (p.92). However, for these changes to take place, the somewhat inevitable discords created by this latest incarnation of the 'writing culture' debate will have to be addressed, resulting in changes to ethnographic practices and the conventions of publishing in academic journals.

1.2 CLOSENESS, ABSTRACTION, MEDIATION AND REPETITION

The intricate and entangled relationships between sensory experiences encountered in the field, their later analysis through different modes of representation and their translation into academic knowledge are key issues in sensory ethnography. I will argue here that the concepts of 'closeness', 'abstraction', 'mediation' and 'repetition' are central to understanding these relationships. 'Closeness' refers to the intention to use sensory research materials as a method of revisiting fieldwork experiences. 'Abstraction' refers to the inevitable process of subjectively selecting aspects of those experiences and analysing them away from the field of research. 'Mediation' refers to an awareness of how the different forms of media used to represent sensory experiences each provide qualitatively different kinds of information. Finally, 'repetition' refers to the importance of creating sensory research materials which can be analysed repeatedly in order to fully appreciate their significance. When designing the research methods to be used during an ethnographic study that foregrounds the role of sensory experience, these four concepts should be carefully considered as they may have a significant impact upon the research findings.

> "Research materials can be used as prompts that help to invoke the memories and imaginations of the research, thus enabling us to re-encounter the sensorial and emotional reality of research situations."
>
> (Pink, 2012, p.121)

The concept of using sensory research materials to create a 'closeness' to research encounters experienced in the field has been identified by numerous scholars. O'Neill and Hubbard (2010) refer to the practice of 'ethno-mimesis': the "production of art forms to represent experience" (p.47), Vannini et al. (2012) advocate methods that facilitate "a way of feeling with us without necessarily being there" (p.68) and Biella (2008) introduces the concept of "virtual intimacy" (p.145) created by his use of digital and audiovisual media to create an 'interactive ethnography' (1996b). The connection between all of these works is the intention to "make the research encounter present in the analysis" (Pink, 2012, p.124). It is helpful to think of this concept as a development of the established anthropological method of 'elicitation' as this situates the concept within an existing body of literature. Commonly referred to as 'photo elicitation' and often conducted using only visual assets[1], this involves using materials from the field to (amongst other things) evoke memories of specific experiences. By creating multisensory research materials that are as vivid, embodied and affective as possible, it might be possible to achieve a greater 'closeness'

[1] Another indicator of the ocularcentric nature of so many anthropological methods.

with the original encounter. This direct form of sensory elicitation might be more revealing (for both the ethnographer and the research participants) when used during the production of knowledge away from the field of study.

Whilst this concept of 'closeness' offers many potential benefits, the pitfalls it creates must be identified in order prevent its misappropriation. It is essential to acknowledge that (no matter how vivid the sensory research materials might be) it is not possible to fully recreate the experience of research encounters in the field. Sensory research materials should be considered a "third space", a "potential/dialogic space" (O'Neill and Hubbard, 2010, p.56) through which knowledge can be produced, not as a simulacrum of experienced reality. Sensory research materials have the potential to 'reify' experiences, making them appear more explicit and more concrete than the original ephemeral and abstract experience. Ethnographers using sensory methods need to be aware of this in order to accurately reflect upon the significance of specific events. It is also important to differentiate the concepts of 'closeness' and objectivity. It is not the place of sensory research materials to imply objectivity, but rather to represent complexity. As Jackson (1989) argues, the things we describe are not intended to represent "mirror images of social reality", but are "defenses we build against the unsystematic, unstructured nature of our experiences within that reality." (p.3) All of these considerations call for ethnographers to develop a "deeper reflexive understanding of their own sensory awareness" (Pink, 2012, p.139) and as Biella (1996a) highlights, this requires a "hypersensitivity" (p.59) which is not without its own consequences. Biella candidly notes that "It is an odd thing, constantly dwelling on one's faults and limitations … and it would be hard not to appear self-indulgent or trivially neurotic in the process." (p.59) when describing the impact his methods have upon himself, as well as his ethnographic studies.

> "How does the ethnographer apprehend the elusiveness of worlds in which he or she tries to close the lid to discover that there is no box?"
>
> (Stoller, 1989, p.144)

The production and analysis of sensory research materials is "a process of abstraction, which serves to connect the phenomenology of experienced reality into academic debate" (Pink, 2012, p.120). Experiences in the field are subjectively selected, analysed away from their original context and translated from events into ideas. These processes are inevitable but also problematic. When analysing sensory research materials, the reasoning behind their selection should be carefully considered. For instance, Poole (2005) argues that ethnographers select materials that don't reveal their own presence. However, he also highlights that, despite this intention, those materials (such as photography) possess "an

uncanny ability to index the presence" of the ethnographer (p.166). The analysis of sensory research materials away from the field of study raises concerns regarding the senses and memory. Although the symbiotic relationships between the senses and memory represent "a tantalising co-dependency" (Choo, 2004, p.209), it is important to note that "sense memories ... are creative constructions of the past." (Verbeek and van Campen, 2013, p.135). The concept of translating sensory 'events' into ideas also warrants careful consideration as experiences offer "unlimited meaning-making opportunities, weighed through our existing repertoires of information, verbal and nonverbal, as stored in our cognitive and emotional memory banks" (Brady, 2004, p.625). All of these issues represent significant challenges to sensory ethnography. However, the acknowledgement of them is also liberating as it "sidesteps worries about whether presences are finally real, phantom, or prosthetic, because all are produced in transduction" (Helmreich, 2007, p.632).

Whilst the challenges associated with the concept of 'abstraction' cannot be wholly overcome, there are ways in which they might be addressed. The technologies of representation advocated in chapter 4 (below) have the potential to reduce the impact of the author's subjectivities and individual meaning-making by empowering the research participants (and anyone else for that matter) to analyse, reflect upon and contribute to the research materials from their own perspective, co-creating the findings of the study. Simply embracing multiple modes of representation might also impact upon this issue. Whilst all media are produced as a result of the "conscious and unconscious adoption of subjective perspectives" (Dicks et al., 2006, p.79), they are each subjective in different ways and when used in combination, "further levels of meaning are produced through their interaction and fusion" (Dicks et al., 2005, p.70). The challenges associated with memory can be addressed by intentionally combining materials that evoke both sense memories and linguistic-semantic memories. This combination of "the intensive reliving of events from the past through sensory stimuli" and abstract memories that are typically "cognitive/logical in nature, focused on finding truth" (Verbeek and van Campen, 2013, p.139) can be very persuasive and reinforces the rationale for "a combination of both textual and non-textual methodologies" (Low, 2015, p.309) as outlined in section 1.1 above. The potential for the same experience to be interpreted in very different ways (also known as the 'Rashomon Effect' (Anderson, 2016)) calls for participatory and dialogic methods to be used which facilitate the representation of different perspectives (see chapter 4, below).

> "An obvious danger of the recording metaphor is that the mediating effects of the technologies used may be neglected."
>
> (Dicks et al., 2005, p.69)

Sensory ethnography requires innovative modes of representation. Just as the act of perception involves "the receipt … of ephemeral and meaningless sense data" and "the organisation of these data into collectively held and enduring representations" (Ingold, 2000, p.159), sensory ethnography requires the translation of sensory experiences into other modes of representation that can be accessed following the fieldwork. The technologies that communicate these representations mediate the experience, just as "the senses mediate … engagement with urban life" (Low, 2015, p.295). When sensory experience is central to the research findings, it is of great importance to maintain a critical awareness of how the chosen recording device, the methods of post-production and the playback medium might impact upon the later analysis of those encounters. For instance, the meanings and emotions that are attached to a specific experience might also be attached to the mode of representation. For instance, I have observed large numbers of people engaging with the interactive 360° images created as part of my ethnographic practice (see section 5.2, below). This mode of representation undoubtedly elicits a sense of wonder as the vivid, 'immersive' and meditative visual experience unfolds (despite the confines of two-dimensional displays). Whilst these affordances help to create the sense of 'closeness' advocated above and it is undoubtedly true that sensory research materials can offer "both a pleasure and an intellectual provocation" (Feld and Brenneis, 2004, p.468), they also change the ways in which the original encounter is perceived (a concept which will be explored in more detail in chapter 4, below). As Dicks et al. (2005) note, modes of representation are not "mere carriers of something called 'data'" but are loaded with "mediating effects" and "semiotic properties" (p.69).

During the essential process of analysing and reflecting upon the meaning of sensory experiences, having "a repeatable event for study purposes" (Schafer, 1973) can be invaluable. During research encounters in the field "discoveries and misunderstandings are registered in such great numbers and in such quick succession that they are ordinarily impossible to remember or reconstruct" (Biella, 1996, p.59). However, through the creation of repeatable multisensory research materials, those experiences can be revisited, offering the potential to fully realise their significance and reinterpret their meaning from different perspectives. Evidence to support this argument comes both anecdotally from disciplines which embrace embodied and situated research methods and quantitatively, from the disciplines of sensory studies and neuroscience. Feld in Feld and Brenneis (2004) regards "extensive playback … over long periods of time as a key methodology" (p.465) in his use of sound recording as a "representation of culture" (p.468) and Merchant (2011) uses the repetition of audiovisual records of fieldwork encounters as the basis for activities in which "the participants are encouraged to re-view, re-sense and bring to cognition non-cognitive

ways of knowing" (p.69). A large body of academic literature from neuropsychology demonstrates how subjective, selective and interrelated human perception can be, further advocating for the ability to repeat sensory experiences that are central to the research questions being addressed. For instance, the 'cocktail party effect' (Cherry, 1953) demonstrates the selective nature of auditory perception, the 'ventriloquist effect' (Choe et al., 1975) demonstrates that the spatial perception of auditory stimuli can be manipulated by visual stimuli and 'visual capture' (Hey et al., 1965) demonstrates that vision can dominate the cross-modal percept of multisensory experiences (see section 2.2, below)

> "Mimesis is intended not to mimic or reflect reality, but to encourage a moment of cognition through which we can develop a critical perspective that includes 'empathy' as sensuous knowing."

(O'Neill and Hubbard, 2010, p.48)

Although the ability to repeat sensory experiences clearly has benefits, it also has the potential to cause problems of interpretation. Persistent representations of a particular experience might "unitise people's knowledge and perception" (Bork-Hüffer, 2016, p.3) when analysed with collaborators, creating the false impression that sensory experiences are interpreted collectively rather than individually. Experiences that are selected for repetition might simply be aggrandised, resulting in their significance being overstated (particularly when so many ethnographies are "reliant on thin, extracted representations of complex situations" (Dicks et al., 2005, p.70).) The ability to endlessly interrogate sensory experiences bound up with the lives of others also brings with it "the troubling specter of intimacy" (Poole, 2005, p.166) which should not only be carefully considered with regards to objectivity, but also from an ethical perspective. As "sensuous experience and understanding is grounded in previous experience and expectation" (Rodaway, 2013, p.5), the interpretation of sensory research materials is likely to change over time (and particularly with the repetition of the same experience). Whilst this might be considered a positive 'attuning to' a particular series of stimuli, revealing new data, it is likely that specific aspects of the experience will be accentuated based upon expectation.

In conclusion, the concepts of 'closeness', 'abstraction', 'mediation' and 'repetition' might be key to understanding the relationships between sensory experience and cultural phenomena and in designing research methods for analysing those relationships. Whilst all problematic in different ways, they foreground some of the central potentialities and problems involved in designing sensory research methods. In chapters 2 and 4 (below), these concepts will be addressed with regards to the rationale for a multisensory approach to ethnography and in a critical analysis of the technologies of representation used in

conjunction with such studies. This further analysis will reveal how these concepts might be put into practice and the impact their implementation might have on the production of ethnographic knowledge.

1.3 THE BODY

> "Perhaps one of the most essential aspects of a sensuous ethnography for an approach to the study of perception, state power, and lived experience is its emphasis on embodiment."

(Stoller, 2004, p.821)

As "the privileged vantage point from which the world is apprehended" (Tilley, 1997, p.13), the body must be implicated in all stages of ethnographic research which foregrounds the role of sensory experience. In this final section of the introductory chapter, embodiment will be addressed with regards to the design, execution and publication of such studies. Drawing upon phenomenological perspectives, neurological studies of body representation, theoretical contributions from sociology and the fieldwork experiences of ethnographers and anthropologists, I will argue here that 'the centrality' of the sentient body (Stoller, 1997, p.55) is unequivocal but that it is potentially harmful to overemphasise the role of the body at the expense of other dimensions of social experience.

There are many challenges to be addressed when designing research methods intended to produce knowledge from embodied sensory data. As Chau (2008) notes, the body does not only receive sensory stimuli, it produces them. Acknowledging this does not simply highlight that the ethnographer's presence might be indexed within the gathered data, it also reveals that the ethnographer's body will adopt an active and participatory role (ibid, p.488) contributing to the construction of the 'social sensorium' (ibid, p.488). In order to address this, sensory ethnographers must adopt a deeply reflexive awareness of the impact of their presence (beyond the typical concerns surrounding ethnographic objectivity). Similarly, Pink (2011) asserts that knowledge is not simply produced in the mind, it is "embedded in embodied practices" (ibid, p.345) and those embodied practices are tied up with cultural practices and narratives (ibid, p.350). When designing the methods to be used during a sensory ethnography, it is essential to maintain a critical perspective on the complex and dynamic relationships between sensory experience, the embodied practices through which those experiences are created and how those practices also 'embody' the socially produced cultures of the locality. These complexities and subjectivities are a timely

reminder that care should be taken not to stake overly bold claims for the findings of a sensory ethnography during the research design.

> "The body is as present, important and concrete to the research process as the tape recorder, and there is a similar politics of negotiation involved in its use as a research tool."

(Parr, 1998, p.35)

During the execution of sensory ethnographies, the body should be used "as an instrument of data collection" (Spencer, 2013, p.17) and the distinctiveness and value of that embodied and located data must be recognised. This process requires the rejection of any notions which might suggest that mind and body should be considered as separate (Stoller, 1997, xvii) and the acceptance that the "world and the subject reflect and flow into each other through the body" (Tilley, 1997, p.14). The potential for this type of data to reveal new ways of knowing is best illustrated through examples in which the relationships between embodied sensory experience and specific cultural phenomena have been explored. Parr (1998) was able to reveal new insights into mental health and corporeal practices by conducting an extensive ethnography of a community drop-in centre, Mody (2005) was able to challenge preconceptions of laboratory equipment as producers of "invariant and universal scientific truth" (p.194) by learning the embodied and sensory practices involved in their configuration and de Garis (1999) made valuable ontological and epistemological contributions to the conceptualisation of ethnography itself by rethinking embodied research methods as 'performative' rather than 'informative' (p.66) in his active and participatory study of pro-wrestling. Whilst all ethnography is obviously an embodied and situated practice, sensory ethnography distinguishes itself in its conception of the senses not as "an intrinsic property of the body – a natural and unmediated aspect of human being", but as something "far from innocent … a situated practice that can shed light on the way bodies experience different spaces of culture" (Law, 2001, p.266). This subtle but imperative difference might effectively be characterised by describing the body not as an instrument of 'data collection', but rather as an instrument of 'cultural reception' (Bendix, 2000, p.34).

In the publication of sensory ethnographies, it is feasible to utilise embodied modes of representation, offering the 'reader' access to situated experiences of the field of study. In doing so, it might be possible to engage the body in the reception of ethnographic knowledge, as well as in its creation. These experiences might not only facilitate 'closeness' to research encounters experienced in the field (as described in section 1.2, above) but also have the potential to challenge the concept of an ethnographer as "transparent communicator of participants' embodied experience" (Merchant, 2011, p.55). In this paradigm,

the ethnographer is positioned as someone who analyses, situates and reflects upon embodied experiences, rather than attempting to describe them. However, in the analysis of the potential impact of embodied technologies of representation, it is important not to overstate the potential shift in the traditional distinctions between author and audience. In describing the impact of his 2015 virtual reality film Clouds over Sidra, Arora asserts that the viewer is no longer simply a 'spectator', but becomes a 'participant' (2016). There is little to substantiate this claim though. When engaging with embodied media forms, 'viewers' are acutely aware of their lack of physical presence (not least because their own body is not indexed within the space (see Murray and Sixsmith, 1999), are only able to experience a predetermined series of sensory events and are, of course, unable to participate in any embodied practices which might contribute to the construction of the 'social sensorium' (Chau, 2008, p.488).

There are, inevitably, also problems associated with the overarching concept of an emphasis on embodiment. Situating an ethnography as an embodied encounter, particularly from a phenomenological perspective (Howes, 2010a), might "overshadow and obscure the social person" (Chau, 2008, p.492), encouraging an overly individualised analysis of the meaning of sensory experiences. Pink (2011) and Howes (2005) argue that the concept of 'embodiment' should be substituted with 'emplacement' as this highlights both the complex correlations between the body, the mind and the environment and the 'intercorporeality' (Pink, 2011, p.352) of experiences shared with other sentient bodies. To "lend one's body to the world" (Stoller, 1997, xvii) is a vulnerable act and Parr (1998) argues that in this process, the ethnographer inevitably reconfigures their own body in order establish relationships with the research participants. This important point highlights an evolving relationship between the body of the ethnographer and the ethnographic study, in which the body itself might be 'transformed' as part of the process (see Pink, 2001 and Spencer, 2013). Ethnographers must therefore evaluate how physical and mental representations of their body change during the execution of the study, creating different types of interactions between the self, the research participants and the external world (Tessari et al., 2010, p.643). These transformations are inevitably brought into focus during research encounters which are uncomfortable or intimidating, as the potential for physical harm might reduce the extent to which the ethnographer is willing, or able, to transform their body as part of the fieldwork process (Parr, 1998, p.33). However, it undoubtedly occurs more subtly and progressively during quotidian encounters as well.

CONCLUSION

Recent developments in numerous academic disciplines have initiated a surge of interest in attending to the role of sensory experience in understanding cultural phenomena. The significance of this development has been demonstrated through numerous studies which have successfully implemented new and innovative ways of knowing based upon embodied and sensorial practices. However, as an emergent approach which questions long-established research practices, this 'sensorial turn' has many significant challenges to overcome. The place of language and writing in the dissemination of research findings based upon sensory experience must be carefully considered (a process which has the potential to challenge the traditional paradigms of academic publishing), the theoretical framework used to understand the complex and interdependent relationships between sensory experience, the sentient body and cultural phenomena must be sophisticated and robust (see chapter 3, below), the impact of the technological modes used to represent sensory data must be critically evaluated (see chapter 4, below) and the body must be implicated in all stages of the research, including the design, execution and publication of the study. This alluring combination of potentialities and problems brings into focus the timely opportunity to make very meaningful contributions to this emerging development in ethnographic theory and methods.

Should the problems highlighted above be overcome, sensory ethnography could be established as a significant and enduring contribution to anthropology. However, the impact of this emerging discipline might actually be far wider reaching (see sections 5.2 and 5.3, below). The potential solutions advocated in later sections of this thesis are complex and challenging, and are therefore likely to require interdisciplinary collaborations in order to successfully implement them in large-scale studies. These previously unlikely collaborations have the potential to inspire future interdisciplinary theory building and the rethinking of established theoretical frameworks and research methods within other related disciplines. Ethnography has, of course, been adopted as a method within many other fields of scholarly activity, including media and communication studies (the discipline from which this thesis was conceptualised and developed). This proliferation of ethnographic methods outside of anthropology means that the theoretical and methodological contributions in this thesis could have extensive and far-reaching impact. The 'sensorial turn' advocated here also has the potential to instigate very meaningful changes for the participants with whom sensory studies are conducted (see sections 4.4 and 5.4, below). Sensory ethnography should be founded upon dialogic, collaborative and participatory methods intended to co-opt the participants as active collaborators in the production of knowledge.

CHAPTER 2

THE RATIONALE FOR A MULTISENSORY APPROACH TO ETHNOGRAPHY

This chapter represents the first major theoretical contribution of this practice-led PhD: the rationale for adopting a *multi*sensory approach to ethnography. Chapter 1 (above) demonstrated that academic interest in exploring the relationships between sensory experience and cultural phenomena is proliferating. Here, I will argue that the future of this emerging discipline is dependent upon the successful integration of three key concepts:

1. That there are deeply significant relationships between sensory experience, the sentient body and cultural phenomena, the existence of which justifies the adoption of sensory research methods within ethnographic research.

2. That although the theoretical contributions of ethnographies which address a single sensory modality are of great value, it is not possible to separate out modality-specific aspects of culturally significant experiences from the multisensory matrix of perception.

3. Given that perception is fundamentally cross-modal, ethnographies based upon sensory experience should attempt to implicate all modalities as fully and equally as possible.

In this chapter, each of these concepts will be addressed in turn, advancing a rationale which underpins the theoretical framework and methodological contributions outlined in chapters 3 and 4 (below). The intention is to substantiate the foundations upon which this practice-led PhD are built, addressing key questions regarding the place of sensory research within ethnography before more specific recommendations are presented.

2.1 THE SENSES AND CULTURE

> "the senses are often assumed to be an intrinsic property of the body – a natural and unmediated aspect of human being … I argue that the senses are far from innocent; they are a situated practice that can shed light on the way bodies experience different spaces of culture."

(Law, 2001, p.266)

As Law (2001) argues, the senses are "far from innocent" (p.266). They are not simply a means of perceiving the world, apprehending phenomena or accessing sense data, they are "avenues for the transmission of cultural values" (Classen, 1997, p.401), central to the formation of cultural identity and a way of understanding the power relationships present in any society. In this section, all of these concepts will be unpacked with specific reference to ethnographic theory and methods. The intention is to explicate the intrinsic relationships between the senses and culture and to substantiate the argument that sensory research methods should be adopted within ethnography (see chapter 4, below). The overarching argument is that the potential exists to comprehend and analyse vitally important aspects of lived social reality through the lens of sensory experience. However, significant challenges are presented by the tensions between conceptualising those experiences as individualised and embodied but also collective and socially produced.

The senses are inextricably tied up with the formation of cultural identity. Not only does the quotidian reality of everyday life typically consist of a series of socially produced sensory experiences through which commonality with others is established and maintained (Chau, 2008), but the interpretation of those experiences is "learned, cultural and even ideological" (Vannini et al., 2012, p.128). The comforting familiarity of sensory experiences associated with specific cultural phenomena, and the ability to interpret the meaning of those experiences in relation to local 'cultural schemata' (Tilley, 1997) is a process of "collective testimonialism that confirms and authenticates" (Chau, 2008, p.500) different types of cultural identification. It is through the performance of repetitive 'sensory rituals'[1] that individuals 'align' (Stokes and Hewitt, 1976) themselves with particular cultures and, intentionally or otherwise, communicate those affiliations to others. It is for these reasons that dialogic sensory research methods have the potential to make such a meaningful contribution to ethnography (see section 4.4, below). Implementing methods that not only allow sensory experiences to be analysed in detail, but that also engage the research

[1] See for instance Tilley (1997), Edensor (2010), Pauwels (2010) and Vannini et al. (2012).

participants in the selection, interpretation and correlation of those experiences[1] has the potential to result in very productive ways of knowing.

In addressing the relationships between the senses and cultural identity, two of the leading proponents of sensory ethnography argue that the 'sensory order' of the research participants must be carefully considered. This stance is founded upon the notion that sensory modalities have different emphases and biases for particular cultures. Classen (1997) argues that sensory studies must address "the ways in which different sensory domains are invested with social value" (p.401) and Howes and Classen (1991) argue that the question "Which senses are emphasized and which senses are repressed, by what means and to which ends?" is also imperative. This notion might appear to be closely aligned with the argument presented here but it actually introduces a number of significant problems. Not only might it suggest a return to comparative practices in anthropology[2], it also implies a 'totalised' interpretation of culture (de Garis, 1999, p.72), at odds with the subjective and individualised nature of sensory experience and which inherently underestimates the significance of the body as the mediator of all sensory interactions with the world. Given that the two quotations above are from the last century, it would be easy to disregard them as representative of an anachronous argument but Howes and Classen still refer to the concept of the 'sensory order' in 2013, although this later work does recognise that 'intracultural variation' exists in which individuals may "differ on the sensory values embraced by the society at large" (p.12). The most significant issue with this argument, however, is the extent to which it might direct sensory ethnography towards concerns regarding the senses themselves, rather than situating it as a research method in which sensory experience is the 'lens' through which knowledge is produced (see chapter 1, above).

> "sensuous descriptions improve not only the clarity and force of ethnographic representations but also the social analysis of power relations-in-the-world"
>
> (Stoller, 2004, p.817)

Also central to any analysis of the relationships between the senses and culture is an acknowledgement of the extent to which sensory experience both structures and reveals the power relationships present in any society. In the production of sensory stimuli, power is exerted over contested spaces and in the perception of those stimuli,

1 See Feld and Brenneis (2004) for an analysis of this practice in the context of field recording.
2 As previously noted in Chapter 1 (above) in relation to the overarching challenges which sensory ethnography must address.

authority is communicated to others.[1] These struggles, which might be enacted through any combination of the 'far senses'[2], are routinely played out in both public and private contexts, despite the fact that "most of our routine bodily experience is marked by a lack of reflection" (Vannini et al., 2012, p.8) and it is typically only during specific moments of 'sensory intensification' (Leder, 1990) that such interactions are consciously evaluated. As an "arena for structuring social roles and interactions" (Howes, 2003, xi), it is little wonder that academic interest in 'attending to the senses' in the study of culture is proliferating and that sensory research methods are gaining traction as an effective method of analysing and reflecting upon issues of social concern (Howes, 2010b, p.338). However, the study of such complex, subjective and interdependent relationships as those presented by the analysis of power relationships in society demands a sufficiently sophisticated theoretical framework (see chapter 3, below) and innovative research methods (see chapter 4, below).

There are many examples of published studies which investigate how the senses structure the power relationships present within specific communities and practices. Law's (2001) study with diasporic communities of Filipino domestic workers in Hong Kong[3] presents an argument which "connect[s] the senses to questions of power and the cultural economy of labour migration" (p.274). As the workers are typically prevented from cooking foods which produce unfamiliar odours within the homes they share with their employers, they 'occupy' public spaces in the Central district of Hong Kong on Sundays and actively recreate the sensory experience of Manila. This practice not only establishes a 'sense' of belonging in an unfamiliar environment, but also challenges the power that is so commonly exerted over them within their home. Rice's (2003) study with patients in the Edinburgh Royal Infirmary argues that the absence of visual stimuli created by the intentionally austere decor of the hospital and the rhythmic auditory cues of the medical equipment combine to serve "as a coercive influence, imposing upon patients a role which they may consider disagreeable" (p.9). The regulated sensory experience of the hospital, also regulates the behaviour of the patients living within it. The highly contested site of the *Experience Temple Works* project is also illustrative of how power relationships can be negotiated through the sensory experience of place. The fabric of the building is a canvas upon which the

1 For instance, this binaural field recording created as part of a study of city markets (Jackson et al., 2017) contains numerous examples of auditory stimuli being generated to exert power over a busy street market in Mexico City: https://soundcloud.com/tomsummersound/street-market-in-mexico-city These include sellers using vocal 'cries' to attract the attention of potential customers and an 'organillero' creating music which is commonly considered to serve as a reminder of an important cultural tradition.

2 Many contradictory distinctions have been made between the 'near' and 'far' senses (see for instance Sekuler and Blake, 2005) but in this instance, I refer to the 'far senses' as those not requiring proximal contact: the visual, auditory, haptic and olfactory senses.

3 Previously cited in Chapter 1 (above) as an archetypal example of a cultural phenomenon that can only be understood through the lens of sensory experience.

resident artists exhibit their creativity, vying for the attention of visitors, in competition with other creatives and the building itself, which resists codification through its ceaseless decay[1]. As a performance and rehearsal space, the auditory experience of the site is also contested, not only by the active creation of sound and music by the resident artists but also by the multitude of sounds generated by the building itself[2]. As Lefebvre argues, the key to understanding the significance of this 'music' is the desire to know "how this music is composed, who plays it and for whom" (Lefebvre, 1996, p.87). This type of analysis is facilitated by the repeatable, embodied sound recordings which form a substantial part of *Experience Temple Works*[3].

It is also possible to illuminate the synergies between the senses and culture by charting "the ever-closer relationship between the sensuous and the technological" (Danius, 2002, p.2). Advances in technology have the potential to instigate changes in society and changes in society have the potential to inform the development of specific technologies, perspectives which are represented by the concepts of 'technological determinism' and 'social constructivism' (Bloomfield et al., 2010, p.416). For instance, the recent proliferation of advances in VR hardware have been brought about by consumer cultures "catering to the human quest for sensuous pleasures" (Vannini et al., 2012, p.149) and by sharing cultures which compel the circulation of life experiences online. These technological developments, in turn, bring about a 'reconfiguration' of the senses (Parisi, 2008, p.309) which impacts upon future cultural phenomena. This argument is particularly pertinent to any project which is founded upon the use of sensory technologies to reveal aspects of culture, such as *Experience Temple Works*, as it illustrates some of the fundamental relationships between the object and subject of study. Acknowledging these relationships also highlights the potential contributions of any practice-led research project involving technological methods to wider issues and debates than those addressed by the specific study.

> "We may come to understand how people in a particular culture know and are in the world through the senses, but there has been little explicit attention to the active participatory role of human agents themselves in producing the said sensory stimuli."
>
> (Chau, 2008, p.488)

1 For instance, see this location: http://tomjackson.photography/interactive/templeworks/?loc=openloadingbay

2 For instance, listen to the audio here: http://tomjackson.photography/interactive/templeworks/?loc=closedloadingbay

3 See section 1.2 (above) for an analysis of the concept of 'repetition' in sensory research and section 4.2 (below) for an analysis of sound recording as embodied research practice.

One of the dangers of studying culture through the lens of sensory experience is the potential to underestimate the extent to which sensory experience is socially produced. In foregrounding the importance of embodiment and perception, “the active participatory role of social agents in producing a sensorially rich social world” (Chau, 2008, p.485) might be neglected. The sensory experience of any given place, at any given time, is collaboratively constructed by those currently and previously present, but that experience is accessed through individualised and subjective encounters which have the potential to overshadow the wider socio-cultural phenomena implicated in their creation. Of particular significance to ethnography is the extent to which the ethnographer might be an active agent in the social production of the sensory experiences being studied. Whilst all research projects involving fieldwork must acknowledge the potential for reactive effects to occur, sensory ethnography demands a greater reflexivity regarding the presence of the ethnographer in both the original fieldwork encounter and the resulting sensory research materials. These challenges, which can never be wholly overcome, provide another justification for the adoption of participatory methods (see section 4.4, below) in which the ethnographer relinquishes aspects of the authorial process and allows the participants to collaboratively construct their own research materials and findings.

In conclusion, the complex and interdependent relationships between the senses and culture substantiate the rationale for sensory research methods to be adopted within ethnography. The senses are tied up with the formation of cultural identity and both structure and reveal the power relationships present within society. However, arguments regarding the ‘sensory order’ of different cultures should be avoided and the socially produced nature of sensory experience must not be underestimated as a consequence of implicating embodiment and perception. The relationships between the senses, culture and technology might be of particular relevance to ethnographic projects which involve technological methods, such as those advocated in chapter 4 (below), as they have the potential to reveal new perspectives regarding sensory technologies as both the object and subject of study. These foundational arguments are further explicated in the new theoretical framework for sensory ethnography (see chapter 3, below) and in the advocation of specific sensory technologies (see chapter 4, below).

2.2 NEUROLOGICAL STUDIES OF CROSS-MODAL PERCEPTION

> "There can be no doubt that our senses are designed to work in concert … even those experiences that at first may appear to be modality-specific are most likely to have been influenced by activity in other sensory modalities, despite our lack of awareness of such interactions."

(Calvert et al., 2004, xi)

A striking omission from the vast majority of ethnographic work which implicates sensory experience is any reference to neurological studies of cross-modal perception. This body of work demonstrates the behavioural consequences of different types of sensory stimuli and the measurable impact that stimuli from one sensory modality can have upon the perception of another. The key publications *The Handbook of Multisensory Processes* (Calvert et al., 2004) and *The New Handbook of Multisensory Processing* (Stein, 2012) have demonstrated "cross-modal cuing effects … between all possible combinations of auditory, visual and tactile cue and target stimuli" (Calvert et al., 2004, p.4) and an awareness of these interactions is fundamental to the analysis and interpretation of sensory experience. In 2010, Pink argued that "new neurological studies offer essential understandings of sensory perception and experience" (2010b, p.332) but did not offer any explication of the 'understandings' that might be revealed and, most significantly, there is little evidence of her future work in this area having implemented her own recommendation. Other advocates of sensory ethnography[1] appear to omit this body of work completely, or discount it as less significant than 'indigenous ideas' about sensory perception (Howes, 2010a, p.335), a stance which might be aligned with troubling arguments regarding the 'sensory order' of a particular culture (see section 2.1, above). Here, some of the key findings of neurological studies of cross-modal perception will be addressed with specific reference to ethnography. The intention is not only to use this literature in order to substantiate the rationale for a multisensory approach to ethnography, but also to identify where the specific findings of this work might inform ethnographic practice.

A number of the overarching findings of neurological studies of cross-modal perception should be carefully considered when analysing the sensory research materials created as part of an ethnographic study. The most wide-reaching of these findings is the overwhelming body of evidence demonstrating that perception is fundamentally cross-modal (see primarily Calvert et al., 2004 and Stein, 2012). As "combinational permutations of

[1] See for instance de Garis, 1999; Dicks et al., 2006; Sunderland et al., 2012; Vannini et al., 2012 and Nakamura, 2013.

multisensory behavioral and perceptual effects would appear to be limitless" (Stein, 2012, p.3), ethnographic studies which address only one sensory modality must be brought into question. Selecting a single modality as the fulcrum of a particular study might be credible but the ineluctable interactions with other sensory modalities must be acknowledged in the findings. For instance, Mody's (2005) sensory ethnography with laboratory workers argues that tacit knowledge regarding the maintenance of the lab equipment is located within the auditory experience of listening to its operation. However, haptic experience is also implicated in the study, acknowledging the cross-modal interactions between auditory experience and the sense of touch.

An awareness of the potential for specific sensory modalities to dominate the perception of different types of task provides valuable insights into the nature of sensory experience too. For instance, "Vision has a higher spatial resolution, hence its dominance in spatial tasks … , whereas audition has a higher temporal resolution, hence its dominance in temporal tasks" (Shimojo and Sans, 2001, p.506). When attempting to uncover the significance of sensory experiences in relation to specific ethnographic questions, an awareness of these 'perceptual hierarchies' can be very revealing. For instance, Plourde's 2017 study of background music in office environments in Tokyo presents a very persuasive argument regarding the intention to create a type of 'ambient labor control' (p.20) which 'paces' the activities of the office workers throughout the day (p.26). However, this argument could have been further substantiated by drawing upon relevant neurological studies which demonstrate the potential for auditory cues to dominate the perception of time[1]. It should also be noted that the senses work 'in concert' (Calvert et al., 2004, xi) and when discordant stimuli are presented simultaneously, they may be "judged as consistent … to form a congruent item" (Woods and Reganzone, 2004, p.35). However, "when the input from one sensory modality is significantly different …, the consequent perception is of two or more distinct objects" (ibid). These propensities highlight the necessity to very carefully analyse sensory research materials, maintaining an awareness of the potential for specific stimuli to be perceived as congruent with, or distinct from, other aspects of the experience. The creation of research materials which represent a 'repeatable event' which can be studied at length (Schafer, 1973) might be key to facilitating this type of analysis (see section 1.2, above).

Auditory stimuli have the potential to very significantly impact upon the perception of visual stimuli. For instance, accompanying auditory stimuli have been demonstrated to increase the speed and accuracy with which the eye can track to the location of visual

[1] See for instance Shams et al., 2000 and Shimojo and Sans, 2001.

stimuli (Marks, 2004), a single flash of light is commonly perceived as multiple flashes when accompanied by multiple auditory 'beeps'[1] (Shams et al., 2000) and variances in the soundtrack accompanying a piece of video have been demonstrated to produce very different patterns of visual fixation (Vilaró et al., 2012). These cross-modal interactions reveal some of the problems associated with the visualism inherent in so much of contemporary ethnographic practice. With ethnographers typically situated as "participant *observers* who *reflect* on their *visual* experiences" (Stoller, 1997, p.55, italics in original), the potential exists for the deep significance of auditory experience in the perception of fieldwork encounters to be obscured. Even if an ethnographic study specifically intends to generate knowledge regarding a visual phenomenon, auditory experience needs to be implicated as neurological studies have demonstrated these two modalities cannot be disentangled.

The interactions between auditory and visual experience are also reciprocal, with visual stimuli having the potential to significantly impact upon the perception of auditory stimuli. For instance, 'the McGurk effect' (McGurk and Macdonald, 1976) demonstrates that speech perception is not purely an auditory process using an experiment in which a consistent sound is perceived differently when accompanied by the visual perception of different lip movements and 'The ventriloquist effect' (Choe et al., 1975) demonstrates that visual stimuli are able to dominate the spatial perception of auditory stimuli, an effect upon which cinema is contingent in order to create the illusion that sound effects are emanating from the corresponding part of the screen. These cross-modal interactions ask questions regarding auditory-specific studies of culture such as ethnomusicology and acoustemology and illustrate again that an awareness of these neurological studies can inform the analysis of sensory research materials. Of particular significance to ethnography however, are the findings which demonstrate that these cross-modal interactions can have a lasting 'aftereffect'. For instance, several studies[2] have shown that repeated exposure to an experiment which compels 'the ventriloquist effect' can also "induce adaptation, resulting in a 'recalibration' between the modalities" (Eramudugolla et al., 2011, p.62). These findings not only reveal that the sensory experience of a particular place is likely to have a lasting impact upon the perceptual systems of those who inhabit it, they also serve to remind ethnographers that their own perceptual systems might be 'recalibrated' during extended fieldwork.

1 An effect which endures even when the participants are informed of the specific nature of the test.

2 See Frissen et al., 2005; Eramudugolla et al., 2011 and Wozny and Shams, 2011 amongst many others.

Neurological studies have demonstrated a vast number of other cross-modal interactions, including some findings related to the gustatory, olfactory and haptic senses. These include the potential for potato chips to be "perceived as being both crisper and fresher when ... the overall sound level [of the biting action] was increased" (Zampini and Spence, 2004, p.347), the demonstration that "odor-induced changes in taste perception ... [are] a reliable perceptual phenomenon" (Borthwick, 2000) and the potential for the perception of haptic stimuli to be influenced by visual 'aftereffects' (Krystallidou and Thompson, 2016). However, for the purposes of the argument presented in this section, the auditory and visual interactions described above are the primary focus. The intention is not to denigrate the 'lower senses'. In fact, a large proportion of the functionality developed for *Experience Temple Works* was implemented with the intention of engaging the haptic sense (see section 4.3, below). The audio-visual bias here is simply reflective of the limitations of current technology regarding the gustatory, olfactory and haptic senses and the focus of this thesis on practice-led methodological innovations.

In conclusion, neurological studies of cross-modal perception have a great deal to offer the emerging discipline of sensory ethnography. An awareness of the highly consequential interactions between different sensory modalities reveals new ways of understanding fieldwork experiences and the sensory research materials created as part of an ethnographic study. As well as providing a helpful critique of modality-specific ethnographies, the findings of these studies can aid ethnographers in accurately interpreting the significance of particular sensory experiences and, like so many of the recommendations in this thesis, serve as a reminder of the intense reflexivity that sensory ethnography demands. These neurological studies are addressed again in the new theoretical framework for sensory ethnography proposed in chapter 3 (below) and a number of the methodological decisions in chapter 4 (below) are reflective of the issues regarding cross-modal interactions that they demonstrate.

2.3 MODALITY–SPECIFIC ETHNOGRAPHIES

> "As ethnographers, what do we try to study? How? For what purposes? Let us start with [the] formation of the observer as a sentient and semiotic creature, compelled to make sense of his or her universe"

(Brady, 2004, p.624)

Throughout this thesis, a *multi*sensory approach to ethnography is advocated and modality-specific studies are problematised. However, the theoretical frameworks which underpin studies involving individual sensory modalities are still of great value and should be used to inform multisensory approaches. By elucidating and synthesising some of the most pertinent arguments regarding the relationships between the individual senses and culture, the intention here is not only to integrate, rather than reject, important contributions from approaches which are at odds with the stance presented in this thesis, but also to strengthen the rationale for implicating all aspects of sensory experience as fully as possible. Wherever it is possible to do so, the arguments pertaining to individual sensory modalities will be addressed in relation to, and situated within, the multisensory approach to ethnography advocated in this thesis and illustrative examples from my own practice will be cited in order to illustrate this. However, some of the arguments presented by modality-specific studies are at odds with the findings of neurological studies of cross-modal perception outlined in section 2.2 (above) and will be identified as such. An analysis of visual ethnography is intentionally absent here, as this discipline is already scrutinised at length in existing literature (see for instance Pink et al., 2004; Pink; 2006b and Pauwels, 2010). However, the potential for other forms of sensory research to impact upon visual methods is addressed.

> "Three-dimensional, interactive, and synesthetic, perceived in the here and now of an embodied space, sound returns to the listener the very same qualities that media mediates: that feeling of being here now, of experiencing oneself as engulfed, enveloped, absorbed"
>
> (Dyson, 2009, p.4)

The key methodological and technological concerns regarding sound and ethnography are outlined in section 4.2 (below), in which binaural field recording is advocated as an ethnographic method. Here, some of the key theoretical issues regarding sound are addressed, evaluating the temporal, spatial and embodied qualities it possesses. As practitioners and scholars working with field recording as a method are consistently able to identify "numerous examples from their work of occasions where a particular reality was uncovered for an audience through attentive listening, skilful recording and careful re-presentation" (Lane and Carlyle, 2013, p.13), the capacity of sound to communicate these understandings is clearly of relevance to sensory ethnography.

Audition has a very high 'temporal resolution' (Shimojo and Sans, 2001) resulting in the potential to significantly impact upon the perception of time and there are ethnographic contexts in which this way knowing might be particularly pertinent. For instance, numerous

ethnographic projects have addressed the power relationships that exist within strip clubs[1]. These clubs are highly time-regulated environments in which the length of any performance is dictated by the repetition of pieces of music with a calculated and invariable duration. Although the choice of music might be one of the 'overt tactics' the performers employ to "dispute particular forms of inequality in the workplace" (Egan, 2006, p.201), the regulation of the temporal experience through auditory media remains one of the most pervasive aspects of the lived reality of working in this type of environment. In my own research practice I have reflected upon the potential for sounds I have unintentionally created to impact upon the perception of time experienced by others. The auditory stimuli created by my nervous 'pacing' during a research seminar at Temple Works (the result of an irrepressible somatic response to feelings of uncertainty) "may have become one of the most persuasive cues in the perception of the activity" (Jackson in Akama et al., 2015). This particular example not only offers another vignette regarding the significance of sound in relation to the perception of time but also serves as a reminder regarding the active and participatory role of human agents in the social production of sensory experience (Chau, 2008).

The spatiality of sound is of also great significance to ethnography. Audition is an "intensely relational" act which offers a "reciprocity with space" (LaBelle, 2012, pp.1-3), allowing the listener to identify and reflect upon their situation within an environment. As one of the 'far senses', sound can reveal distant sources of ethnographic data which might not be accessible through other sensory modalities and as a vibration, sound is also inherently reflective of movement, which can significantly impact upon the perception of objects and the environment. For instance, Degen (2008) reflects upon the significance of sound within urban regeneration projects, arguing that sound can 'link' spaces which are visually demarcated, that the distant sound of building work "signifies action and change" and that the "sonic presence of people … can indicate safety or danger" (p.44) depending upon the context. All of these examples are illustrative of the relationships between spatiality, sound and listening and the significance of these relationships in the context of ethnography. However, the majority of auditory-specific publications which address the spatial nature of sound (see for instance LaBelle, 2012) fail to acknowledge that neurological studies of cross-modal perception have demonstrated that visual stimuli are capable of dominating the perceived spatial localisation of auditory stimuli. The omission of this phenomenon, commonly referred to as 'the ventriloquist effect' (see section 2.2, above), has implications for the analysis of sensory experiences, potentially suggesting an underestimation of the importance of vision in the spatial perception of place. Maintaining an awareness

[1] See for instance Wood, 2000; Pinney, 2005 and Egan, 2006.

of cross-modal interactions such as this serves as a reminder that the 'sensory turn' in ethnography is not intended to initiate a wave of 'antivisualism' (Feld, 1996, p.96), but rather suggests that all of sensory modalities are treated as equally as possible.

> "Sound can arouse human emotion to a more intense level than can sight alone. 'Screaming' headlines in the morning newspaper catch our attention but have no grip on our heart. Pictures of disaster may elicit more of a response. But we will be thoroughly engaged by the sound of an ambulance siren or by cries of pain, rage, or despair"
>
> (Tuan, 1995, p.72)

Auditory perception is an intimately embodied experience. Acoustic stimuli "penetrate us from all directions at all times" (Rodaway, 2013, p.91), engaging both the auditory and haptic perceptual systems and creating experiences that are "profoundly different from the dominant sense of sight" (Dyson, 2009, p.4). The extent to which auditory perception implicates the body, and the affective consequences of this, has great relevance to sensory ethnography. If auditory research materials are created as part of an ethnographic study, knowledge which is "not simply something of the mind, but ... embedded in embodied practices" (Pink, 2011, p.345) might be accessible in the later analysis of fieldwork experiences. Whilst these auditory research materials are likely to be 'aligned' with a particular somatic perspective, dictated by the recordist, and are therefore not a 'transparent communicator' of embodied experience (Merchant, 2011), sound has the capacity to involve the listener within an environment, in contrast to vision which "makes us aware of our distance to an object" (Degen, 2008, p.46)[1]. The sense of 'closeness' (see section 1.2, above) which auditory research materials are capable of facilitating, is compellingly illustrated at a specific site within the *Experience Temple Works* project. All of the locations within the 'main space' of the building contain sound recordings, but due to constraints of time and access, the adjacent 'open loading bay' does not. The loss of auditory experience created by the transition between these two spaces[2] results in a very distinctive sense of 'distancing'. However, in the analysis of such materials, it is important to maintain an awareness of the human propensity for selective audition, evidenced by neurological studies (see for instance Arons, 1992 and Leccese et al., 2015). This characteristic of the embodied experience of

[1] Tim Ingold contests this argument. Drawing upon the work of Gibson (1986) and Merleau-Ponty (1962), he argues that such notions may be more reflective of "the preconceptions of anthropological analysts than upon the actual sensory experience of the peoples among whom they have worked." (2000, p.252).

[2] After spending some time exploring the 'main space' (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace) whilst listening to the binaural sound recordings this location includes (using headphones), leave the space by clicking on the large grey doors, labelled as leading to the 'open loading bay'.

listening highlights the subjectivity of auditory perception and substantiates the argument for creating repeatable research materials (see section 1.2, above).

The study of olfactory experience has seen a recent proliferation of academic interest, partly in response to the critique of visual anthropology[1] but largely as a result of interventions by key scholars including Classen (1993) and Drobnick (2006). Making the analysis of olfactory experience an integral part of sensory ethnographies has the potential to reveal how "odours are invested with cultural values" (Classen, 1993, p.3), to facilitate the study of olfactory 'sense memories' and their affective consequences (see Willander and Larson, 2007 and Low, 2013) through processes of elicitation and to reveal the significance of transformations in the sensory experience of place over time, as odour commonly changes rapidly in response to social policies and practices (see Edensor, 2007 and Vannini et al., 2012). Central to the interpretation and analysis of olfactory experience is the concept of 'context'. Both sociological and neurological studies have identified how differently olfactory experiences are perceived, depending upon the context in which they are encountered. For instance, cultural geographer Edensor (2007) argues that whilst the odour of decay might be considered repulsive within the cities of 'Western modernity', encountering those same smells within the context of an urban ruin "conjures up a rich sensation of forgotten memories" (p.224) and neuroscientists de Araujo et al. (2005) demonstrated that the same odour was capable of stimulating significantly different brain activity when contextualised by different linguistic descriptors. Of particular significance to ethnography though, is the extent to which olfactory experience has the potential to inform social organisation. The smells associated with particular places might "explain why social proximity or distancing occurs" (Low, 2015, p.303) with familiar odours eliciting positive 'sense memories' and unfamiliar odours activating the olfactory system's capacity for identifying "warnings against danger" (Perricone et al., 2013, p.87).

Gustatory ethnographies commonly focus upon the study of food and drink associated with particular cultures or cultural practices (see for instance Fischler, 1988; Choo, 2004 and Vannini et al., 2010). Whilst these studies offer valuable insights into the close relationships between food and cultural identity, it is imperative that the significance of gustatory experience is not reduced to concerns regarding consumption. The sense of taste has the capacity to reveal many other ways of accessing and understanding the lives of others. For instance, Spencer (2013) argues that the taste of blood in his mouth was essential to understanding the experience of competing in mixed martial arts and in my own

[1] See for instance Stoller, 1989 and 1997; Classen, 1997 and Poole, 2005.

implementation of sensory research methods during fieldwork in Chile (Elliott et al., 2016), I found that the very high levels of air pollution in Santiago could only be appreciated by the startling gustatory experience of a bitter taste being a part of everyday respiration in the city. Rhys-Taylor (2010) makes the helpful distinction between a taste of something or a taste for something, highlighting that the word 'taste' can refer to a gustatory experience, or a personal preference. The development of this dual meaning is likely reflective of the close relationships between gustatory experience and the formation of self-identity.

The study of olfactory and gustatory experience presents a number of unique challenges which, in parallel with a long-standing reluctance in anthropology to engage with the 'lower senses' (Howes, 2010a), might explain the absence of these important aspects of experience within so many sensory studies. Not only is the perception of olfactory and gustatory stimuli subject to potent cross-modal interactions (see for instance Djordjevic et al., 2004 and Zampini and Spence, 2004), greatly increasing the complexity of their analysis, it is also not possible to create olfactory and gustatory research materials, facilitating the 'closeness' and 'repetition' advocated in section 1.2 (above). The description and analysis of these two sensory modalities in language and writing is also problematic as many languages are "ill adapted to describing many of the senses that haunt our memories or excite our bodies, like taste and smell, touch and proprioception" (Majid and Levenson, 2011, p.7)[1]. The study of olfactory experience presents two further challenges as well. The perception of a particular odour is often a fleeting and ephemeral experience, difficult to affirm, let alone reflect upon. When the presence of a particular odour is more persistent, the perceptual systems of the ethnographer are very likely to demonstrate 'olfactory adaptation' in which the sensitivity to that odour is reduced in order to "maintain equilibrium with the odourant concentrations of the ambient environment, yet respond appropriately to the appearance of novel odors" (Dalton, 2000, p.487). Adaptation occurs across all sensory modalities, highlighting again the reflexivity which sensory research demands, but it is especially evident in the olfactory sense, the primary functions of which include recognition and warning (Perricone et al., 2013). However, these challenges should not be used to justify the omission of olfactory and gustatory stimuli from sensory ethnographies as they may be of great significance to the cultural phenomena being studied and are an intrinsic, but commonly overlooked, aspect of the cross-modal perception of place.

In conclusion, ethnographic studies based upon individual sensory modalities are inherently problematic as they fail to acknowledge the fundamentally cross-modal nature of sensory

[1] See section 1.1 (above) for a more detailed analysis of the challenges associated with the senses, language and writing.

experience. However, the theoretical frameworks which underpin such studies should be used to inform multisensory approaches. Most significantly, the ways of accessing and understanding the lives of others that are specific to individual modalities are of great relevance to sensory ethnography and illustrate the efficacy of implicating all of the senses as fully and equally as possible. Should an ethnographic study centre upon an individual sensory modality, the ethnographer must maintain a critical awareness of the arguments presented here, and in section 2.2 (above). Whilst the chosen sensory modality might provide access to very revealing ways of answering the anthropological questions being addressed, those sensory experiences will be influenced by cross-modal interactions, even though the research participants are likely to be unaware of their existence.

CONCLUSION

In synthesising theoretical perspectives from numerous disciplines, this chapter has provided a rationale for one of the fundamental arguments presented in this thesis: that multisensory research methods have a contribution to make to the emerging discipline of sensory ethnography. The senses and culture demonstrate complex and interdependent relationships which can be evaluated in respect to the formation of cultural identity, the power relationships present within society and the reciprocity that exists between the senses, culture and technology. The findings of neurological studies of cross-modal perception can be applied in the analysis of these relationships, aiding ethnographers using sensory methods to accurately interpret their fieldwork experiences and research materials. Modality specific ethnographic studies may be at odds with some of the fundamental findings of these neurological studies but the theoretical frameworks developed to 'make sense' of these studies are still of great value and can be integrated into the multisensory approach advocated in this thesis.

Whilst this chapter is intended to make a contribution to the emerging discipline of sensory ethnography, the arguments that it presents could be appropriated by other areas of academic enquiry which interrogate lived experience, including cultural and human geography, psychology, sociology and phenomenology. The theoretical framework and methodological innovations which this thesis later proposes (represented by chapters 3 and 4, respectively) are founded upon the concepts that there are deeply significant relationships between sensory experience and cultural phenomena, that perception is fundamentally cross-modal and that ethnographic studies should therefore attempt to implicate all of the senses as fully as possible, and each of these concepts has been substantiated here.

CHAPTER 3

A NEW THEORETICAL FRAMEWORK FOR SENSORY ETHNOGRAPHY

This chapter represents the second major theoretical component of this practice-led PhD. In Chapter 1 (above), the lack of a sufficiently sophisticated theoretical framework was identified as one of the key challenges the emerging discipline of sensory ethnography needs to overcome in order to be established as a meaningful and enduring development within anthropology. Here, I will present a new framework, conceptualised not only through a critical review of current literature but also as a response to the experience of implementing multisensory research methods in the field. The framework is founded upon two key arguments:

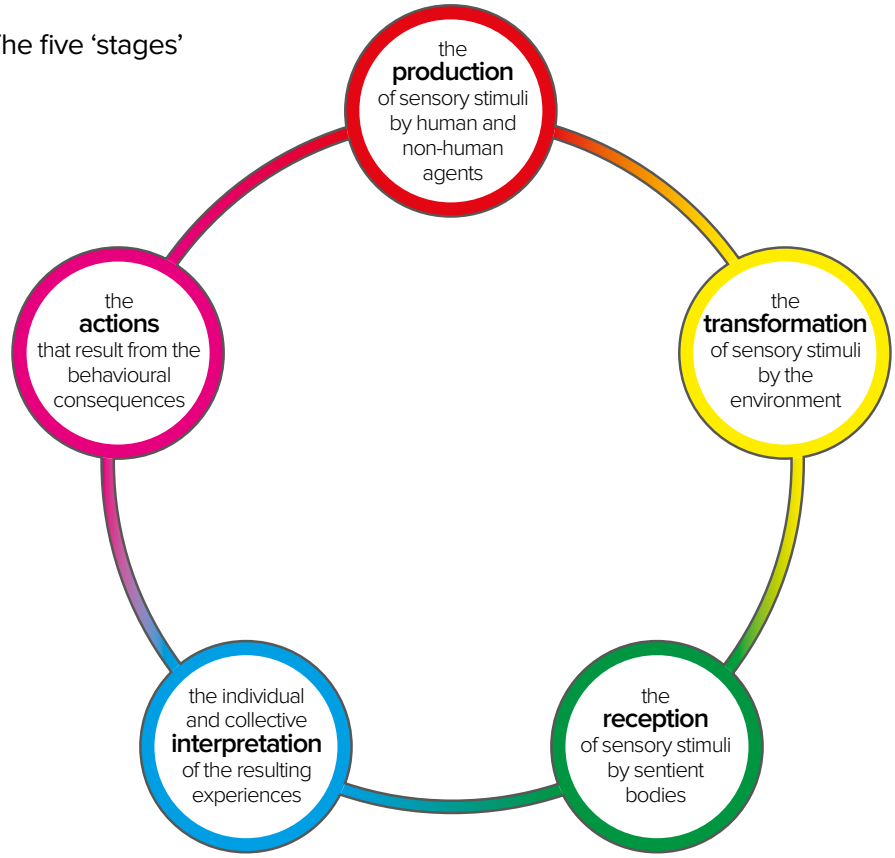
1. That in order to understand the relationships between sensory experience, the sentient body and cultural phenomena, a 'helical model' of correlation[1] might be the most helpful.

2. That the interpretation and analysis of these relationships is dependent upon the synthesis of theoretical concepts from numerous different disciplines.

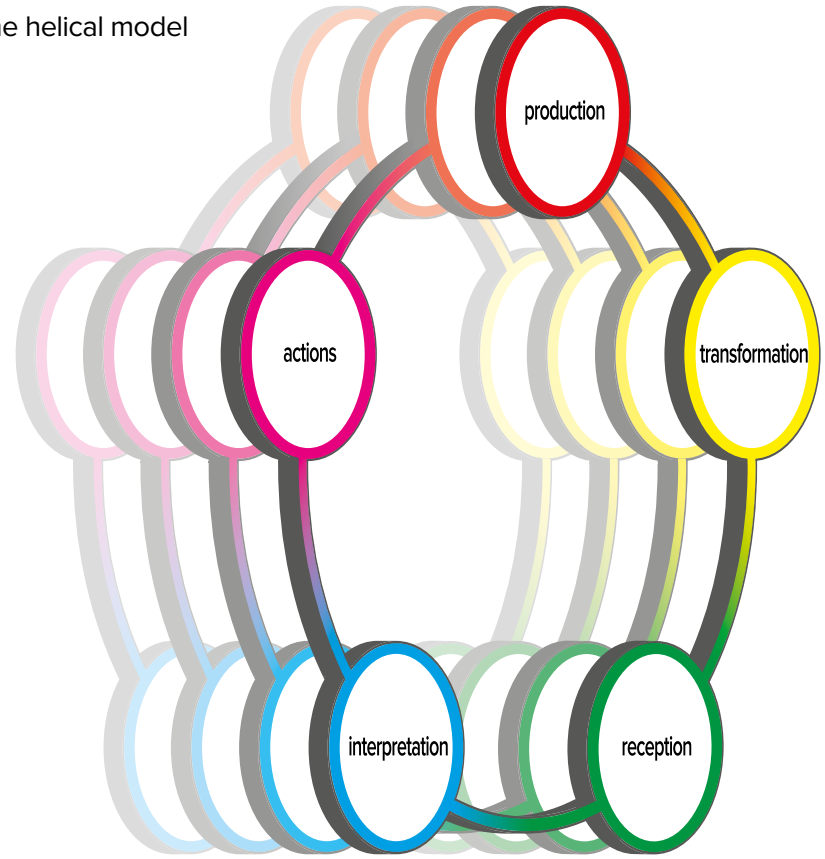
The model which this new framework introduces is based upon five 'stages' (see Figure 1): the production of sensory stimuli by human, non-human and material agents, the transformation of those stimuli by the environment in which they were produced, the reception of those stimuli by sentient bodies, the individual and collective interpretation of the sensory experiences those stimuli constitute and the actions that result from the behavioural consequences of those experiences which, in turn, impact upon what is perceived. It is this continual adaptation of both the 'producers' and 'perceivers' of sensory experience which necessitates a helical model (see Figure 2), incorporating a temporal dimension. The adoption of a circular model might infer that these relationships are immutable, rather than

[1] The word 'correlation' was chosen to indicate that the links between the stages in the model are intended to suggest a complex and interdependent relationship, rather than a linear causality.

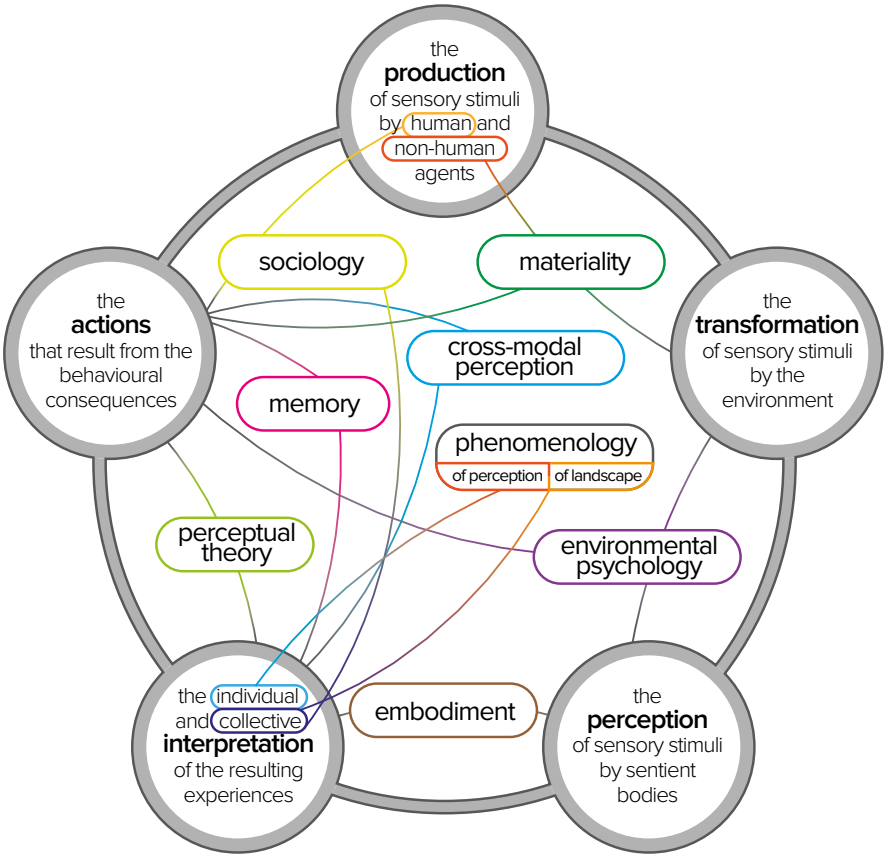
■ Figure 1: The five ‘stages’



■ Figure 2: The helical model



evolving and reflective of experiences “in which nothing is the same from one moment to the next” (Ingold, 2000, p.158). As Cook (1914) explains, a helical model “is always growing, yet never covering the same ground, so that it is not merely an explanation of the past, but is also a prophesy of the future … leading constantly to new discoveries” (p.413).



■ Figure 3: The cognate disciplines

The interpretation and analysis of each stage in the model is dependent upon the integration of different combinations of cognate disciplines (see Figure 3) and the remainder of this chapter is devoted to an explication and analysis of the new theoretical framework that is formed by this unique synthesis. Although the production of sensory stimuli is taken as the starting point, this is not intended to suggest that there is a ‘beginning’, or an ‘end’, to the relationships that are detailed here[1]. The conventions of academic writing necessitate a linear structure but the helical model proposed in this chapter can be accessed from any point, reflecting the nature of sensory experience as a ‘continuous flux’ (Ingold, 2000) of reciprocal relationships. Sections 3.1 - 3.5 should therefore be read sequentially, but there

[1] Stimuli pertaining to different sensory modalities are likely to be experienced concurrently and yet asynchronously too, adding to the complexity of their interpretation. This further substantiates the argument for producing repeatable sensory research materials, which can be evaluated at length (see section 1.2, above).

is no benefit to starting at the beginning. As the chapter unfolds, it will become clear that this new framework is grounded in theory but a number of 'scenarios' within the associated practice will also be offered in order to substantiate that the framework was developed symbiotically alongside the implementation of the methodological innovations advocated in this thesis and that the theoretical arguments are borne out within practical fieldwork experiences. The scenarios are included as footnotes but are labelled with greater emphasis in order to differentiate them within the text.

3.1 PRODUCTION

Careful consideration of the origins of sensory stimuli, prior to their transformation by the environment and their reception by sentient bodies, has the potential to be a very revealing component of any sensory ethnography. Sensory stimuli are the result of actions and interactions by human and non-human agents and are therefore reflective of complex interrelations of intentionality. Here, the production of sensory stimuli will be evaluated from the perspective of three potential 'actants' (Latour, 2004): humans, non-human animals and material objects. Whilst this is not an exhaustive list and sensory stimuli can originate from elsewhere[1], these three sources have the greatest relevance to ethnography and will therefore be the focus of this section.

The sensory stimuli directly produced by human agents (rather than indirectly through the creation and modification of material objects) are naturally of great significance to ethnography. These stimuli might be produced (just for instance) deliberately or accidentally, responsively or proactively, innocently or knowingly and all of these characteristics have the potential to be very revealing in the context of trying to access and understand specific cultures. For instance, de Garis (1999) argues that the proficiency of pro wrestlers is knowingly communicated between competitors through the haptic experience of a handshake with "an amazing degree of accuracy" (p.72). In the analysis of these stimuli produced by human agents, the conventional model of five sensory modalities[2] is brought into question as it fails to adequately represent interoceptive stimuli such as feelings of hunger (connected with the gastrointestinal system), the sensation of pain (by the central nervous system) and the body's kinaesthetic ability to know the position and movement of its anatomy (through the muscles and joints). These aspects of sensory experience, not represented by the model of five modalities, might be of central concern to an ethnographic study. For instance, Potter

1 Such as from atmospheric conditions, chemical reactions, vegetation etc.
2 Touch, taste, smell, hearing and vision.

(2008) argues that a 'heightened' kinaesthetic sense was necessary to become 'socialised into' the community of dancers who were the participants in her study.

Although all ethnographies are inherently a study of human activity, sensory ethnography necessitates a perspective which is less anthropocentric in nature, recognising the potential for non-human agents to produce sensory stimuli of central concern to the anthropological questions being addressed. Sentient but non-human animals and even material objects might be active participants in the social construction of sensory experience and ethnographers must therefore "cultivate the ability to discern nonhuman vitality, to become perceptually open to it" (Bennett, 2009, p.14). With regards to non-human animals, some studies specifically address sensory and embodied ways of understanding our relationships with other species (see for instance Smart, 2011 and Oetelaar, 2014) but recognising non-human animals as agential producers of sensory stimuli might be of relevance to any ethnography. For instance, although Temple Works was engineered in response to the human desire for mass production[1], the contemporary experience of many of its larger and more decayed spaces is greatly impacted by the past and present activity of pigeons[2]. Interrogating the place of non-human animals within ethnography is not only of relevance to issues of sensory experience, it also "raises important questions about the relationship between nature and culture" (Smart, 2014, p.6) and challenges an "anthropology that denies anything but a proximate role for agency, intentionality or imagination in the direction of human affairs" (Ingold, 2000, p.2).

In order to account for all of the potential 'actants' in the production of sensory experience, material objects must also be recognised as potentially agential, possessing the capacity to generate stimuli across all sensory modalities. The materials objects which constitute any

1 Temple Works was originally constructed as a flax mill in 1840. It represented a very significant development in the UK textile industry and in the industrialisation of the North of England (Elton, 1993).

2 **Scenario:** Spending time within the 'main space' of Temple Works (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace) quickly reveals this phenomenon. The auditory experience of the environment inevitably includes the very distinctive sound of pigeons in flight, the surfaces are patterned with pigeon faeces and there are examples of the pigeons constructing material objects within the space too, such as the nest built out of cable ties supported by the clock face here: http://tomjackson.photography/interactive/templeworks/templeworksvr.html?s=pano32925 These stimuli, which can be accessed from within both the physical and virtual space, have a very meaningful impact upon the sensory experience of the site for all visitors. However, one of the participants in a workshop held at Temple Works, Edgar Gómez Cruz, responded to them in a particularly distinctive manner due to his ornithophobia (see Cruz in Akama et al., 2015, p.35). This illustrates how sensory stimuli can be interpreted very differently due to a range of factors related to context, memory, sociality and culture (see section 3.4, below). In personal correspondence, Edgar revealed that his ornithophobia can also be activated by the binaural field recordings which contain the sounds of pigeons in flight, describing the auditory experience as "really disturbing and disorientating".

given place should not be dismissed as inert, but rather recognised as having the potential "to act as quasi agents or forces with trajectories, propensities, or tendencies of their own" (Bennett, 2009, viii), all of which might result in the production of sensory stimuli. In built environments where these material objects are physical manifestations of human agency, investigating the contrasts between the sensory experience they were intended to create and the capacities they possess "in excess of the human meanings, designs, or purposes they express" (ibid, p.20) can be very revealing. For instance, the conical skylights that are a signature feature of Temple Works were designed to significantly impact upon the visual experience of the building, providing the factory floor with as much light as possible (Rimmer, 2012, p.206). However, these objects are also capable of generating very vivid auditory stimuli[1] due to their material properties. Whilst all of these ideas are clearly intended to challenge anthropocentric critiques of sensory experience and to highlight "the vitality of matter" (Bennett, 2009, p.5), it is important to remember that "human individuals are themselves composed of vital materials" (ibid, p.11). This fact serves as a timely reminder that the body should always be implicated in the analysis of sensory experience (see section 1.3, above) and that human and material agency need not be disassociated.

In conclusion, one of the key stages in understanding the relationships between sensory experience, the sentient body and cultural phenomena is an analysis of the sources from which stimuli originate. Sensory experience is not solely reflective of human agency but rather a complex negotiation between multiple 'actants' including non-human animals and material objects. The stimuli directly produced by human agents (which do not always fit into the conventional model of five sensory modalities) may be of central concern to ethnographic fieldwork but the social production of sensory experience (Chau, 2008) in negotiation with non-human animals and materials objects should not be overlooked.

1 **Scenario:** Visitors to the 'open loading bay' (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=openloadingbay) consistently remarked upon the visual experience of the space. The combination of the lighting effects created by the conical skylights and the artworks contributed by a number of different artists, including Jamie Reid (2012), dominating the perception of place. However, during periods of high wind, auditory stimuli created as a result of the material agency of the fabric of the building contests the ascendancy of the visual. This significant change in the sensory experience of place can be accessed via the virtual archive as well, due to the temporal functionality that was developed (see section 4.4, below). Clicking the 'time shift' button (in the bottom-right corner of the interface) changes to a moment in time when the auditory experience of the space becomes very vivid.

3.2 TRANSFORMATION

> "the structure and texture of the environment itself is a necessary determinant of what is perceived"

(Rodaway, 2013, p.19)

Prior to their reception by sentient bodies, sensory stimuli are transformed by the environment in which they were produced. Through this process, sensory experience not only embodies the agency of those 'actants' involved in its social production, but also becomes reflective of the spatial and material qualities of place. The sensory experiences encountered during ethnographic fieldwork are therefore not only a product of the cultural phenomena currently being studied but are also shaped by mediated negotiations with the environments in which those phenomena occur. Interpreting and analysing these complex relationships requires the integration of a sophisticated set of concepts related to the conceptualisation of place, materiality, the phenomenology of landscape and the psychological relationships between people and their environment, all of which will be elucidated in the remainder of this section. However, identifying examples which illustrate the ways in which the environment shapes sensory experience is very straightforward. For instance, as part of a class related to the narrative qualities of sound, undergraduate students at the University of Leeds were provided with audio recordings of city markets from around the world (see Jackson et al., 2017). The students very quickly demonstrated the ability to identify, and reflect upon the significance of, spatial and material aspects of the environments in which the recordings were made, despite accessing the experiences through auditory recordings alone.[1]

In order to analyse the relationships between sensory experience and place, it is necessary to start with a sufficiently rigorous concept of what places are and how they are constituted. Witmore (2004), drawing upon the work of Casey (1993) and Tuan (1977), argues that places are produced through "bodily relationships with the material world... [including] dwelling, inhabitation, and traveling" (p.58). Pink (2011 and 2012) also suggests that places are constituted through corporeal participation within an environment but clarifies that they are not fixed things, they are formed by constantly shifting "intensities of activity and presence" (2011, p.349). Of particular relevance to sensory ethnography is the argument presented by Degen and Rose (2012) that place is constituted by sensory experience but also mediated by 'bodily mobility' and 'perceptual memory' (p.3271). All of these arguments help to

[1] For instance, when listening to the following audio recording of a market in Kuala Lumpur, the students correctly described the close proximity between areas of food preparation and a busy road and were able to recognise that the market building was covered by a roof but had open sides: https://soundcloud.com/tomsummersound/bazaar-baru-chow-kit

illustrate the complexities of studying sensory experience in relation to place. They serve as a reminder of the significance of the human body (see section 1.3, above), the subjectivities associated with the demarcation and definition of place and the extent to which places can be quickly reconfigured by human activity. However, these arguments might also be considered overtly anthropocentric, given the intensity with which they emphasise human agency. This imbalance might be redressed by evaluating how the spatial and material qualities of place also shape sensory experience.

Sensory stimuli can be filtered, distorted or even averted by the material organisation of any given place. Critiques of this process are often centred upon the built environment[1], typically intended to inform future practices in architectural design and urban regeneration, but in the context of sensory ethnography, it is important to recognise the potential for natural environments to shape sensory experience too as this highlights the deep significance of non-human and material agency in the development of cultural phenomena. For instance, ethnomusicologist Steven Feld conducted an extensive study of the 'voices of the rainforest' (1991), exploring the relationships between the Kaluli people and the sonic environment of the rainforests of Papua New Guinea, in which the 'sound expressions' of place were "revealed as embodiments of deeply felt sentiments" (Feld, 1990, p.3). As a building in decay, Temple Works represents a hybrid of both built and natural environments. The sensory experience of this place is mediated by the architectural design of the building[2] and the extent to which nature has reclaimed aspects of its fabric[3]. Built environments are intended to regulate sensory experience but without proper maintenance, the 'industrial ruins' they become offer vivid sensory environments "at variance to the somewhat desensualized realms of much urban space" (Edensor, 2007). The desire to investigate these tensions was one of the reasons that Temple Works was selected as the locus of study (see section 5.1, below).

1 See for instance Edensor (2007), Degen (2008), Heylighen and Strickfaden (2012), Rahmeier (2012), Kim and de Dear (2013).

2 **Scenario:** The auditory experience of the small toilet block in the canteen area of Temple Works (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=canteenrobottoilets) typically consists of a combination of distal sounds associated with the modern city (traffic, low-flying aircraft, structural maintenance etc.), revealing the proximity of the building to an urban environment and the sounds of bird song, revealing that the building is also capitalised by non-human animals. However, the decaying pipework which connects this room to the room below has the capacity to propagate sounds between the two spaces. The pipes significantly distort these sounds, providing a very vivid example of how the spatial and material organisation of the building (in its current state of decay) has the potential to shape the sensory experience of being within it. Although the typical auditory experience of this room is represented within the virtual archive, this particular acoustic effect is not. However, it can be accessed here: https://soundcloud.com/tomsummersound/canteen-robot-toilets#t=0:12

3 For instance, the olfactory experience of the 'top floor canteen' is very pronounced. The mould spores emanating from the damp walls have a powerful and distinctive odour: http://tomjackson.photography/interactive/templeworks/?loc=topfloorcanteen

> "The landscape is an anonymous sculptural form always already fashioned by human agency, never completed, and constantly being added to, and the relationship between people and it is a constant dialectic and process of structuration"

(Tilley, 1997, p.23)

In the processes of transformation described above, sensory experience acquires a temporal dimension, embodying both the past and present. The environments which shape sensory stimuli have themselves been shaped by previous activity and the mediating effects of their materiality therefore "invites a sensorial exploration of the past" (Rahmeier, 2012, p.154). In inhabited places, phenomenological perspectives reveal how environments acquire "sedimented layers of meaning by virtue of the actions and events that take place in them" (Tilley, 1997, p.27). These layers then form a constitutive part of the material environment which transforms sensory experience, revealing a constantly evolving and dialogic relationship between human and material agency, past and present. Numerous examples of this can be found within Temple Works. For instance, the walls of the 'Painter's Bar' are covered in patterns of differently coloured brush strokes[1], a 'layer' of human activity from its previous incarnation as a paint shop for Kay & Co, who occupied the building from 1953-1981 (Chrystal, 2017). Whilst the resident artists unreservedly use almost every wall of the building as a canvas upon which their creative work can be showcased, these patterns remained untouched as their contribution to the contemporary visual and haptic experience of the space is so widely recognised.

In conclusion, an analysis of the transformative potential of the material and spatial qualities of place is a key 'stage' in understanding the relationships between sensory experience, the sentient body and cultural phenomena. The environments in which sensory stimuli are produced have the capacity to shape those stimuli prior to their reception by sentient bodies. In doing so, sensory experience becomes reflective of both the 'actants' that socially produce it and the place in which it was produced. As the material and spatial qualities of any given environment are structured by previous activity, sensory experience is also a way of accessing and understanding the past. Whilst the analysis of built environments might be of particular relevance to studies of culture, the relationships between human agents and the natural environment can also be a revealing focus within sensory ethnography. Highlighting even closer parallels between the body and place, numerous scholars argue that the body should be conceptualised as a place in itself[2], a concept which will be explored here in relation to the reception of sensory stimuli (see section 3.3, below).

1 See here: http://tomjackson.photography/interactive/templeworks/?loc=paintersbar2
2 See for instance Leder, 1990; Casey, 2001 and Pink, 2011

3.3 RECEPTION

> "bodies in fieldwork consist of an unstable balance between biology, the social and the cultural, which force challenges both in research practice and in the writing of such processes"

(Parr, 1998, p.35)

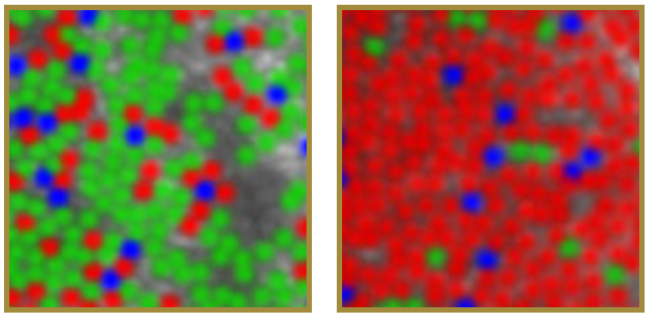
Sensory perception is widely recognised to involve two stages: reception and interpretation. Ingold (2000) describes these as " the receipt ... of ephemeral and meaningless sense data" and the "organisation of these data into collectively held and enduring representations" (p.159), Tilley (1997) describes them as the reception of "raw sense data, without order or meaning" followed by the organisation of that data into "cultural schemata" (p.23) and Vannini et al. simply argue that "sensual information typically comes before conceptual information" (p.23). In the analysis of sensory experience, separating out these two stages of perception can be very revealing as both of them have the potential to be individualised, subjective and culturally informed in different ways. Here, the reception of sensory stimuli will be evaluated with specific reference to sensory ethnography. The intention is to illustrate the ways in which stimuli are registered by the body, prior to their individual and sociological interpretation, and to demonstrate how this stage in the act of perception is of relevance to sensory-informed studies of culture and to the analysis of technologically mediated modes of representation.

The reception of sensory stimuli is carried out by a number of 'receptors' located on and within sentient bodies[1]. The extent to which these processes might vary based upon the physiology of any particular body is of great relevance to sensory ethnography as it serves as a reminder that sensory experiences are highly subjective and individualised. Obvious examples include disabilities[2] and the potential impact of differences in age and gender (see for instance Blankenburg et al., 2010) but recent developments in technology

[1] These include chemoreceptors (part of the olfactory and gustatory perceptual systems), photoreceptors (part of the visual perceptory system), mechanoreceptors (part of the haptic and auditory perceptual systems), thermoreceptors (which respond to temperature) and nociceptors (which respond to potentially harmful stimuli, causing pain) (Colman, 2015).

[2] **Scenario:** Accessing any location within *Experience Temple Works* through the sound recordings alone is an interesting experience to reflect upon. During the exhibition of the project at the AHRC Common Grounds event in 2016, a blind visitor approached our installation. When I described the interactive 360° sound recordings it includes, she eagerly requested to try the project for herself. The extent to which she was able to understand the spatial and material properties of the 'main space' (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace) and the obvious signs of a positive emotional response which she came to embody were very revealing regarding the affordances of binaural audio recording (see 4.2, below). The capacity of *Experience Temple Works* to engage users with a visual disability was an unexpected outcome of the project but one which informed the argument presented here regarding the physiological factors involved in sensory perception.

have allowed more obscure aspects of physiology to be examined. For instance, in 2005, a system was developed with the capacity to detect the distribution of colour-sensitive cones in the human retina (Sherwood, 2005). This technology revealed very significant variations in the composition of these sensory receptors in humans all believed to have 'normal vision' (see Figure 1). The extent to which these physiological variations result in different perceptions of colour is not currently possible to determine but other research (see for instance Neitz et al., 2002) has demonstrated that chromatic changes in visual stimuli can be compensated for by processes of neural plasticity. These results suggest that physiological factors might be of less relevance to sensory experience than neurological ones, given the capacity of the brain to 'normalise' differences in the stimuli it receives.



■ Figure 1: The distribution of colour-sensitive cones in the human retina

It is clear from a number of the studies cited above that the reception of sensory stimuli involves neurological as well as physiological processes. The potential impact of cross-modal interactions has already been covered at length in section 2.2 (above) but other neurological factors are of relevance to sensory ethnography too. In particular, the neurological processes which involve enduring adaptations to sensory stimuli might be especially revealing in the context of studying the relationships between sensory experience and culture. For instance, numerous studies[1] argue that human interactions with the web are changing the ways in which the brain functions, particularly with regards to the consumption and processing of information. Research such as this serves to remind ethnographers that the reception of sensory stimuli is not simply about immediate affect but can result in lasting changes to the ways in which sensory information is perceived and processed. Understanding these relationships between technology and perception might be of particular relevance when technological methods are being applied in the study of sensory experience. For instance, Crary (1999) argues that the consumption of modern media forms necessitates a 'disengagement' from other synchronous stimuli which might detract from the experience. Far from 'natural', he argues that this phenomenon is "the

[1] See for instance Greenfield, 2009; Carr, 2011 and Hayles, 2012.

product of a dense and powerful remaking of human subjectivity in the West over the last 150 years" (p.1).

Whilst the analysis of physiological and neurological factors independently of each other is of relevance to the study of sensory experience, one of the key proponents of sensory ethnography argues that "one of the most essential aspects of … the study of perception, state power, and lived experience … is a rejection of the Cartesian separation of mind and body" (Stoller, 2004, p.821). This argument provides the much-needed clarification that although the various stages involved in the reception and interpretation of sensory stimuli can be analysed separately, perception is fundamentally a cohesive process. As Tessari et al. (2010) highlight, that "the brain is in the body is a physical fact. The reverse statement is true as well: the body is in the brain, as there are multiple neural and mental representations of the body, each endowed with a specific function" (p.643). These two arguments, despite originating from completely different disciplines[1], closely align in their contention that percepts are 'made' in the body. The body can therefore be considered another 'place'[2] of study in ethnography, with its own physical and mental constructs.

That the interpretation of sensory stimuli is culturally informed is well documented (see section 3.4, below) but the reception of sensory stimuli has a cultural component too. Not only is the overarching process of perception "conditioned by culture" (Classen, 1997, p.401) but the sense data that is 'apprehended' by sentient bodies, prior to its interpretation, can differ based upon physiological and neurological factors specific to a particular people or society. For instance, Lewkowicz and Ghazanfar (2009) summarise a body of literature which argues that, rather than simply developing more sophisticated perceptual skills, children in the early stages of development also undergo a very pronounced process of 'perceptual narrowing' in which the reception of sensory stimuli becomes more selective, "promoting the orderly integration of sensory modalities in a nervous system that might otherwise get easily overwhelmed" (p.470). Numerous experiments[3] have demonstrated how this process is culturally informed "leaving infants with the ability to integrate only socio-ecologically relevant multisensory signals" (ibid). This body of work further substantiates the symbiotic relationships between sensory experience and cultural phenomena and illustrates the value of publishing 'pre-reflective' sensory data as part of ethnographic research, facilitating contrasting interpretations of fieldwork experiences (see chapter 4, below).

1 Ethnographic filmmaking and neuropsychology respectively.
2 See section 3.2, above.
3 See for instance Werker and Tees (1984) regarding the perception of speech, Pascalis et al. (2002) regarding the perception of faces and Hannon and Trehub (2005) regarding the perception of music.

In conclusion, the reception of sensory stimuli by sentient bodies is dependent upon a range of physiological, neurological and cultural factors and the analysis of this 'stage' in the perceptual process, independently of the individual and social interpretation of those stimuli, therefore has the potential to be a very revealing aspect of any sensory ethnography. With the body situated as another 'place' in which the meaning and significance of sensory experience can be interrogated, with its own materiality, psychology and acculturation, the significance of the ways in which it apprehends sensory stimuli becomes readily apparent.

3.4 INTERPRETATION

Following their reception by sentient bodies, sensory stimuli are individually and socially interpreted. These complex and subjective processes are dependent upon a range of factors related to context, memory, sociality and culture. Numerous 'models' of interpretation have therefore been suggested from disciplines as wide-ranging as communication studies (McCartney, 2016), sociology (Vannini et al., 2012) and human geography (Rodaway, 2013). This section of the thesis attempts to draw all of these contrasting but complementary perspectives together into a unified set of considerations for sensory ethnography, all of which contribute to the new theoretical framework. Given the complexity of the issues at hand, the conclusions are somewhat broad-brush and are intended to highlight areas of inquiry, rather than to make specific recommendations. Although this thesis is an attempt to bring much-needed synthesis and clarity to the emerging discipline of sensory ethnography, it is well documented that ethnographic research should not attempt to reduce complex realities into coherent forms. As Geertz (1973) argues "Nothing has done more … to discredit cultural analysis than the construction of impeccable depictions of formal order in whose actual existence nobody can quite believe" (p.17).

Given that the interpretation of sensory stimuli can be influenced by so many factors, it is unsurprising that a range of 'models' have been suggested for understanding the ways in which bound percepts are formed. Vannini et al. (2012, pp.132-133) argue that concurrent stimuli are organised into a 'sensory order' based upon three factors: intensity, context and moral/aesthetic character. They argue that the interpretation of stimuli is based upon the 'intensity' with which they are received by the perceptual systems, the 'context' in which

they are encountered and societal understandings regarding 'character'[1]. Rodaway (2013, p.36) introduces a model based upon the way that concurrent stimuli interact, only one of which is hierarchical, in concert with Vannini et al. (2012). Other factors in Rodaway's model suggest that sensory stimuli 'cooperate' (resulting in interpretations with greater meaning than they might individually communicate), that the 'threshold' at which stimuli are received by the perceptual systems is important (akin to the concept of 'intensity', but with greater emphasis upon the differentiation with other sensory stimuli) and that the interpretation of sensory stimuli necessitates a 'reciprocity', in which every stimulus "establishes a relationship between the sentient and the environment" (ibid). Finally, McCartney (2016, p.164) proposes a model which foregrounds intentionality. Formulated around auditory perception, but applicable to any sensory modality, McCartney argues that the act of listening involves "different kinds of engagement and approaches" (ibid). There are different ways of listening (such as 'historically', 'politically', 'mnemonically' and 'evocatively'[2]) and these are reflective of the intentions of the listener. However, different interpretations can be 'encouraged' (p.162) by the intentions of those agents involved in the production and transformation of the stimuli. Whilst these models might be overly simplified, suggesting that the interpretation of sensory stimuli is discrete and homogeneous rather than interdependent and subjective, they each offer valuable insights into the factors which influence perception. However, they are unduly individualised as the processes involved in the interpretation of sensory stimuli are also socially informed.

> "One cannot overemphasize the social and contextual nature of sensory experience. Hence the focus on the sensory provides ethnographers with new perspectives on sociality."
>
> (Hsu, 2008, p.437)

Sensory stimuli are not only interpreted individually but also socially with the other sentient bodies present within any given place. Although the individual body is central to the production and reception of sensory stimuli (see sections 3.1 and 3.3, above), an 'intercorporeality' (Pink, 2011) is established during shared experiences. As sensory stimuli

1 The olfactory experience of personal odour effectively illustrates all three of these criteria. The wearing of a perfume might be considered appealing as long as the amount is not interpreted as too intense, the smell of sweat is likely to be considered appropriate in the context of a gym but might be interpreted as distasteful in other places and in Arab-Muslim societies, personal odours are endowed with specific meanings which "confer to the person's personality new powers and protections" (Aubaile-Sallenave, 2006, p.391).

2 Listening 'historically' involves "thinking about other sound experiences in that place or the history of the place, how it did sound or would have sounded to people in the past", listening 'politically' involves "thinking about which sounds are masked by others and which sounds dominate, and who is in control of the flow of sounds", listening 'mnemonically' involves "thinking about memories that are evoked by sounds" and listening 'evocatively' involves "thinking about what other senses are activated by the sounds" (McCartney, 2016, p.164)

are concurrently received by different sentient bodies, the interpretation of them by each individual is influenced by the ways in which they are interpreted and acted upon by others. This phenomenon not only informs the interpretation of sensory experience but also instigates processes of "social proximity or distancing" (Low, 2015, p.303) based upon the congruence with which experiences are interpreted. For instance, the olfactory stimuli created by foods associated with different cultures are a frequent cause of contestation, commonly interpreted as comforting by those who identify with the culture but invasive by those who do not.[1] Phenomena such as this are illustrative of the complex reciprocities between sensory experience and sociality. Shared experiences might have the effect of "garnering and enhancing sociality" (Chau, 2008, p.493), or even possess the capacity to "synchronize the emotional and physical states" of those present but they can also be divisive, acting as "social boundaries among different groups of people … built by way of different sensory preferences, experiences and practices" (Vannini et al., 2012, p.142). The impact of this on ethnographic practice is that during fieldwork encounters, ethnographers should try to avoid "seeing[2] from a point of view" and instead, habituate a "tuning in to surroundings and to circumstances that allow resonance, reverberation, echo—senses … of presence and distance, at scales ranging from individual to collective" (Helmreich, 2007, p.622).

Analysing the interpretation of sensory stimuli inevitably implicates issues associated with memory and this foregrounds a number of additional complexities. Memories inform the individual and social interpretation of sensory stimuli[3] but it is highly unlikely that researchers attempting to understand the significance of sensory experience will have access to this fundamental part of the perceptual process. Long-term fieldwork might partly address this issue, as the ethnographer and research participants will inevitably develop shared memories but it is important to note the limitations of relying upon recent recollections. For instance, childhood memory and the interpretation of olfactory stimuli are demonstrably interdependent (see for instance Chu and Downes, 2000 and Willander and Larsson, 2007). However, despite these challenges, the intimate relationships between sensory experience and memory also substantiate the rationale for implementing multisensory research methods in ethnography (see chapter 2, above). Sensorially evoked memories are more affective

1 See for instance Fischler (1988), Law (2001) and Low (2015).
2 Ocularcentric terminology has been adopted in this anthropological context once again. Whilst this propensity for visual bias is well documented (see chapter 2, above) it is surprising in this particular publication, which primarily addresses the auditory experience of occupying a submersible. The word 'sensing' might have been more appropriate.
3 See for instance Chu and Downes (2000), Low (2013), Verbeek and van Campen (2013) and Stevenson (2014).

than linguistically evoked memories[1] and sensory research materials are therefore likely to help facilitate the 'closeness' to research encounters in the field advocated in section 1.2 (above)[2]. The relationships between memory and vision are problematic too. Visual perception is a dynamic process in which persistent saccadic eye movements construct a mental 'image' of the environment and because of this, "it proves difficult for our memory to recollect concrete mental pictures … once that moment has passed" (Degen, 2008, p.46). The inclusion of other forms of sensory media in ethnographic research projects therefore has the potential to assist the process of revisiting and reconstructing memories. However, the human propensity for constructing false memories (see for instance Newman and Lindsay, 2009) must also be recognised. The memories which inform the interpretation of sensory stimuli are likely to involve "a great deal of selective perception and even fantasy" (Vannini et al., 2012, p.95), which adds another layer of complexity to the analysis of the perceptual processes addressed here.

In conclusion, the sensory stimuli received by sentient bodies can be interpreted very differently based upon a wide range of factors. Ethnographers studying the relationships between sensory experience, the sentient body and cultural phenomena must therefore maintain a critical awareness of these factors, whilst accepting that their inherent complexities cannot be wholly accommodated. Given that all ethnography inevitably involves more than one person (the ethnographer and at least one participant), it is essential to recognise that sensory stimuli are interpreted socially, as well as individually, and that these processes are likely to inform aspects of sociality, such as the formation of affiliations and divisions. The extent to which memory is implicated in the interpretation of sensory stimuli adds to the complexity of the issues addressed here but also advances the rationale for a multisensory approach to ethnography which this thesis advocates (see chapter 2, above).

1 See for instance Schacter (1996), Willander and Larsson (2007) and Verbeek and van Campen (2013).

2 **Scenario:** Stained glass artist Zoë Eady occupied a room within Temple works (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=glassgarden) for the majority of my ethnographic project but moved to another studio space in August 2015. The temporal functionality offered by the *Experience Temple Works* project allows users to switch between a multisensory experience of the room during Zoë's residency and after she had moved out (by clicking the 'clock' icon in the bottom-right corner of the interface). The vast majority of users experiencing this functionality responded very positively to it, often repeating the switch numerous times. However, Zoë interpreted it very differently, remarking upon how emotional the experience was. The temporally compressed presentation of her departure from the space evoked vivid memories of how difficult the decision to vacate the building had been, illustrating the relationships between memory and the interpretation of new sensory experiences.

3.5 ACTIONS

> "we must understand the behavioral consequences of sensory stimulation, for our actions will modify those very patterns of sensory stimulation"
>
> (Sekuler and Blake, 2005, p.2)

Perception and action are inextricably linked. The reception and interpretation of sensory stimuli have 'behavioural consequences' (Sekuler and Blake, 2005) and those behaviours, in turn, impact upon what is perceived. The actions that result from the perception of sensory stimuli have the potential to realign the spatial relationships between all of the 'actants' involved in the social production of sensory experience (see section 3.1, above), to reconfigure the places which both produce and transform them (see sections 3.1 and 3.2 above), to modify the ways in which sensory stimuli are interpreted through the creation of new understandings and new sense memories (see section 3.4, above) and even to 'transform' (Pink, 2011) the sentient body itself. These ceaseless processes of reconfiguration and adaptation form the basis of the rationale for adopting a helical model for understanding the relationships between sensory experience, the sentient body and cultural phenomena, as advocated here. In this section, all of these relationships will be explicated with specific reference to how they might inform the realisation of sensory ethnographies.

Sensory perception is "active and exploratory" (Grasseni, 2004, p.46). Sentient bodies are impelled to move in response to sensory stimuli and these actions, both conscious and involuntary, alter the perception of subsequent stimuli through the creation of new spatial relationships between all of the 'actants' involved in the production and perception of sensory stimuli. These new relationships, in turn, generate new experiences.[1] Fundamental differences between the 'near' and 'far' senses are of great significance here. Proximal stimuli commonly received by the 'near' senses, such as the taste of something unpleasant or the sensation of heat are likely to result in reflex actions, whereas distal stimuli commonly

[1] **Scenario:** 'Heritage open days' were regularly organised at Temple Works during my ethnographic project and I often volunteered to help coordinate the activities in order to observe the behaviour of new visitors to the site. Many recurring patterns of behaviour were noted. For instance, visitors commonly requested to traverse the roof, this shifting visual perspective allowing them to situate the building with the context of Leeds, were frequently reprimanded for approaching and touching the delicate patterns of decay in an attempt to appreciate the surface qualities of the building and often remarked upon the capacity of the 'main space' to transform the sounds created by their own movement, intentionally walking heavily in order to amplify the effect. The extent to which these behaviours are replicated within the virtual archive is very revealing. Users of the *Experience Temple Works* project often interact with the roof (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=roof) and the surfaces presented within the virtual space (such as this wall http://tomjackson.photography/interactive/templeworks/templeworksvr.html?s=pano273) in similar ways to the behaviour observed within the physical space. However, the project cannot facilitate the production of sensory stimuli within the space, which serves as a reminder of the technological mediation at play in this type of interaction.

received by the 'far' senses, such as the sight of an object within the environment are likely to permit "the luxury of evaluating the potential consequences of your actions" (Sekuler and Blake, 2005, p.9). In an ethnographic context, maintaining an awareness of the likely behavioural consequences of different types of stimuli might be a very revealing way of interpreting and understanding the relationships between sensory experience and cultural phenomena.

The actions that result from the perception of sensory stimuli also reconfigure the places in which they are experienced, and those places have already been demonstrated to be pivotal in both the production and transformation of sensory experience (see sections 3.1 and 3.2 above). Not only might places themselves be defined as "intensities of activity and presence" (Pink, 2011, p.349) but the actions carried out by humans and other non-human animals leave their mark on the environment, altering the materiality of any given place and, in turn its sensory characteristics. 'Reading' these modifications from a phenomenological perspective reveals their significance in terms of the helical model advocated here. Tilley (1997) describes places[1] as "both medium for and an outcome of action" (p.23), arguing that the 'spatial narratives' engrained within any given place and the 'spatial practices' that occur within it "dialectically ... construct and reproduce each other" (p.33). He uses the potent example of 'social paths' within natural environments as an illustrative example. The action of walking across an open area and treading down the vegetation is likely to create a visual cue suggesting that future visitors follows the same path (pp.29-31). Similarly, at Temple Works, the artworks that cover the walls suggest to new resident artists that the building itself is a canvas upon which they can exhibit their work[2]. These relationships reveal the necessity to evaluate and reflect upon the places which the research participants occupy during the execution of ethnographic fieldwork.

As a result of the actions impelled by the reception and interpretation of sensory stimuli, new understandings and new sense memories are made. The interpretation of subsequent stimuli is informed by these new neurological constructs, demonstrating that "experience is not mere repetition but transformation that brings the past into the present" (Seremetakis, 1994, p.7). This ceaseless process of adaptation through experience not only substantiates the rationale for the helical model advocated here, it is also "particularly relevant to an ethnographic methodology that attends to the body and place ... [as] past experiences are implicated in the constitution of place in the present" (Pink, 2012, p.38). Whilst places

1 The publication cited here actually refers to 'landscape' rather than 'places' but this variance in terminology makes little difference to the relevance of the argument.
2 For instance, see here: http://tomjackson.photography/interactive/templeworks/?loc=wemarchon

never before experienced “must be decoded, learned, reinterpreted to be known” (Brady, 2004, p.625), the interpretation of the vast majority of sensory experiences is informed by the ways in which they have been interpreted in the past. Sense memories are therefore far from ‘passive records’ (Spencer, 2013, p.15). They ineluctably shape the ways in which sentient creatures ‘make sense’ of everyday experience.

The interpretation of sensory stimuli is not the only aspect of the perceptual process to be adaptive. The reception of sensory stimuli also has the potential to be modified as the body is ‘transformed’ (Pink, 2011) as a result of action and interaction. For instance, the ‘plasticity’ of the brain is exhibited in relation to a wide variety of perceptual tasks, across a range of species. It has been measurably demonstrated that the brain has the capacity to be significantly altered, temporarily or permanently, in response to numerous conditions including changes in the colour of visual stimuli[1], sensory disabilities[2], the intentional ‘spatial offset’ of auditory and visual stimuli[3] and even in response to neurological trauma[4], with parts of the brain changing function in order to mitigate against the effects of the damage. More conspicuous physical transformations of the body also occur though. For instance, callouses might be formed on the hands as a result of extended manual work, changing the haptic experience of touching surfaces and the ability to hear certain frequencies of auditory stimuli can change over time as a result of listening to amplified music (see for instance Meyer-bisch, 1996). All of the research cited here serves to remind ethnographers that, like places, bodies should not be conceptualised as ‘fixed’ things but rather as a component of the perceptual process that is constantly, although not necessarily overtly, being reconfigured.

In conclusion, the actions that result from the reception and interpretation of sensory stimuli inevitably modify numerous aspects of their subsequent production, transformation and perception. These ceaseless processes of reconfiguration and adaptation of the human and non-human ‘actants’ involved in the social production of sensory experience illustrate the aptness of the helical model advocated in this chapter. The dynamic nature of the spatial relationships between sentient bodies and place, the constantly changing definitions and configurations of place, the enduring changes in the ways sensory stimuli are interpreted and the potential for the sentient body itself to be transformed, all substantiate the argument that the relationships between sensory experience, the sentient body and cultural phenomena are reciprocal but also constantly evolving. With regards to sensory

1 See for instance Neitz et al., 2002.
2 See for instance Sadato et al., 1996.
3 See for instance Eramudugolla et al., 2011.
4 See for instance Sur et al., 1990.

ethnography, recognising that actions are not simply a response to stimuli but also inform subsequent sensory experiences is an essential component of the sufficiently sophisticated theoretical framework for the discipline which this thesis intends to introduce.

CONCLUSION

This chapter introduces a new theoretical framework for sensory ethnography based upon a helical model for understanding the relationships between sensory experience, the sentient body and cultural phenomena and the synthesis of theoretical perspectives from a range of different disciplines. This contribution to knowledge is intended to address the lack of a sufficiently sophisticated theoretical framework for this emerging discipline, as identified by a number of its proponents (see for instance Brady, 2004 and Dicks et al., 2006, p.78). Whilst the model might be criticised for being reductive, failing to adequately represent all of the complex and interdependent processes related to sensory experience, all of the five 'stages' provide valuable insights into a number of key considerations that any sensory ethnography should attempt to integrate. The sources from which sensory stimuli originate (and the human and non-human agency these process of production foreground), the transformation of those stimuli by the environments in which they are produced (reflecting the material and spatial qualities of place), the reception of those stimuli by sentient bodies (which is dependent upon a range of physiological, neurological and cultural factors), the individual and social interpretation of those stimuli (a complex and subjective process which not only relates to perception but also informs aspects of sociality) and the actions that result from these bound percepts (which, in turn, reconfigure the subsequent production, transformation and perception of sensory stimuli) are all central to the process of evaluating and reflecting upon the nature and significance of sensory experience.

Assuming that the senses are not simply a means of perceiving the world, but are also tied up with the formation of cultural identity and structure the power relationships present within society (see section 2.1, above) maintaining an awareness of the critical and conceptual issues associated with each of the 'stages' presented in the helical model might play an important role in the design and execution of all aspects of a sensory ethnography. In particular, selecting the technologies that will be implemented to create sensory research materials, and evaluating the potential impact of their later analysis away from the field of study, might be informed by thinking through the relationships between all aspects of the perceptual process.

CHAPTER 4

EMBODIED, MULTISENSORY AND PARTICIPATORY TECHNOLOGIES

> "A growing volume of anthropological research has begun to experiment with new theoretical, conceptual, substantive, methodological, and disciplinary fusions, and has thus pushed for new epistemologies and ontologies that are less based on linguistic cognition and more on embodied, multi-sensual, multimodal, pre-objective, and carnal ways of knowing."
>
> (Vannini et al., 2012, p.14-15)

Sensory ethnography requires the adoption of innovative modes of representation[1]. In order to successfully communicate and interrogate the complex, subjective and embodied experiences that are central to research questions related to sensory experience, ethnographers must seek out non-textual modes of representation that might "bring forth qualities of the material world that would otherwise be left behind in conventional forms of inscription" (Witmore, 2004, p.58). One of the fundamental aims of sensory ethnography is to explore methods which go "beyond how culture is written" (Pink, 2012, p.15) and to access "knowledge beyond language" (Okely, 1994). In section 1.1 (above), the place of language and writing in the production and dissemination of ethnographic knowledge based upon sensory experience was critically evaluated. The focus of this chapter is an evaluation of technological modes of representation through an equally critical lens. The specific affordances of different audio, visual and participatory technologies will be addressed with the intention of informing methodological decisions made during the design of sensory ethnographies. Whilst all of the technologies addressed here have the potential to create new ways of communicating ethnographic knowledge, or even becoming the platform through which that knowledge is co-created, it is imperative to keep in mind the concluding argument of section 1.1 (above). The most persuasive ethnographic publications might, in fact, adopt "a combination of both textual and non-textual methodologies" (Low, 2015, p.309), recognising the place of language and writing in the construction of theoretical arguments whilst simultaneously challenging its excessive use for descriptive purposes.

[1] See for instance Witmore, 2004; Pink, 2010a and 2012; Merchant, 2011 and Nakamura, 2013.

The advocacy of technological innovations, such as those outlined here, commonly elicits accusations of technological determinism. This pattern is documented in academic publications (see for instance Bloomfield et al., 2010 and Thornham, 2011) and is also something I have experienced first-hand. Following a conference presentation courtesy of The Royal Anthropological Institute (Jackson, 2014b), the discussant opened his response to the panel with a stark warning regarding the dangers of technologically determined methods (undoubtedly aimed at the thrust of my argument). Whilst I am grateful for this memorable experience as it has served as an enduring reminder not to engage with particular technologies simply because the possibility exists, this response may be more indicative of anthropological conservatism than any specific problems with the validity of my argument. I hope to demonstrate here that all of the technologies used in my ethnographic work have been carefully situated, evaluated and problematised and that the relationships between the theoretical contributions presented in this thesis and the associated practice are fundamentally symbiotic[1]. It is also important to note that whilst attempts to challenge anthropology's "dominant orientation as a discipline of words" (MacDougall, 2006, p.224) are often met with resistance, the relationships between anthropology and technology need not be oppositional. In fact, anthropological perspectives have made significant contributions to the analysis of human relationships with technology. For instance, Porcello et al. (2010) argue that "much of new media theory presupposes that individuals bring no culture, no social positioning, and no skill difference" to their interactions with technology, whereas a "more fully developed cyber-anthropology" might reveal "how social positioning intersects with the senses, sensations, and sensualities of new media" (p.59). Valuable insights such as this demonstrate that analysing the tensions between anthropology and technology can be very productive if anthropological conservatism does not inhibit such explorations.

In spite of the challenges highlighted above, I will argue here that three technologies have the potential to significantly impact upon the production and dissemination of ethnographic knowledge: binaural field recording, the 'virtual archive' and participatory media. As long as the methodological decisions regarding their adoption are not technologically determined and the specific affordances of each technology are critically evaluated, it may be possible to reveal new ways of knowing, to develop new methods of engaging non-academic audiences (including the research participants) in the creation of ethnographic knowledge and to instigate a very meaningful change in the ways that ethnographic research is

[1] See chapter 3 (above) for a number of 'scenarios' which illustrate how the theoretical framework presented in this thesis was developed through not only a critical review of current literature but also as a response to the experience of implementing multisensory research methods in the field.

published. This chapter is dedicated to an analysis of these three technologies, all of which have been implemented and tested in *Experience Temple Works*. However, before each of the individual technologies are evaluated, some of the key issues and debates surrounding the senses, technology and representation must be addressed.

4.1 THE SENSES, TECHNOLOGY AND REPRESENTATION

> "to chart how the question of perception ... is configured in the modernist period is to witness the ever-closer relationship between the sensuous and the technological"
>
> (Danius, 2002, p.2)

Any comprehensive analysis of the relationships between the senses, technology and representation must address the question of the 'missing modalities'. The haptic, gustatory and olfactory senses are not typically directly engaged by technological modes of representation, and yet, stimuli belonging to these modalities are commonly central to anthropological questions regarding sensory experience and cultural phenomena.[1] This problem, which exemplifies the ocularcentric nature of so much of Western culture (Classen, 1997), cannot be wholly overcome until developments in technology make it possible to communicate these modes of sensory experience and appropriate theoretical frameworks are created to insightfully reflect upon their meaning and impact. However, scholars from numerous different disciplines argue that this issue might not be as significant as it first appears due to the human propensity for neurological synaesthesia[2]. As anthropologist Nakamura (2013) states, "Films do not need to pipe in smells, waft breezes across the audience, or chill the room to have the audience members feel those various sensations. Our brain's natural synesthesia will do it automatically" (p.135). Whilst this might be overstating the phenomenon somewhat, neurological studies of cross-modal perception have unequivocally demonstrated that sensory experiences are formed of bound percepts across different modalities (see Calvert et al., 2004 and Stein, 2012). However, constructing theoretical arguments regarding sensory experience based upon fieldwork materials which only provide access to certain sensory modalities through the process of synaesthesia might be at odds with the concept of 'closeness' advocated in section 1.2 (above). This

[1] See for instance Fischler, 1998 and Law, 2001 (the gustatory sense and contestations of cultural identity); Parisi, 2008 (the haptic sense and touchscreen gaming) and Sparkes; 2009 (the olfactory sense, memory and exercise) among many others.

[2] See for instance MacDougall, 1998 (ethnographic filmmaking); Marks, 2000 and 2002 (fine arts); Merchant, 2011 and Nakamura, 2013 (anthropology) among many others.

additional act of 'translation' is likely to be informed by processes of interpretation which are founded upon previous embodied experiences individual to the observer (see section 3.4, above), increasing the likelihood of misinterpretation.

Many recent developments in audio-visual technology (including those advocated in the remainder of this chapter) are often referred to as 'immersive'. 360° photography and filmmaking, 'spatial' sound recording techniques, interactive environments etc. are commonly proclaimed to offer an 'immersive' experience in popular vernacular[1], journalistic media (see for instance Kelly, 2016 and Krotoski, 2016) and academic publications (see for instance Dede, 2009; Dyson, 2009 and Stenslie, 2009). However, the use of this term should be rigorously examined, not only because it should not be assumed that a sense of immersion has been achieved but because the concept of immersion is itself problematic, implying types of human computer interaction which are potentially misleading. Although the creation of any virtual space "implies the possibility of immersion", describing the experience as such without qualification has the "ability to articulate what are often fictional scenarios" (Dyson, 2009, pp.1-2). During my own encounters with 'immersive' technologies (including experiences of accessing *Experience Temple Works* using a VR headset), I have always found myself to be acutely aware of the technologies that are mediating the experience (not least because of their physical presence on my body) and persistently conscious of my physical presence in the location from which the virtual experience was accessed (as the potential for interactions with the physical space are never removed). As Jackman (2015) argues, rather than a single 'immersive' experience, interactions with audio-visual technology are typically a "plurality of experiences of … media consumption, perception and reception" (p.856) With regards to sensory ethnography, arguing that the experience of sensory research materials is 'immersive' has the potential to mask the impact of analysing those experiences away from the field of study and to imply that they have a direct evidentiary power, rather than simply bringing the sites of observation and interpretation closer together (Poole, 2005; Pink, 2012).

An increasing body of academic literature[2] argues that the phenomenon commonly referred to as 'immersion' should actually be separated into two distinctly different concepts: 'immersion' and 'presence'. In this model, 'presence' is defined as the intention to

1 For instance, a user of the *Experience Temple Works* project commented "Sound in here caught me by surprise, really adds to the immersion though!" See here: http://disq.us/p/1c0t43n

2 Predominantly from psychology (see for instance Larsson et al., 2008), computer science (see for instance Lombard and Ditton, 1997 and Marini et al., 2012) and neuroscience (see for instance Huff et al., 2011).

create the "illusion that a mediated experience is not mediated" (Lombard and Ditton, 1997) and 'immersion' is defined "as the degree to which a VR system stimulates the sensory system without interference from the external environment" (Marini et al., 2012). Whilst these distinctions are helpful in analysing the experience of interacting with sensory research materials (and will undoubtedly become increasingly relevant as technological modes of representation become more sophisticated), such a highly developed analysis of these technologies might be premature given the limitations of the perceptual experience that it is currently possible to facilitate[1]. When referring to the use of such technologies in my own ethnographic work, I am more comfortable with the word 'embodied' (see Jackson, 2016d; 2016e and 2017c and section 1.3 above). This word reflects the centrality of the sentient body in these technologically mediated experiences, without implying that they are necessarily immersive, or that a sense of presence has been achieved. However, this word is not without problems. One of the fundamental limitations of contemporary virtual environments is their inability to effectively index the presence of the user's body (see Murray and Sixsmith, 1999 for an in-depth analysis of the implications of this problem).

The impact of technology on the human capacity to sense is the final issue addressed here. Many scholars argue that technological developments have the potential to extend our sensory capabilities beyond the limitations of our perceptual systems, whilst others argue that most technologies, despite the claim that they offer new audio-visual experiences, actually atrophy our sensory engagement with place. For instance, Danius (2009) argues that "From photography to telephony, from phonography to cinematography: technological transformation helps to articulate new perceptual realms" (p.17)[2] whereas Vannini et al. (2012) argue that despite the raft of recent technological developments which "promise enhanced sensations … this orientation might promote, paradoxically, a sense of disconnection from one's own body and sensorium." (p.157) When advocating that technological modes of representation are implemented as part of a sensory ethnography, the extent to which the selected technologies might extend or atrophy the sensory experiences being studied is clearly of relevance. However, this complex issue might not be reducible to either of these conflicting perspectives. Tucker and Goodings offer the more nuanced argument that whilst 'mediated environments' offer an "increased possibility for connections", they might result in a loss of the "affective elements of experience" (2014, p.60), a stance which resonates with

1 See Moreau, 2013 for an evaluation of technological limitations regarding vision and Larsson et al., 2008 regarding sound.

2 Other examples include Rodaway (2013) who argues that "Technological ingenuity permits societies to extend the reach of certain senses" (p.146) and Parisi (2008) who argues that although media technologies do possess the "ability to extend the sense organs into the external world", a much more significant issue is "the reconfiguration of the sensorium brought about by this technological conditioning of bodily habits" (p.309).

the issues of 'immersion' and 'presence' described above. With one of the most revealing aspects of ethnography being the vulnerability that it demands, the potential to diminish the affective nature of emplaced experiences could be considered a very significant issue but it is important to remember that the technologies advocated here are intended as methods for revisiting, not encountering the field of study.

All of the issues addressed above are illustrative of the complex and challenging relationships between the senses and technology. In the design of any research project which uses technological methods to study culture, the limitations of current technologies in communicating experiences involving the haptic, gustatory and olfactory senses, the problems associated with the popularised concept of immersion and the potential for technological modes of representation to either atrophy or extend the human capacity to sense are inevitably combined, making it impossible to unequivocally defend the adoption of specific sensory technologies. However, the three technologies advocated in the remainder of this chapter will be shown to offer uncommon affordances and, when synthesised into the unique combination provided by *Experience Temple Works*, have the potential to reveal new ways of knowing with specific relevance to the fundamental aims of sensory ethnography.

4.2 FIELD RECORDING AS AN ETHNOGRAPHIC METHOD

> "The dispassionate recall of the tape recording provides the opportunity for me to reconstruct with some precision my rapid alternations between anger, chagrin, and occasional elation and insight."

(Biella, 1996a, p.59)

In chapter 2 (above), a rationale was presented for adopting a multisensory approach to the study of culture and, in particular, for the auditory aspects of experience to be given greater emphasis in such work. I argued that ethnographic studies should acknowledge the deep significance of "one's sonic way of knowing and being in the world" (Feld and Brenneis, 2004, p.462) but I will build upon that assertion here, advocating that specific sound recording technologies are employed and that published ethnographic studies should include the resulting sound files, allowing aspects of the auditory experience of the field to be revisited by anyone accessing the publication. I will argue that this recommendation has the potential to very significantly impact upon the production and dissemination of ethnographic knowledge and is wholly feasible and realistic to implement,

despite its potentially wide-reaching ramifications. Rather than focusing upon the theoretical framework which underpins this recommendation (already outlined in chapter 3, above) this section will present and evaluate a series of tools and technologies through which the recommendation might be practically realised. These tools and technologies have largely been developed within, and implemented by, the academic disciplines of sound and acoustics but they will be evaluated from a wider range of perspectives here, drawing upon recent arguments from numerous disciplines including anthropology, sensory studies and cultural geography. This interdisciplinarity is essential in effectively assessing the potential impact of sound recording technologies in the study of culture as "within sonic arts practice, field recording has predominantly remained a process of sound collection for compositional departure points, rather than heard as a material that contains narrative content and overt human presence." (Anderson and Rennie, 2016, p.222)

'Field recording' refers to the process of using portable audio equipment to record "the myriad soundings of the world" (Gallagher, 2015, p.560) whilst away from the studio and production environments typically associated with the creation of sound recordings. However, it is not simply a method of producing auditory data for the purposes of repeatable study (see section 1.2, above), it is a situated and embodied practice through which the complex relationships between the senses, culture and technology can be explored. Sound recordings created in the field do contain a wealth of ethnographic data represented "in a permanent form" that can be analysed "at leisure" (Dicks et al., 2006, p.84) but adopting field recording as an ethnographic method is far more impactful than offering another method of data collection. It changes the ethnographer's relationship with both the field of study and the research participants, foregrounds issues of embodiment and, most significantly, brings into question assumptions regarding ethnographic methods. However, whilst field recording might be able to offer "unique insights into the world that no other documentary medium is able to deliver" (Lane and Carlyle, 2013, p.13) it also presents a series of unique challenges regarding presence, intention and editing, all of which are elucidated below.

> "While vision makes us aware of our distance to an object, sound involves us in the world. Sound has a more emotional dimension than the other senses. It transforms the space around us from inside us."
>
> (Degen, 2008, p.43)

If it is the intention of ethnography to create and communicate knowledge regarding people and cultures then it is little wonder that field recording is such a commonly adopted research method. As Degen (2008) identified during her study of urban regeneration and the sensory experience of the city, visual media has the potential to create 'distancing',

whereas sound, as a haptic and auditory experience which both surrounds and penetrates us, creates a 'closeness'[1] through which it might be possible to achieve a "reintegration of the listener with the environment in a balanced ecological relationship." (Truax, 2008, p.106) However, within the context of ethnography, field recording has most commonly been used to record voice (typically the dictated field notes of the ethnographer, an interview, or 'walk'[2]) and specific auditory events (such as music, dance or other forms of performance). These predispositions have the potential to situate field recording as another linguistically orientated practice within anthropology and to marginalise its significance to the study of auditory phenomena. The intention of my own work with field recording as an ethnographic method (see in particular Jackson, 2014b; 2014d; 2016c; 2016d and 2016e) is to create environmental and spatial sound recordings through which it is possible to interrogate the 'lived experience' of a particular place and the relationships between that experience, the sentient body and cultural phenomena. Although such explorations are not unprecedented (see for instance Gallagher, 2015), they have typically been conducted as part of an auditory-specific study, whereas I have argued that modality-specific studies should be avoided (see section 2.3, above) and developed a set of sensory research methods in which field recording is part of a multisensory study.

In chapter 2 (above), the synergies between sound and ethnography were examined, with particular reference to the capacity of auditory stimuli to create a sense of 'closeness'[3] to the sensory experience of the field of study. However, when field recording technologies are implemented in order to achieve this outcome, a number of problems regarding 'presence' are foregrounded. Whilst photography and filmmaking clearly index the presence of the person behind the camera and are widely recognised to embody the compositional impulses of that person, there is "a common presumption … that field recordings represent authentic, impartial and neutral documents" (Anderson and Rennie, 2016, p.222). Failing to acknowledge that compositional, selective, technological and intuitive processes (determined by the recordist) are present in every field recording has the potential to mask the subjective and personal nature of the resulting files. The placement of the microphone(s), the timing of the beginning and end of the recording, the 'gain' used to determine the loudness of the resulting files etc. might be less overtly discernible than their equivalents in visual media, but they still make the recordist 'present' in every recording. One of the key debates in field recording is the extent to which the recordist should be audible within

1 See section 1.2 (above) for an analysis of the meaning and impact of 'closeness'.
2 Walking is an established method of collaborating with research participants, commonly used within anthropology and cultural geography. (See for instance O'Neill and Hubbard, 2010; Middleton, 2010; Degen and Rose, 2012)
3 See section 1.2 (above) for an analysis of the meaning and impact of 'closeness'.

the resulting files. For Merchant (2011), the sounds made by her own body are "capable of instilling a kinaesthetic understanding, fostering a mimetic empathy" (p.65) whereas Carlyle (in Lane and Carlyle, 2013) argues that for some recordists, "the faintest trace of … [their] presence is an insult to the very transparency of the pure moment of contact" (p.19). With regards to ethnography, the extent to which the researcher is personally present in the fieldwork materials should be carefully considered as part of the research design. The opposing states of 'invisibility' and 'overt presence' could be situated as reflecting traditional anthropological methods, such as participant observation, and the more recent development of 'auto-ethnography' respectively.

Also commonly overlooked in the analysis of field recordings is the issue of intent. The processes described above are all informed by the recordist's desire to communicate specific meanings and inevitably embody the ways in which "they are expressing relationships to the place of work" (McCartney, 2016, p.160). However, the 'directness' of listening and the personal, intimate and embodied nature of auditory experience has the potential to obscure that field recording involves "intentional techniques" which "require more interpretative decoding" (Pauwels, 2010, pp.556-557)[1]. When using field recording in ethnography, it is essential to not only analyse the ethnographic data contained within the resulting files (reflective of the field of study) but also to critically evaluate the choices involved in creating them (reflective of the intentions of the recordist). For instance, 'hi-fi' recordings consisting of distinctive sound events which "overlap less frequently" (Schafer, 1977, p.43) are often sought out due to their clarity, whereas 'lo-fi' recordings, which are noisy and stratified, might be intentionally created if the subject of study pertains to "modernity and busy city life" (McCartney, 2016, p.161). These concerns can be evocatively highlighted by considering the specific issue of silence. It is highly unlikely that an ethnographer would make recordings of the absence of sound, and yet, a period of silence might be very revealing in the context of ethnographic fieldwork. These moments when the conventions of the recording medium and the aims of the ethnographic research project distinctly diverge might be productive sites for an analysis of the chosen research methods.

If field recordings are to be used as a form of ethnographic data and for the purposes of sensory elicitation, the ways in which they might be edited should be carefully considered. The concepts of 'presence' and 'intention' (addressed above) have direct correlates in visual media and can be interrogated in very similar ways. However, the editing of a sound recording must be conceptualised differently and raises a separate set of questions, largely

1 This article by Pauwels presents an analysis of visual methods and data but his argument regarding intentionality is also applicable in the context of auditory work.

regarding temporality. In his seminal field recording project The Vancouver Soundscape, Schafer (1973) equates the selection of sounds to placing "a frame around them ... [j]ust as a photograph frames a visual environment", a contention which offers two interesting insights. Firstly, the editing of sound recordings might not be any more problematic than the framing of a composition within visual forms of media. This process of abstraction is simply taking place in the temporal, rather than spatial, domain. Secondly, it must be acknowledged that one of the most influential figures in field recording has appropriated a visual metaphor in the description of an auditory process, foregrounding the challenges that are faced in articulating non-visual aspects of experience. In the context of ethnography, the key issue here might simply be one of transparency. The temporal compression created by editing long recordings into shorter sequences of key 'sonic events' can be very revealing. However, the listener must be made aware that the auditory experience offered by these edited files does not reflect the rhythm and pacing of the lived experience it is intended to represent.

The issues of 'presence', 'intention' and editing (addressed above) are all of central concern to the concept of using field recording as a form of "sonic documentation" (Feld and Brenneis, 2004, p.464) and must be carefully considered. However, field recording is not simply a method of producing ethnographic data, it is a highly effective form of 'sensory elicitation', allowing aspects of the sensory experience of the field to be revisited, facilitating "a process of re-insertion, through memory and imagination" (Pink, 2012, p.120). However, field recordings made using 'standard' stereo microphones may be limited in their capacity to communicate embodied sensory experiences, as the technologies used in their creation bear little resemblance to human auditory perception. It is here that binaural field recording has the potential to make a significant contribution to ethnographic methods. Binaural recording involves using two microphones placed inside the ears of the recordist, or a dummy head. Sound files recorded in this way have a spatial and embodied quality to them; a result of the ways in which the physical anatomy of the human head[1] structures the sounds that are perceived by the human auditory system. The spatial and embodied qualities of binaural audio are only perceptible when the recordings are listened to through headphones but the "intimacy and interiority" (Dyson, 2009, p.13) that headphone listening

[1] These anatomical features include the shape of the head (creating differences in volume between the left and right ear, known as 'head shadow'), the distance between the ears (creating 'interaural time differences') and the shape of the pinna of the ear (which is intended to amplify and direct sound waves).

offers might be welcome in the context of sensory ethnography's aim of "allowing people to imagine themselves in the world of others" (Pink, 2012, p.42).[1]

The intimate and emplaced nature of binaural audio is not the only quality it possesses with relevance to sensory ethnography. The 'spatiality' of the resulting sound files, synergistically constructed by both the recording technology and the materiality of the recordist's body, communicates ethnographic data not accessible through other forms of audio-visual media. The binaural sound recordings created within the 'main space' of Temple Works[2] provide an effective example of this. A visual analysis of the 'main space' might suggest that the fabric of the building is a rigid and inanimate structure. However, the binaural sound recordings challenge that perception, containing a multitude of spatially located auditory cues which reveal that the building is far from inert.[3] This not only highlights the importance of sound in the perception of the spatial and material organisation of place but also serves as a reminder of the agency of material objects (see section 3.1, above). The binaural recordings of the 'main space' also include distal sounds emanating from outside of the building, the majority of which are associated with the modern city and reveal the proximity of the building to an urban environment. Propagated through different types of transmission media, sound is capable of communicating data not accessible through vision alone. Accessed via binaural listening, those sounds can be spatially located as well, providing further information about the surrounding environment.

> "The stereophonic perspective of traditional hi-fi audio... absorbs the listener into a frontal perspective that is antithetical to the 360-degree audience of sound."
>
> (Dyson, 2009, p.13)

As Dyson (2009) highlights in her ontological analysis of how sound emerged into VR environments maintaining "the ocularcentric metaphysics that it would seem to critique" (p.13), one of the fundamental limitations of sound recording technologies such as binaural audio, is that they embody a perspective that is aligned with binocular vision. In simple

1 The 'closeness' (see section 1.2, above) that binaural sound recordings are able to facilitate can be very vividly illustrated by taking the following actions within *Experience Temple Works* (as previously advocated in section 2.3, above). After spending some time exploring the 'main space' (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace) whilst listening to the binaural sound recordings this location includes (using headphones), leave the space by clicking on the large grey doors, labelled as leading to the 'open loading bay'. This new location does not include binaural sound recordings and the sense of 'distancing' that occurs with this transition to a representation of the space without audio can be quite marked.

2 Accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace

3 The sounds produced by the building are especially prominent in this recording which was made during a storm: http://tomjackson.photography/interactive/templeworks/?loc=mainspace9

terms, a binaural field recording can only be experienced in the spatial orientation from which it was recorded, dictated by the embodied performance of the recordist. In order to address this limitation, one of the methodological contributions of this practice-led PhD is a system which facilitates the recording and playback of interactive 360° binaural recordings. This system, which was conceptualised and developed as part of *Experience Temple Works* (see section 5.1, below), maintains the spatial and embodied qualities of binaural audio without restricting the experience to a particular orientation. The implications of this are significant, as the act of listening to the recording is no longer a singular, unified experience. Although the sequence of sonic events will remain unchanged, the listener is engaged in an active and exploratory interaction with the recording. This affordance permits the listener to direct their attention, further implicates the body in the experience and makes it possible for binaural audio to be integrated into navigable and interactive environments (see section 4.3, below).

Field recording not only has the potential to contribute to the production of ethnographic knowledge, but also to its dissemination and reception. If the resulting sound files are embedded within published ethnographic studies, numerous developments might be set in motion:

- The writing of ethnographic publications might change, becoming more analytical and less descriptive as the translation of auditory experiences into language is no longer a requirement.

- Providing access to this type of 'pre-reflective data' might imply a "decrease of authorial control and an increase of authorial humility" (Stoller, 1989, p.56) and encourage ethnographic studies to be reinterpreted, extended, or even challenged by other scholars, who are able to revisit aspects of the auditory experience of the field.

- The ability to point to experiences that are tacit, ineffable and not reducible to language might allow ethnographic publications to offer "a richer understanding of the complexities of lived experience" (O'Neill and Hubbard, 2010, p.48).

These developments could be very meaningful and yet, their realisation is potentially very simple. The equipment required to create high-quality binaural field recordings is affordable

and very easy to use[1], numerous platforms offer the ability to create permanent records for auditory media[2] and journal articles are typically published in formats that are designed to accommodate embedded media[3].

In conclusion, field recording technologies have the potential to make very meaningful contributions to ethnographic methods. As long as the application of these technologies is not restricted to the recording of voice or specific auditory performances and the complex issues of 'presence', 'intention' and editing are knowingly addressed, the resulting sound files might facilitate new ways of creating and disseminating ethnographic knowledge. The 'closeness' that auditory experiences offer might be an effective way of understanding the lives of others, particularly when the spatial and embodied qualities of binaural audio are exploited. If the resulting sound files are embedded within ethnographic publications, field recording technologies might have impact beyond the creation of ethnographic knowledge, extending into the ways in which it is disseminated and received. Providing 'pre-reflective' sensory data alongside a written theoretical narrative could change the way that ethnographic accounts are presented and encourage the reinterpretation and development of this data by other scholars. In the following two sections, this advocation of field recording as an ethnographic method will be combined with arguments pertaining to virtual and participatory technologies. Whilst each of these technologies have specific affordances, their synergetic combination is the salient recommendation of the chapter.

4.3 ETHNOGRAPHY AND THE 'VIRTUAL ARCHIVE'

With the intention of charting the 'future of visual anthropology' by 'engaging the senses', Pink (2006) argues that interactive, non-linear forms of 'hypermedia' should be adopted with the capability to "combine written theoretical, descriptive, pedagogical and applied anthropology narratives with reflexive audiovisual and photographic representations of knowledge and experience that can only be communicated (audio)visually" (Pink, 2006, p.105). The argument presented here will closely align with this, but with two significant

1 The equipment that I currently use for creating binaural field recordings is a Sony PCM-M10 portable audio recorder and Soundman OKM binaural microphones. At the time of writing, this complete setup costs ~£300. The 'auto recording level' functionality of modern audio recorders, such as the PCM-M10, makes it very easy to produce good results, even in challenging environments.

2 At the time of writing, SoundCloud (www.soundcloud.com) is the industry-standard commercial platform. However, university libraries are increasingly offering systems for creating permanent records for audio-visual media, such as: http://archive.researchdata.leeds.ac.uk

3 The HTML and PDF formats that are currently used for the publication of the vast majority of journal articles are designed to accommodate embedded audio-visual media.

distinctions. The visualism inherent in Pink's argument[1] will be circumvented, attending to other sensory modalities with equal emphasis, and the two-dimensional confines suggested by the concept of 'hypermedia' will be replaced with more contemporary modes of representation which are spatial and embodied. Challenging the long-standing ubiquity of photography and filmmaking in ethnographic fieldwork, I will argue here that recent developments in 'virtual' technologies have the potential to meet several of the fundamental aims of sensory ethnography. In making this argument, I will introduce the historical context of related developments in anthropology, connect the specific affordances of virtual technologies to the aims of sensory ethnography, illustrate a number of problems associated with photographic and filmic representations and finally, address the practical and conceptual challenges that virtual technologies present, in order to offer a balanced argument.

The concept of using digital and interactive media to impact upon the publication of ethnographic studies is not a new one. Since the mid-nineties, a number of key innovators have explored the potential of convergent and non-linear technologies in facilitating new ways of disseminating ethnographic knowledge. For instance, Coover (2003), Ruby (2004) and, most notably[2], Biella (1993, 1996a and 1996b) have successfully implemented 'hypermedia ethnographies', in which the resulting publication was not restricted to a linear, authored narrative. All of the scholars referenced here have remarked upon various efficacies of this new model of publishing. Biella identified the potential for interactive functionality to uncover "previously unrecognized patterns in the many facets of the empirical" (2011, p.13), Ruby found "writing in a nonlinear fashion to be amazingly freeing" (2007, p.322) and Coover (2004) argued that "digital media and ethnographic methods … suggest how relationships between visual and verbal referents evolve in the cultural imaginary" (p.7). However, despite these advocations, the concept of developing interactive ethnographic publications has gained little traction. This is likely indicative of the "methodological conservatism" which persists in anthropology "due to an uneasiness with going against established codes of acceptable, or 'valid' modes of representation" (Merchant, 2011, p.55) but it might also reveal that the affordances of ethnographic publications which are interactive, and yet largely still composed of text and image, might not be sufficiently persuasive to justify the considerable development time they require. However, given the rapid proliferation of recent

1 This publication has the subtitle 'engaging the senses', strongly suggesting an approach that implicates all sensory modalities. However, the phraseology of Pink's argument is commonly ocularcentric in nature. For instance, the title refers to the 'future of visual anthropology' and the word 'audio' is repeatedly placed in parenthesis when preceding 'visual', suggesting its subservience in Pink's argument.

2 Not only was Biella one of the first proponents of 'multimedia ethnography', he has continued to publish on the topic and teaches the principles to students of visual anthropology.

developments in audio-visual and interactive technologies brought about by commercial investment in VR (Metz, 2015), it might be timely to review the status of such technologies in relation to ethnography.

The 'virtual archive' platform developed as part of *Experience Temple Works* is a unique combination of interactive 360° photography, interactive 360° binaural field recording, a spatial and temporal navigation system and a number of participatory features, all of which have the potential to contribute to the production and dissemination of ethnographic knowledge. Field recording as an ethnographic method is addressed in section 4.2 (above), the relationships between participatory media and ethnographic knowledge are addressed in section 4.4 (below) and interactive 360° photography (including the spatial and temporal navigation system) will be addressed here. Also commonly referred to as 'photo VR', 'spherical photography' and, in some commercial and touristic contexts, a 'virtual tour', the production of interactive 360° photography is both a creative and technical process which involves photography, photo-manipulation and interactive authoring. The resulting files offer a navigable photographic experience with qualities which are reflective of human visual perception. In this section, the affordances that the virtual archive platform facilitates will be outlined, with specific regard to framing, movement and interaction, spatiality and temporality.

> "The single, frozen field of view provides only impoverished information about the world."
>
> (Gibson, 1986, p.2)

One of the fundamental aims of sensory ethnography is to find ways of communicating insights into the "sensory ways of knowing in other people's worlds" that are "comprehensible to scholarly and public audiences" (Pink, 2010). Photography has gained a "decisive status … as testimony to an event" (Poole, 2005, p.168) within ethnography and yet, the "single, frozen field of view" (Gibson, 1986, p.2) that the photographic image exhibits might be considered "quite obscure" (Rodaway, 2013, p.121) when human visual perception is unequivocally "active and exploratory" (Grasseni, 2004, p.46). With a 360° field of view encompassed within a single image, the viewer is afforded the ability to reframe the visual environment in accordance with their own interests and intentions, rather than those of the photographer. This type of image has the potential to include a broader range of ethnographic data but it is of much greater significance that this data is communicated in a format that is more 'pre-reflective' in nature and which might be considered more "empirically close" (Biella, 2011, p.12) than the 'framed' abstraction of a typical lens-based composition. As Merchant (2011) noted during her ethnography with scuba divers, "the research participants had no

say in the framing of the shots" which meant that she "potentially missed things and events which the participants would have deemed important to their experience." (p.61) This issue, which Merchant specifically addresses in relation to memory, might have been lessened by adopting the technologies advocated here.

The extent to which interactive 360° photography exhibits a less predetermined framing might suggest "a decrease of authorial control and an increase of authorial humility" (Stoller, 1989, p.56) aligned with the collaborative intentions of sensory ethnography. However, it might be of greater significance that this type of image has the potential to aid in communicating comprehensibly to non-academic audiences. Not only does this mode of representation offer an engagingly 'immersive'[1] and meditative visual experience with wide appeal (see section 5.2, below), it might require less 'decoding' and interpretation regarding the intentionality of the photographer and "the predicament of the frame" (Favero, 2014). However, it is important to note that the photographer is still 'present' in this type of photography. Intentions that would typically be manifested in compositional decisions made through the lens are not removed, they are reconfigured into concerns regarding the positioning of the 'fulcrums' from which image will be experienced, which necessitates a different kind of spatial awareness.[2]

> "Through movement, activity and interaction, and lived experience, places come to be constituted cognitively, and in the process they become meaningful."
>
> (Witmore, 2004, p.59)

Movement and interaction are also made possible by interactive 360° photography. Not only are the individual images navigable but clickable 'hotspots' are a standard convention of the format. These spatial hyperlinks offer a sense of traversing the environment as the user transitions between any number of 'fulcrums' (predetermined by the locations from

1 See section 4.1 (above) for a critique of the concept of 'immersion'.

2 For instance, carrying out the interactive 360° photography of a location such as the 'joiner's bar' within Temple Works (accessible here: http://tomjackson.photography/interactive/templeworks/?loc=joinersbar) requires extensive planning. The positioning of the 'fulcrums' must be very carefully considered as small changes can make significant differences to the resulting files. The spatial relationships between near objects (such as the columns) and far objects (such as the artworks on the walls and the doorways) not only has the potential to reveal or obscure the far objects, but also constructs visual perspectives which might be interpreted quite differently due to the optical effects associated with parallax. Also, the height at which the fulcrum is positioned has the potential to significantly impact upon the visual information that is present within the resulting files. For instance, the fulcrum was positioned significantly higher than usual for the interactive 360° photograph of the DJ booth (direct link here: http://tomjackson.photography/interactive/templeworks/?loc=joinersbardjbooth) so that the user was able to interrogate the raised surfaces and the objects on top of them.

which the photographer created the source files). The exploratory nature of this format has three very significant implications:

- Movement and perception are interdependent (see section 3.5, above). As Gibson (1986) argues, "We must perceive in order to move, but we must also move in order to perceive" (p.223). The navigational conventions of interactive 360° photography might go some way towards recreating the embodied perceptual behaviour of "*ambient vision*" and "*ambulatory vision*"[1] (p.1, italics in original).

- Movement and interaction encourage engagement. Where a static, framed image might have the effect of distancing the observer, O'Neill and Hubbard suggest that movement through a space encourages "a focus on detail, with normally mundane, ignored and relict features" (2010, p.52). Like the "active and exploratory" nature of vision, interactive 360° photography requires that "the subject derives information about the environment by continuously engaging it through attention, multisensory stimulation and behaviour" (Grasseni, 2004, p.46).

- It is through movement and interaction that places become meaningful. Movement around and between places is "intimately related to the formation of personal biographies" (Tilley, 1997, p.27) and is way in which "places come to be constituted cognitively, and in the process … become meaningful" (Witmore, 2004, p.59).

Creating research materials in which aspects of movement and interaction are replicated could therefore be of great significance to sensory ethnography. These materials might be more directly relatable in terms of perceptual behaviour and have the potential to further implicate the body (see section 1.3, above). Most significantly though, in moving through and interacting with the space, it is possible for the biographical encounters of fieldwork to be recreated, or at least reimagined, away from the field of study.

The spatial interactivity of the virtual archive platform developed as part of *Experience Temple Works* has significance beyond the ability to move. A key feature of this platform is that objects within the environment are also presented as hotspots and can be interrogated in great detail through high-resolution macro photography. Rather than a 'spherical' 360° image, objects are presented as two-dimensional 'planar' projections, which the user

[1] Gibson defined four different types of vision. 'Snapshot vision' involves viewing a particular "fixation point", 'aperture vision' involves the eye "scanning the pattern to which it is exposed", 'ambient vision' involves the observer "turning his [sic] head and looking around" and 'ambulatory vision' involves "getting up and walking around".

can move and zoom[1]. This type of interaction is significant because the amount of detail contained within the images makes it possible to engage the haptic sense, through a process of artificial synaesthesia. MacDougall (1998) describes cinema as an experience in which he "can touch" with his eyes because the "experience of surfaces includes both touching and seeing, each deriving qualities from the other" (p.51). The high-resolution macro photography in *Experience Temple Works* allows the surface and texture of objects to be interrogated much more intimately, so the potential exists to create a vividly synaesthetic sensation of reaching out and touching them.[2] It is also significant that these objects are accessed from within a virtual space. Images of objects collected as part of an ethnographic study could be held within a searchable database but in this format, the context and locality of the object might be lost. In the virtual archive, objects are accessed from a representation of the environment in which they were originally encountered, not only providing locative data, but maintaining the spatial narratives which might have been present in their relationships with other aspects of the space.

The sensory experience of place is a constantly evolving and "continuous flux" (Ingold, 2000, p.158). The temporal unfolding of sound recordings is one way in which these experiences might be reflected upon but an intention of the virtual archive platform developed as part of *Experience Temple Works* was to facilitate vivid interactions with how sensory experience changes over long periods of time. This was achieved by repeatedly visiting locations during a period of 30 months and producing sensory research materials using methods as invariable as possible. These spatially and technologically consistent but temporally distinctive materials were then combined within the archive and the functionality was developed to quickly 'transition' between them. These interactions not only facilitate comparability, but the temporal compression that they exhibit "is helpful in revealing patterns … as long periods of time can be examined quickly" (Jackson in Akama et al., 2015, p.47)[3] and has also demonstrated the potential to evoke compelling affective responses. Stained glass artist Zoë Eady was a long-term resident of Temple Works but relocated to other premises during my ethnographic study. I created sensory research materials of her studio space during her residency and shortly afterwards using 360° interactive photography and binaural field recording. When she experienced the temporally compressed departure

1 These planar projections are available throughout the project but the model 'scenes' in construction by the Leeds Model Railway Society are an effective example of the ability they offer to interrogate objects within the environment: http://tomjackson.photography/interactive/templeworks/?loc=leedsmodelrailway2

2 The two pieces of graffiti art in this link offer an especially high level of resolution: http://tomjackson.photography/interactive/templeworks/?loc=joinersbarbar

3 This citation from an earlier publication is actually referring to my use of time-lapse video in order to reveal patterns of human behaviour at Temple Works but the argument regarding temporal compression is applicable to this context as well.

of her presence from the space, she remarked upon how unexpectedly emotional the interaction had been (as previously outlined in section 3.4 (above) as a 'scenario' intended the illustrate the practical applicability of the theoretical framework).

Visual technologies might offer "productive possibilities … for reclaiming the uncertainty and contingency that characterize anthropological accounts of the world" (Poole, 2005, p.159) but they also present unique problems. The use of interactive 360° photography in the context of ethnography requires that some issues of authenticity are carefully considered during the research design and in the formation of theoretical narratives based upon this mode of representation. It is a physical impossibility to capture a 360° spherical image through a single lens and images presented in this format are therefore always a technological construct created by 'stitching' multiple images together, rather than the single exposure that a photographic image might be assumed to represent. Devices with multiple lenses have recently been developed, allowing all of the required exposures to take place at the same moment in time, but the majority of 360° spherical images are composed of multiple exposures taken asynchronously. This limitation of interactive 360° photography might have little impact in terms of the ethnographic data which the images are able to communicate but in the context of a research method which is founded upon observation, it is important to acknowledge that this particular representation of a moment in time has, to a greater or lesser extent, been falsified. Allied to this, is the issue of the visibility of the photographer. In a typical lens-based composition, the presence of the person behind the camera is assumed and the impact of their presence is widely critiqued but in 360° photography, that person will be visibly present in the resulting image unless deliberate actions are taken to obscure their presence. Given that all ethnographic photography presents "within it the specter of communication, exchange, and presence", all of which might challenge the "ethnographer's claims to objectivity" (Poole, 2005, p.165), this aspect of 360° photography might be particular troubling.

In conclusion, virtual technologies such as interactive 360° photography could be effective in meeting some of the fundamental aims of sensory ethnography. As comprehensible and engaging modes of representation which enact a shift in authorial control, facilitate movement and interaction and are relatable in terms of perceptual behaviour, they might be a contribution to the "new innovative methods" that Pink (2010) argues are central to sensory ethnography and constitute a "fuller use of the properties of visual media" providing "significant additions to how anthropologists define their ways of knowing" (MacDougall, 2006, p.219). However, the issues of authenticity that they present must be recognised and

it is only in their synthesis with the other technologies advocated in this chapter that their full potential can be realised (see section 4.5, below).

4.4 PARTICIPATORY MEDIA AND ETHNOGRAPHIC KNOWLEDGE

One of the most significant challenges of working with the technologies advocated in this chapter (which is also applicable to many other forms of practice-led research) is maintaining the synergistic relationships between the practice and the theoretical narrative. Given the challenges of articulating sensory experience in language and writing (see section 1.1, above) and the inherent incompatibilities between the representational modes of sensory media and academic prose, it is all too easy to allow gaps to open up between the research materials and the contributions to knowledge that are authored based upon them. The simple fact that most academic publications which address issues of sensory experience are published without any of the associated fieldwork materials is illustrative of the potential for these processes of knowledge production to become divorced. Here, I will argue that the participatory affordances of digital media might be one way of bridging these gaps, allowing sensory research materials to become layered with critical analysis and reflection and facilitating ways to create links, both literally and figuratively, between the practice and the theoretical narrative. Participatory technologies also have the potential to change the authorial process, facilitating new ways of co-opting the research participants and becoming the platform through which ethnographic knowledge is co-created. This approach might be one which "speaks alongside, rather than about" (Marks, 2002, p.41) the research participants. However, all of these potential benefits must be tempered with a critical awareness of the problems associated with digitally mediated forms of participation, which are well documented within the academic disciplines of new and digital media.

Anthropologists "seldom provide ethnographic evidence of their findings" (Fabian, 2002, pp.775-776). Published studies typically consist of written theoretical narratives in which the ethnographic evidence has already been translated into academic knowledge and the primary sources are not made available to the reader. This paradigm of academic publishing has been readily defensible for some time, given the challenges of disseminating different forms of media, but participatory digital platforms are now widely established, offering simple solutions for sharing a diverse range of primary sources. With this development, "language-centered anthropology … faces a new situation" (ibid, p.775) as the evidence upon which ethnographic knowledge is founded can easily be made available alongside,

or even embedded within, the written theoretical narrative. An obvious implication of this is the ease with which "the assertions and claims that the ethnographer-commentator makes can easily be checked" (ibid, p.778). However, of greater significance is the extent to which the acts of translation inherent to ethnography might be foregrounded by the direct comparability of the 'pre-reflective data' and written analysis. Whilst the "constraints of traditional publishing" create barriers to "putting one's cards on the table" (ibid, p.779)[1], the adoption of participatory media platforms might bring about a greater transparency in the authorial processes.

> "A contemporary ethnographic approach ... may require that the composer displace authorship of the work, engaging in a collaborative process, facilitating the local inhabitants to speak for themselves ... The final work should be made available to those that it explores, and their responses should be acknowledged and heard, activating a dialogue rather than a one-way communication."
>
> (Levack Drever, 2002, p.25)

The evidentiary possibilities of participatory media are undoubtedly significant but the collaborative functionality that these platforms offer might have a much greater impact upon ethnography. If participatory features are added to all of the research materials, they might be reconfigured as a platform through which ethnographic knowledge is co-created, rather than simply a source of primary data. Embodied, tacit and non-verbal knowledge might be created during the original research encounters, academic knowledge might be created through the later analysis of those experiences away from the field of study and with participatory media, the research materials themselves might become a "third space, a potential space/dialogic space" (O'Neill and Hubbard, 2010, p.56) through which different types of knowledge and understanding can be co-created. With the research materials hosted online and systems in place for users from around the world to contribute to them, opportunities are presented for "an escape from the established academic habit of striving to uncover meanings and values that apparently await our discovery" (Lorimer, 2005, p.84) and a move towards the "democratization of knowledge and visibility" (Batallan et al., 2017, p.464). The research participants, other scholars and anyone else with relevant knowledge can contribute to the research findings. This type of 'cross-referenced' material, demonstrating "multifaceted complexity", might be one which "strongly promotes original thinking" (Biella, 2011, p.13).

[1] Fabian is repeatedly cited here. Not only is he one of the "main methodologists of contemporary ethnography" (Blommaert and Dong, 2011, p.2) but he was one of the first anthropologists to evaluate the potential impact of 'virtual archives' on ethnographic writing (see primarily 2002 and 2008).

The significance of this rethinking of the authorial process could be wide-reaching, changing the relationships between all parties involved in the production of ethnographic knowledge. The ethnographer might relinquish aspects of the typical expectations regarding independent authorship and instead, focus upon the facilitation of knowledge production and the analysis of different perspectives, the research participants might be empowered to become active collaborators in the production of knowledge, working with the ethnographer through the participatory platforms and the intended audience for the published materials might become 'prosumers' (Toffler, 1980), helping to produce the research findings rather than simply consuming them. The "conversational dynamics" that this approach facilitates might result in "knowledge creation that is more authentic and 'objective' than that obtained *and largely unchallenged* from informants" (Batallan et el., 2017, p.471, italics my own). In this paradigm, the research materials themselves are reconfigured too. Just as places can become sedimented with layers of experience and meaning (see Seremetakis, 1994; Tilley, 1997 and Edensor, 2010), participatory media might facilitate similar layering within the research materials, as users inscribe their own knowledge, memories and stories within them. These contributions, which might be written, spoken or presented as other forms of sensory media, reconfigure the research materials as active, potential and agential, rather than simply as evidence from the field.

Ethnography is no longer considered a study 'of' people, but rather a study 'with' people (Pink, 2010a). This important development situates the method as cooperative and concerted, displacing long-standing preconceptions of the ethnographer as a detached observer. However, it also requires that the participants are actively engaged in the process, asking the ethnographer to build lasting relationships and potentially placing greater demands on the participants. Participatory platforms could be of benefit here too, facilitating methods for co-opting the participants and maintaining their identification with the research. These platforms are designed to engage different types of users in collaborative activities and therefore have the potential to be relatable, or even quotidian, for the research participants. For instance, in their study with young people living in a "neighborhood of extreme poverty" (p.464), Batallan et al. found that the audiovisual technologies used in conjunction with their participatory methods made both "access [to] and dialog with" (p.465) their research participants much easier. Given that the "question of how to engage groups in collaborative work is central to participatory research" (Barab et al., 2004, p.254), exploiting the prevalence and popularity of participatory media platforms might be advantageous.

Whilst the collaborative potential of participatory platforms could be very meaningful, technologically mediated forms of participation also present a number of problems

regarding power and control and the 'digital divide', the significance of which must be evaluated with specific reference to ethnography. Rather than democratising the production of knowledge, participatory media platforms might replicate the systems of power and control present in the culture being studied. Although these technologies might be "used across lines of gender, class and other differences, the way they are used continues to reflect socioeconomic disparities" (Zoettl, 2012, p.210). The ethnographer must therefore avoid any assumptions regarding online participation as a "great equaliser" (Xenos et al., 2014) and maintain a critical awareness of its potential to mirror the inequalities present offline (which may, or may not, be helpful depending upon the intended outcomes of the ethnographic study). It is also important to note that the participatory platform itself will exert power and control, imposing "structures [which] enable and constrain the actions of media actors" (Sandoval and Fuchs, 2010, p.145). Consequently, whilst participatory media might be ''an agent for social change, culture development and democratization" (Servaes, 1999, p.269), the contributions that users are able to make are restricted by, presented within and potentially, reflective of, the frameworks dictated by the platform. Due to potential issues regarding access to technology, it should also be noted that using participatory media within the context of ethnography might not be an effective way of co-opting and building relationships with the participants, but rather introduce another barrier by which the participants are excluded from, or misrepresented by, the study.

In conclusion, participatory forms of digital media could have significant impact upon the ways in which ethnographic knowledge is created and disseminated. These collaborative platforms might help to maintain the connections between practical fieldwork experiences and the theoretical narrative, offer ways of embedding primary evidence within published studies, encourage greater transparency in the authorial processes associated with ethnography, be used to co-opt and maintain relationships with the research participants and even become the platform through which ethnographic knowledge is co-created. However, the problems associated with digitally mediated forms of participation must not be overlooked. When research materials are created with the participants "there is likely to be much greater attention paid to their culturally-specific meanings" (Dicks et al., 2005, p.69) but in facilitating the collation of "a multitude of voices … which of those voices are more widely "heard" is still an issue of legitimacy, authority, and power" (Bradley in Fabian, 2002, p.780).

4.5 SYNTHESIS

All of the technologies advocated in this chapter have the potential to make meaningful contributions to ethnographic methods through their individual affordances. However, it is through the synthesis of these technologies that their full potential might be realised. In section 2.2 (above), the dangers of modality-specific sensory studies were highlighted. If sensory perception is formed of bound percepts across different modalities, it naturally follows that the modes of representation that are engaged to study sensory experience should be as multimodal and integrative as possible. It might only be possible to study the complex and interdependent relationships between sensory experience, the sentient body and cultural phenomena by developing a similarly sophisticated and synergistic set of tools and technologies. With one of the fundamental aims of ethnography being to "draw large conclusions from small, but very densely textured facts" (Geertz, 1973, p.28) and with the development of new sensory ethnographies necessitating "a shift from sight and vision to sound and voice, from text to performance, from monologue to dialogue, from authority to vulnerability" (Levack Driver, 2002, p.24), the technologies advocated in this chapter could, in their synthesis, be one of the ways in which it becomes possible to "attain richer and fuller translations of bodily experience and materiality that are located, multi-textured, reflexive, sensory, and polysemous." (Witmore, 2004, p.60)

> "ethnographic film is a collaborative fiction"
>
> (Marks, 2002, p.50)

In presenting the argument that multisensory technologies should be used in the context of sensory ethnography, the question 'Why not film?' is inevitably asked. As a medium which is not only visual and auditory but also offers a "haptic visuality, [in which] the eyes themselves function like organs of touch" (Marks, 2002, p.2), the place of film in relation to this emerging discipline must be addressed. Whilst it is undoubtedly possible for filmic representations to vividly communicate aspects of sensory experience, there are numerous potential problems associated with the intention of using it to *study* such experiences:

- The conventions of filmmaking might be too closely tied up with the construction of fictional narratives. Possessing a visual language that is so pervasively engrained in contemporary culture as a method of communicating stories, film might not be the most effective medium for analysing the meaning of sensory experiences. As Rodaway (2013) argues, film represents a "tension between the telling of a story ... and the evocation of place" (p.162).

- Film presents a 'framed' and persistent abstraction which might be at odds with the subjective and individualised nature of sensory perception. Filmic representations inevitably foreground "the question of *whose* perception" (Branigan, 1984, p.1, italics in original) is being communicated and to what extent the resulting film embodies "the filmmaker's power over his or her subject" (Marks, 2002, p.41).

- As a persistent and linear flux of temporally predetermined events, film might be too passive a medium for analysing the meaning of sensory experiences. Perception is dynamic, active and exploratory, whereas film might "confer a stable meaning" (Mroz, 2013, p.15) through the 'distraction' of its temporal flow.

- In order to create the illusion of moving images with synchronised sound, film exploits a number of ways in which the brain processes and synthesises information from different sensory modalities[1]. The necessity of these bound cross-modal percepts reveals a troubling dependency between filmic representations and the 'translation' of sensory experiences, which might be the subject of study.

The advent of 360° filmmaking might address some of these concerns but as a technology very much in its infancy, the recording and playback of 360° video presents significant technological and practical challenges. However, it is not the intention here to argue that film has no place within sensory ethnography, it is simply to suggest that "for every kind of experience, there is a proper format" (Carpenter, 2003) and in the study of multisensory experience, it is important to maintain an awareness of the potential problems with filmic representations.

Although I have argued here that the synthesis of the three technologies advocated in this chapter has the potential to reveal new ways of studying sensory experience, it is imperative not to underestimate the mediating effects of utilising such a complex and multilayered set of tools. The potential has always existed for "the distinctive semiotic properties of different media … to slip from view, so that they become mere carriers of something called 'data'" (Dicks et al., 2005, p.69) and this problem might be exacerbated as media forms become more sophisticated and unified. However, when the differences between the lived experience of fieldwork encounters and the re-experiencing of those encounters through multisensory modes of representation are appropriately identified and

[1] For instance, spoken dialogue is perceived to "emanate from the actors' lips rather than from the actual sound source" (Alais and Burr, 2004, p.257) only because "vision has a higher spatial resolution" (Shimojo and Shams, 2001, p.506). The sight of the actors' mouth therefore dominates the perceived spatial localisation of the sound (see section 2.2, above).

evaluated “the frictions and disparities between these experiential modes can potentially spawn connections that would have otherwise not arisen” (Witmore, 2004, p.63).

CONCLUSION

In this chapter, three technologies have been evaluated with reference to the potential contributions they might make to the emerging discipline of sensory ethnography: binaural field recording, the ‘virtual archive’ and participatory media. Each technology has been demonstrated to possess specific affordances which have the potential to impact upon the production, dissemination and reception of ethnographic knowledge and to contribute to the realisation of a number of the fundamental aims of sensory ethnography[1]. However, these technologies also present a number of unique problems, necessitating that they are carefully situated and critiqued. The principal argument of this chapter is therefore that ethnographers proposing studies which involve “answering anthropological questions in ways that are informed by theories of the senses” (Pink, 2010b, p.337) should evaluate how these technologies might open up “other dimensions of ethnographic discourse, other conventions of representation which may carry anthropology deeper into the being of the others” (Stoller, 1989, p.27) whilst maintaining a critical awareness of the new and unique challenges which they introduce.

Experience Temple Works is a practical realisation of all of the recommendations made in this chapter and the significance of this project is evaluated in chapter 5 (below). Although the project concerns a specific locale, it is intended to be a universal case study, illustrative of the contributions the technologies addressed in this chapter might make to any sensory ethnography. In spite of this chapter’s very clearly defined intentions regarding methodological contributions to ethnography, it is interesting to note that an unexpected, but very welcome, outcome of this work has been the extent to which the technologies advocated here have garnered interest from other disciplines. In sections 5.2 and the conclusion of this thesis (below), the wide range of academic events, research collaborations and publications that these technologies contributed to are addressed. In demonstrating relevance to so many different disciplines, it is likely that the combination of technologies advocated in this chapter will have impact beyond the intended purview of anthropology and ethnography.

[1] See Pink, 2010c and 2012; Howes and Classen, 2013 and Nakamura, 2013.

CHAPTER 5

SITUATING THE PRACTICE

This final chapter is intended to situate the practice associated with this PhD, the primary piece of which is the multisensory and participatory virtual archive, *Experience Temple Works*. The methodological contributions of this project and their associated affordances are addressed at length in chapter 4 (above). The primary focus of this chapter will therefore be the impact that *Experience Temple Works* has had, with specific reference to the reception of the project within academia (measured through conference papers and symposia) and with non-academic audiences (measured through public engagement and dissemination activities), the synchronous and subsequent research made possible as a direct result of the project, the ways in which the project has been, and continues to be, utilised by the *Temple.Works.Leeds* community (and the significance of these uses for a space with such an uncertain future) and a brief reflection on the impact of the project on myself from an auto-ethnographic perspective. However, before each of these outcomes of the project are addressed, the selection of Temple Works as the locus of study, the scope of the project and some of the stages involved in its development will be outlined. This section of the chapter is intended not only to illustrate the volume of work that was required to realise the project and the technical challenges that had to be overcome in order to achieve this, but also to establish that the technological methods, the theoretical contributions and the fieldwork were all developed in parallel. Although inevitably somewhat descriptive, the commentary and reflection this chapter provides are essential in understanding how and why this project was created, the significance of its realisation, and how its outcomes were achieved.

5.1 SCOPE AND DEVELOPMENT

Experience Temple Works was 30 months in the making. I first visited the site on March 6th 2014 (as part of a public event) and I was given keys to the building, following appropriate health and safety training, just 3 weeks later. I was appointed as a 'resident artist' and all of the usual fees associated with this status were waived on the understanding that, although I would maintain the intellectual property of the project I intended to create, it would be

made publicly accessible through the Temple Works website. This appointment not only provided me with the ongoing access to the site that I required to produce the project, it also perfectly situated me to implement the more traditional ethnographic method of participant observation[1], allowing me to become a member of the *Temple.Works.Leeds* community. On July 28th 2016, the data collection part of the study was brought to a rather sudden end, as the building had to be vacated in order to make way for a proposed development by fashion label, Burberry (BBC News, 2015a). However, despite the backing of Leeds City Council (BBC News, 2015b), this development was formally abandoned in July 2017, a spokesperson from Burberry stating that "it was too expensive and time-consuming to renovate Temple Works" (BBC News, 2017). At the time of writing, Temple Works is an abandoned building once again, a fact which I reflect upon in section 5.5 (below). Post-production of the collected data and the development of additional interactive functionality continued for a further month and the project was pronounced to be 'finished'[2] in August 2016.

The selection of Temple Works as the locus of study was based upon a number of factors. I was proactively searching for a place that would allow me to trial a 'proof of concept' implementation of the methodological innovations I was in the very early stages of developing and Temple Works seemed like a perfect fit. Of a sufficiently challenging scale, but also clearly demarcated, the building offered a vivid sensory experience, created not only by years of decay, but also by the huge variety of purposes it had fulfilled during its chequered history. Originally built in 1840 as a flax mill (Elton, 1993) but later fulfilling many different functions, including acting as the northern office of Kays Catalogue (Yorkshire Post, 2012), as a mail order distribution centre (BBC News, 2010) and, of course, as the residence of the *Temple.Works.Leeds* community, of which I became a member. These many different functions have resulted in the sedimentation of numerous layers of human activity into the fabric of building, warranting a study which interrogates the resulting sensory experience and which facilitates a polysemous analysis of past and present activity.

Temple Works was also selected because it offered the opportunity to build upon a long-standing interest in urban decay. Predominantly through photographic practice[3], I

1 The data collected using this method does not form a significant part of this thesis which is focused upon the new sensory research methods and theoretical framework. However, it may result in a separate publication.

2 The inverted commas here are intended to reflect that, although it was necessary to 'finish' this project, the development of it could have continued indefinitely. The temporal functionality the project includes (see section 4.3, above) means that all of the spaces within the building could have been continuously revisited in order to illustrate how they change over time. Should the opportunity present itself, I would gladly enter the building again and produce additional data. However, the integration of this data into the project would present very significant challenges (see below).

3 For related work, see here: http://www.tomjackson.photography/portfolio/urban-decay/

was already exploring an intention to understand the cultural value of spaces in decay, and had been for some time. Inspired by the work of Edensor (see for instance, 2007), who argues that 'industrial ruins' offer "a rich sensory experience" in contrast to "the somewhat desensualized realms of much urban space" (p.218) and Brogden (2011), who argues that places of dereliction, or 'urban non-places', are typically conceptualised in ways which underestimate their cultural value (which he attempts to 'reclaim' through his practice), I had a developing interest in the ways in which the vivid sensory experience of such spaces might inform the types of cultural activity that take place within them. Temple Works presented an ideal opportunity to explore these ideas as, unlike most industrial ruins which are abandoned, it was a site of urban decay *in regular use*. With a community of artists and makers resident in the space, the potential to study human relationships with industrial ruins presented itself with great clarity. Temple Works is far from unique in this regard and other spaces were considered, such as La Tabacalera[1] in Madrid, but the location of Temple Works within my home town was not only alluringly convenient, it also circumvented many tensions regarding the politics of post-colonialism (see for instance Conquergood, 1991), given the familiarity of the location in which the study would be based.

The production of the visual data within *Experience Temple Works* required 6,921 individual photographs to be taken. 5,445 of these were used to create the 89 interactive 360° photographs which offer the ability to move around the site and the remainder are high-resolution macro photographs used to create the 'planar hotspots' which allow objects within the environment to be interrogated in great detail (see section 4.3, above). The challenge of producing all of these photographs was not simply one of scope. Temple Works presents a difficult environment for photographic work. The light levels vary greatly, which has the potential to pose a challenge for all types of photography, but is particularly problematic for 360° work, which requires the full 'dynamic range' of an environment to be recorded, not just a single 'framed' composition. The working conditions associated with an old and decaying building (cramped spaces, uneven floors, cold temperatures etc.) all made the shoots even more technically and physically demanding. Simply gaining access to all of the spaces within the building was very time-consuming. Working within the 'main space'[2] and on the roof[3] required the supervision of people with a higher level of health and safety 'clearance' (which was not always easy to negotiate) and many of the spaces were secured

1 La Tabacalera is a former tobacco factory, abandoned for ten years, and currently in use as a 'social centre'. See here for further information: http://latabacalera.net/about-la-tabacalera/
2 Accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace
3 Accessible here: http://tomjackson.photography/interactive/templeworks/?loc=mainspace

by other resident artists[1], in order to protect their equipment and artworks. Gaining access to these locations, and the required permission to photograph them, inevitably involved building positive relationships with the other artists[2].

■ Figure 1: The Omni Binaural microphone by 3Dio

The production of the auditory data within *Experience Temple Works* was similarly challenging. Significant research was required in order to find a hardware solution for creating 360° binaural sound recordings (see Figure 1). A device was required which was not only feasible to implement alongside all of the other production demands of the project but was also affordable for a 'proof of concept' study being conducted as part of a PhD programme[3]. The most significant challenge during the production of the recordings was selecting an appropriate 'gain'[4]. The sound levels within Temple Works rapidly alternated between faint and booming, often without warning, as previously vacant spaces saw the arrival of a band wishing to rehearse, a theatre company running lines etc. Many of the recordings I attempted were therefore not usable as the resulting waveforms were either too quiet, or 'clipped'[5]. Despite these challenges, over 24 hours of usable audio recordings

1 See for instance this band rehearsal space: http://tomjackson.photography/interactive/templeworks/?loc=rehearsalspace, the studio space of artist, director and inventor Dave Lynch (www.davelynch.net): http://tomjackson.photography/interactive/templeworks/?loc=davelynch and the workshop of the Leeds Model Railway Society: http://tomjackson.photography/interactive/templeworks/?loc=leedsmodelrailway. Access to all of these spaces had to be negotiated.

2 For instance, resident artist Toby Latham was understandably concerned about high-resolution images of his artworks being made available through Experience Temple Works and the facility this might create for users to plagiarise or reproduce his work. Before his studio was included within the project, I produced a separate version for his approval, which did not include the usual high-resolution 'planar' hotspots. Approval was granted on February 8th 2016 and his studio was added to the project: http://tomjackson.photography/interactive/templeworks/?loc=tobylatham

3 The cost of this piece of hardware cost £1900 and the purchase was made possible by a successful seed funding application to the Communities and Culture Network+ (Jackson, 2015b).

4 In the context of audio recording, 'gain' refers to the amount that the audio signal should be boosted prior to recording.

5 'Clipping' refers to the distortion of a waveform when an amplifier creates a signal that exceeds its capability. It can occur when a sound is too loud in relation to the current 'gain'.

were created. The editing of this data, which must be a carefully considered and 'transparent' process in the context of ethnography (see section 4.2, above), was very demanding. Not only was it an incredibly time consuming process, the fact that every recording consisted of four concurrent stereo sound files[1] meant that a complex multichannel workflow had to be adopted in order to maintain the synchrony of the data. Although the sound files were edited in terms of selecting where the presented audio should begin and end, no 'selective' or 'manipulative' editing took place within the recordings. The resulting sound files are intended to reflect the rhythm and pacing of Temple Works as it was experienced.

The interactive functionality which *Experience Temple Works* offers is driven by programming and markup languages which are ubiquitous in web design and development: HTML, CSS, XML and JavaScript. This is significant because it means the project can be accessed using standard web browser technologies running on a wide range of devices. The potential for participatory web technologies to exclude, rather than co-opt, the research participants is addressed in section 4.4 (above) and although this problem cannot ever be wholly overcome, implementing technologies that are as 'standards compliant' as possible has the potential to lessen the likelihood that any particular user will be excluded from accessing the project. Given the complexity of the functionality which *Experience Temple Works* offers, and the types of interaction that are required to navigate the different types of content which it presents, it was never realistic for the project to fully observe usability and accessibility standards[2] but the implementation of compliant technologies is still significant in opening the project up to as wide an audience as possible.

It was possible to implement some of the interactive functionality included within *Experience Temple Works* using an off-the-shelf authoring package[3]. The navigation within and between the 360° images, the 'planar hotspots', the interactive map and the compatibility with VR headsets are all features that were created using this commercial software system. However, a significant amount of the functionality, some central to the affordances outlined in chapter 4 (above), were beyond the scope of the authoring package and were implemented through bespoke web programming. The 'back button' functionality, the 'help system', the contextual information presented within the surrounding interface, the temporal functionality, the 360° binaural audio player and the participatory functionality were all uniquely designed and developed for *Experience Temple Works*. This involved learning all of the markup and programming languages outlined above and, for

1 One stereo sound file for each pair of 'ears' on the Omni Binaural microphone (see Figure 1).
2 These include the Web Content Accessibility Guidelines (https://www.w3.org/WAI/intro/wcag) and the World Wide Web Consortium standards (https://www.w3.org/Consortium/)
3 Panotour Pro (http://www.kolor.com/panotour/)

some of the more advanced features, collaborating with other digital media academics and practitioners to achieve the desired results[1]. On July 5th 2016, the authoring package started to crash every time I attempted to load the files associated with *Experience Temple Works*. I contacted the developers[2] and, at their request, sent them the file. A response was quickly received indicating that the project was "by far the largest one" the developers had ever seen and that I had "reached a limit we did not know yet about" (Gérald, 2016). Unable to use the authoring package any further, the final seven scenes that were added to *Experience Temple Works* were rendered separately and the resulting files were 'spliced' into the project by manually editing the code. This was an incredibly challenging and time consuming process which involved comprehending and then manipulating an XML markup file consisting of over 120,000 lines of code.

The technologies described here and in chapter 4 (above), the theoretical contributions introduced throughout this thesis and the fieldwork at Temple Works were developed concurrently and symbiotically. Developments, discoveries and problems specific to each of these three 'pillars' of the project frequently brought about a change of direction, a new body of work, or a critical rethinking amongst the others. For instance, during my fieldwork at Temple Works, I came to understand the importance of surface texture within the space. The patterns of decay which the building exhibits are not only central to understanding the visual and haptic experience of Temple Works, they are also one if its greatest assets, attracting photographers and filmmakers from around the world to use it as a location. This realisation motivated me to implement the 'planar hotspots' within the 360° images, allowing users to interrogate these surfaces in great detail and also ensuring that they were vividly represented within the virtual archive. This development in the technological modes of representation brought about new areas of theoretical enquiry and impacted upon my approach to the fieldwork. Concepts regarding the haptic qualities of screen-based media (see primarily Marks, 2000 and 2002) and the human capacity for 'artificial synaesthesia' (see for instance Whitelaw, 2008) were woven into the theoretical arguments presented in the thesis and I increasingly found myself interrogating the surface textures of Temple Works during the fieldwork, both in terms of the creation of sensory research materials and in my discussions with the other resident artists. Another illustrative example is the temporal functionality included with *Experience Temple Works*, the development of which was inspired by literature regarding the significance of changes in the sensory experience of place (see

1 The 360° binaural audio player was developed in partnership with freelance web developer Isfahan Ashraf (http://iashraf.com). Isfahan's time was paid for by funding from the Communities and Culture Network+ (see Jackson, 2015b). The participatory system was developed in partnership with Dr. Chris Birchall, a colleague from the University of Leeds.

2 Kolor (http://www.kolor.com)

for instance Degen and Rose, 2012 and Low, 2015) and the subsequent realisation that the spaces inside Temple Works are rapidly reconfigured as a result of human, non-human and material agency (see chapter 3, above). This development had a very significant impact upon the fieldwork, bringing with it the realisation that the sensory experience of space had to be analysed and documented in relation to time. It also necessitated the development of original interactive functionality within *Experience Temple Works*, allowing users to 'shift' between the different moments that had been recorded.

In conclusion, *Experience Temple Works* is a project of very substantial scope, the development of which presented numerous conceptual, technical and logistical challenges. The selection of Temple Works as the locus of study was based upon existing research interests, the vivid, complex and revealing sensory experience of the site and the potential that existed to explore these qualities in relation to human behaviour, given the occupancy of the building at the time the study was commenced. The fieldwork, practice and theoretical arguments were not formulated in isolation. Their concurrent development over an extended period of time, and the responsiveness and reflexivity that was maintained throughout this process, allowed all aspects of this practice-led PhD to inform each other. The cohesion which this approach enabled may be one of the reasons the project has garnered such a breadth of interest during its development, the significance of which will be addressed in the following section.

5.2 RECEPTION

The reception of *Experience Temple Works* amongst both academic and non-academic audiences might be one of the key indicators in measuring the impact resulting from its creation. This section of the thesis therefore attempts to draw together a number of thematically-linked reflections on the many times the project has been presented within academia and to the general public. At the time of writing, *Experience Temple Works* had formed the basis of eleven events intended for academic audiences[1] and six public engagement activities[2], all of which impacted upon aspects of its production and informed the development of the theoretical argument presented in this thesis. Although this practice-led PhD was always intended as a contribution to ethnographic methods, the extent

[1] Six conference papers (Jackson 2014b, 2014d, 2015c, 2016d, 2017a and 2017c), two symposia (Jackson, 2014c and 2016b), two academic workshops (Akama and Jackson, 2015 and 2016c) and an invited research seminar presentation (2016e).

[2] Jackson and Popple, 2015 and 2016; Williamson et al., 2016; Jackson et al., 2017 and two 'Heritage Open Days' at Temple Works (see below).

to which it found applicability within other disciplines and the capacity it demonstrated to engage non-academic audiences are important outcomes and will therefore be elucidated below.

Unsurprisingly, I was determined to 'test' the theoretical and methodological contributions in this thesis at conferences related to anthropology and elected to do so from an early stage in their development in order to gather feedback. If these contributions were to gain traction within ethnographic publications and practice, disseminating them amongst anthropological communities and proactively responding to the feedback they generated was deemed to be an important step. Thankfully, a paper submitted to the 2014 conference of the Royal Anthropological Institute of Great Britain and Ireland (Jackson, 2014b) was accepted. As I have reflected upon in the 'dossier' of outputs associated with this practice-led PhD (ibid), I was rather nervous about this conference paper, not only as it was my first, but because I was unsure about how well it would be received, given that my argument brought into question long-standing ethnographic methods (see chapter 2, above). However, despite some cautions regarding the adoption of technologically determined methods (see ibid and chapter 4, above), the paper undoubtedly achieved the aim of establishing my work. Following the conference, I received two personal invitations to contribute to the development and delivery of panels related to ethnographic methods, collaborating with anthropologists and hosted by prominent anthropological organisations: the European Association of Social Anthropologists (Jackson, 2016d) and the American Anthropological Association[1]. These 'endorsements' from an academic community reputed to exhibit "methodological conservatism" (Merchant, 2011, p.55) were an important stage in establishing the theoretical and methodological contributions this practice-led PhD was intended to make.

An unexpected but very welcome outcome of *Experience Temple Works* was the extent to which it garnered interest from scholars engaged in critical debates regarding materiality. I delivered a paper at a conference intended to interrogate the relationships between materiality and digitally mediated experience (Jackson, 2015c) which, in turn, resulted in a presentation at a symposium addressing materiality in sound and listening (Jackson, 2016b) and an invitation to become a member of an informal network of scholars with a shared interested in this topic. The issues that we debated at both of these events informed a number of the arguments presented in the new theoretical framework for sensory ethnography (see chapter 3, above). Recognising the material environment as an agential

[1] Unfortunately, I was unable to attend this conference due to other commitments. However, the invitation to collaborate was still very welcome.

producer of sensory stimuli (see section 3.1, above) and as something which transforms those stimuli, resulting in sensory experiences which are not only socially constructed, but also reflective of the spatial and material qualities of place (see section 3.2, above) were both key concepts in developing a theoretical framework which adequately represents the deep significance of non-human agency. My contribution to these events was to address issues regarding sensory perception, materiality and digital mediation, drawing upon the work of Salter (2009) and Witmore (2004), to introduce the methodological innovations developed as part of *Experience Temple Works* and to provide an evaluation of the material qualities of the embodied technologies employed in my practice.

In October 2014 the opportunity was presented to deliver a paper at the *Archives 2.0* conference at the National Media Museum (Jackson, 2014d)[1]. Writing and delivering this paper, and engaging in subsequent debates regarding the definition of an archive with scholars from museum and archival studies, was a pivotal moment in the development of this practice-led PhD. Rethinking *Experience Temple Works* as a form of 'virtual archive' not only brought with it the potential for the project to make a contribution to another academic discipline, it reconfigured a number of the theoretical arguments I was developing and informed the recording of the visual and auditory data in the field. Prior to this event, I had situated *Experience Temple Works* as a platform for re-experiencing fieldwork encounters, for creating a sense of 'closeness' to those encounters during their later analysis away from the field of study (see section 1.2, above) and as a method of including sensory research materials within published academic studies, challenging the place of language and writing for descriptive purposes (see section 1.1, above). Following this event, I came to understand the platform also as an archive of sensory data with a new series of affordances including the capacity to interrogate a 'database' of objects within the context they were originally encountered, not only providing locative data, but maintaining the spatial narratives which might have been present in their relationships with other aspects of the space (see section 4.3, above) and the capacity to present repeatable sensory events, of great significance to their later analysis and interpretation away from the field of study (see section 1.2, above). My contribution to the conference was to spark a discussion regarding the definition of what an archive is and to introduce the concept of creating archives of 'spaces', as well as 'artefacts'. The extent to which the attendees embraced, rather than challenged, these potentially controversial arguments was very gratifying. This rethinking of *Experience Temple Works* as a form of virtual archive was cemented at a research seminar presentation

[1] I am incredibly grateful to my supervisor, Simon Popple, for putting my name forward for this event and to Paul Goodman (Head of Collections Projects at The National Media Museum) for the open-mindedness he demonstrated in offering me a place in the programme.

with scholars working in digital humanities at the University of Glasgow[1] which, in turn, was central to developing the project as a participatory platform through which knowledge might be co-created (see section 4.4, above).

Other key academic events include a presentation at the Northern Stories symposium at the University of York (Jackson, 2014c), a workshop at Temple Works, jointly hosted with Yoko Akama[2] (Jackson and Akama, 2015), and the organisation of a panel at the 2017 conference of the International Communication Association (Jackson, 2017a). Although the concept of *Experience Temple Works* as a storytelling platform was not pursued any further, presenting it at the Northern Stories symposium was still a very worthwhile activity. It demonstrated the applicability of the technologies I was developing to another academic discipline (theatre, film and television studies), served as a reminder of the deep significance of Temple Works in narratives regarding the industrialisation of Yorkshire and gave structure to some of my arguments regarding the presentation and significance of 'spatial narratives' (see sections 4.3, above and 5.3, below). The workshop at Temple Works cemented my belief that the sensory experience of Temple Works was something of great cultural value (see section 5.5, below) and resulted in a publication regarding the concept of 'uncertainty' as a positive aspect of design research (Jackson et al., forthcoming). The panel at the International Communication Association conference was significant in that my work was disseminated at a very large and high profile event, it demonstrated the relevance of my theoretical and methodological arguments to the more expansive academic discipline of media and communication studies and it offered the opportunity to develop and debate some of my arguments regarding the problems associated with the concept of 'immersion' (see section 4.3, above).

Throughout the development of this practice-led PhD, I have also sustained a commitment to supporting events intended to engage non-academic audiences in research. For instance, *Experience Temple Works* was exhibited at The Digital Design Weekend 2015 at the Victoria and Albert Museum, a very high profile event which attracted an estimated 9,000 visitors over two days (Jackson and Popple, 2015), my work with binaural field recording was exhibited at the Be Curious Festival at the University of Leeds (Jackson et al., 2017), a 'legacy exhibition' for the *Temple.Works.Leeds* community was held at the Leeds Central Library (Williamson et al., 2016) and developmental versions of *Experience*

1 This fantastic opportunity was made possible by Professor Andrew Prescott. Following an introduction to my work at the Digital Design Weekend (Jackson and Popple, 2015), he kindly invited me to deliver this presentation.

2 From the Design Futures Lab, School of Media and Communication, RMIT University, Melbourne

Temple Works were exhibited at two 'heritage open days'[1] at the site. This commitment was largely founded upon my intention to deliver impactful research but I also argue that the 'embodied' and participatory technologies implemented in my practice might be a way in which research participants are co-opted and their identification with a research project maintained (see section 4.4, above). Public engagement activities such as this provided an ideal opportunity to evaluate and reflect upon the extent to which the technologies are relatable and engaging, as large numbers of visitors were observed interacting with them. It was very gratifying to consistently discern indicators, both vocalised and communicated through body language, that a vivid and meditative experience was unfolding through the platform. Many visitors also offered feedback and suggestions, some of which were very helpful[2].

In conclusion, the methodological and theoretical contributions introduced in this thesis have garnered interest from a wide range of disciplines and this might be one of the key indicators of the academic impact of this practice-led PhD. With scholarly outputs pertaining to anthropology, ethnography, materiality, museum and archival studies, theatre, film and television studies, design research, digital humanities and media and communication studies, it is likely that this project has had impact beyond the intended purview of anthropology and ethnography. As the commentary and reflection in this chapter has explained, all of these outputs have also informed a number of the theoretical arguments presented in this thesis. The extent to which the project has been developed in collaboration with, and disseminated amongst, non-academic audiences is also of significance. The argument that the technologies adopted in my research practice are relatable and engaging, instigating and maintaining a co-creative and dialogic relationship with the research participants (see section 4.4 above), is central to the intention of changing the authorial processes of ethnography and these qualities have been extensively tested through a range of public engagement activities.

5.3 SYNCHRONOUS AND SUBSEQUENT RESEARCH

The realisation of *Experience Temple Works* and the dissemination of the theoretical and methodological contributions associated with it (see section 5.2, above) directly resulted in

1 September 14th 2014 and June 14th 2015.
2 For instance, one visitor remarked that it was not possible to know whether user-generated content was present within any given location without opening the 'contribution panel'. In light of this feedback, a 'counter' was added, visually indicating the number of contributions submitted through the participatory system.

numerous other research projects. Some of these projects were developed synchronously, not only providing valuable insights into the potential that exists for the methods advocated in chapter 4 (above) to be applied in a variety of research contexts, but also informing some of the theoretical arguments presented in this thesis as they were developed. The research design of each proposal necessitated critical debates with other scholars, and, in conducting the research, new fieldwork experiences and new sensory research materials were generated to reflect upon. Other projects were developed subsequently, suggesting that the theoretical and methodological contributions introduced in this thesis might represent an enduring development in ethnography, with the potential to spawn a range of new collaborative research projects. The remainder of this section is devoted to an explication and analysis of each of these projects and, in particular, their significance in relation to the impact of this practice-led PhD.

The potential for the technologies developed as part of *Experience Temple Works* to be situated and applied as a form of 'virtual archive' was first explored in response to the *Archives 2.0* conference (see Jackson, 2014d and section 5.2, above). Out of this important conceptual development, a series of new research projects was generated. In collaboration with The National Media Museum and The Science Museum, these new projects were designed to explore the application of the spatial and interactive technologies developed as part of *Experience Temple Works* within museum and archival settings. Virtual archives of The Daily Herald Archive (Jackson, 2014a), The Blythe House Stores (Jackson, 2015a) and the Agricultural Gallery at The Science Museum (Jackson, 2017b) were all created, coining the concept of 'archiving the archive'. These projects were initially intended to explore the potential of providing 'virtual access' to privileged spaces of knowledge, much as *Experience Temple Works* opens up the possibility to explore aspects of the sensory experience of the building to a much wider audience, but in their realisation, a far greater number of affordances were revealed.

The three 'archiving the archive' projects achieved their intended aim. The concept of providing 'virtual access' to privileged spaces of knowledge was successfully trialled and the significance of this for community heritage groups was evaluated in a co-authored publication (Mutibwa et al., forthcoming). In the processes of creating and reflecting upon the interactive 360° photographs of museum and archival spaces, it also became apparent that the way in which these environments were being recorded and presented was also of great significance. Museum and archival spaces are spatially constructed with specific intentions in mind. Curators and archivists communicate narratives, illustrate progressions, suggest logical groupings etc. through the arrangement of artefacts within the available

space. In a 'conventional' image archive, these 'spatial narratives' through which knowledge is created and shared, are likely to be lost. However, with interactive 360° photography they are maintained and, in combination with the high-resolution 'planar hotspots' developed as part of *Experience Temple Works*, the individual artefacts can be interrogated in great detail too[1]. These virtual archival spaces also provide insights into the lives of curators and archivists. The ability to explore these spaces, typically inaccessible to the general public, through an embodied mode of representation (see chapter 4, above) has the potential to reveal aspects of the lived experience of working in these enigmatic roles. Although this has yet to be implemented at the time of writing, discussions with The Science Museum about adding the participatory features developed as part of *Experience Temple Works* (see section 4.4, above) to these projects have been ongoing since June 2015. The addition of these features could instigate significant changes in the relationships between communities and museums and in the processes of knowledge production. With 'virtual access' (from anywhere in the world) to previously unreachable collections of artefacts, and with the potential to not only experience those artefacts but also to contribute to the records associated with them, museums could enter into a new era of co-creation, participatory knowledge production and public engagement. However, all of these claims must be tempered by the potential problems with digitally mediated forms of participation and concerns regarding the senses, technology and representation. Sections 4.4 and 4.1 (above) address both of these critical issues.

Unsurprisingly, the development of *Experience Temple Works* resulted in new collaborative research projects implementing sensory ethnography as a method. *Voices of the Urban North* is a project in development with colleagues from the School of Languages, Cultures and Societies at the University of Leeds which, building upon the outcomes of a previous funded project (Bagguley et al., 2015) and set against the backdrop of political tensions following the result of the Brexit referendum, aims to understand city markets in the North of England as sites where multiculturalism is celebrated rather than problematised. With the intention to implement in-depth multimodal visual analyses, to study language and voice and to interrogate the lived experience of stallholders, the multisensory research methods developed as part of *Experience Temple Works* are an ideal fit and have already been trialled through the creation of binaural field recordings at Leeds Kirkgate Market[2] and a prototype multisensory experience of Newcastle Grainger Market[3]. A consultation on this research

1 These affordances can be evaluated in the context of a museum space here: http://tomjackson.photography/interactive/a-gallery/ and in the context of an archival space here: http://tomjackson.photography/interactive/blythehouse.html
2 For instance: https://soundcloud.com/tomsummersound/leeds-kirkgate-market-voices
3 Accessible here: http://tomjackson.photography/interactive/newcastlerecce/

proposal and the efficacy of the binaural field recordings has also already been conducted through a public engagement activity, as measuring public attitude towards the markets is an integral part of the research design. This project, developed synchronously with *Experience Temple Works*, not only demonstrates the implementation of the technological methods advocated in this thesis within another field of research, but studying the sensory experience of such contested spaces also informed the theoretical arguments regarding the senses and culture in section 2.1 (above) and the resulting debates with scholars from language studies were also valuable in structuring the arguments presented in section 1.1 (above) surrounding the complex relationships between the senses, language and writing.

In December 2016, another opportunity to implement sensory research methods in the context of ethnographic fieldwork was generated. Following a successful funding application to the Natural Environment Research Council (Elliott et al., 2016), a project with scholars from earth sciences and psychology was instigated. What might have appeared to be an unlikely collaboration at first, was rapidly developed into a highly cohesive project in which we set out to investigate the preparedness of the residents of Santiago for 'seismic events'. Whilst our partners from earth sciences generated quantitative data regarding the potential environmental, economic and human costs of an earthquake emanating from the San Ramón fault, Simon Popple (University of Leeds) and I attempted to generate qualitative data which was more 'experiential' and 'humanised'[1]. Using participatory methods including community storytelling and the development of multisensory research materials in collaboration with, and following appropriate training, *independently by* the residents of Santiago, we instigated the co-creation of a range of online assets regarding the issue of preparedness. Our fieldwork quickly revealed that one of the biggest challenges facing the city was that commonly held misconceptions were resulting in poor decisions being made during seismic events. For instance, staff working at the nuclear reactor[2] within the city informed us that some people panic about a meltdown, despite the many safety precautions in place, and the 'director' of a school[3] informed us that parents sometimes attempt to remove their children from the building, despite the fact that the school is very well prepared and they are actually putting their child, and themselves, in greater danger by taking this action. In light of these discoveries, we produced a multisensory virtual archive of the inside of the nuclear reactor[4] and the schoolchildren produced a series of 360°

1 Simon Popple's term.
2 The Comisión Chilena de Energía Nuclear (http://www.cchen.cl/)
3 The Colegio Altazol del Maipo (http://www.altazoldelmaipo.cl)
4 Accessible here: http://tomjackson.photography/interactive/reactor/

photographs, 360° videos and binaural field recordings[1] of an earthquake drill taking place. The archive of the reactor allows any number of visitors to explore a virtual version of the site and have the many safety features explained to them (which would not be feasible in the physical space) and the multisensory research materials generated by the schoolchildren are intended to be shown to their parents, communicating the level of preparedness that exists within the school, utilising an embodied and sensory experience of the drill.

The joint AHRC/EPSRC funding call 'The Next Generation of Immersive Experiences'[2] presented the perfect opportunity to instigate another research project that had been proposed for some time. In collaboration Matthew Boswell (University of Leeds), whose research is focused upon the cultural memory of the Holocaust, He Wang (University of Leeds), whose research explores applications of computer graphics and machine learning, and a broad network of external partners[3], a proposal was submitted with the intention of implementing the multisensory and participatory technologies developed as part of *Experience Temple Works* within sites related to the Holocaust. The bid was successful and the project will commence in 2018 using the Bergen-Belsen and Neuengamme memorial sites to trial the proposed methods. It is our intention to bring together the existing collections of human testimony[4] with the 'material testimony' that is located within the historical sites, to create a participatory platform through which stories, knowledge, experiences, media etc. related to the Holocaust can be shared, resulting in new co-created understandings, to facilitate new ways for visitors to encounter the 'hidden histories' located within both the sites themselves and the vast archives of associated materials and to build a network of virtual resources, connecting the many sites related to the Holocaust together and allowing visitors at any of the sites to experience virtual versions of the others. We will, of course, reflect upon the ethical considerations of creating 'immersive' experiences of these sites too. This project reveals another field of academic research within which the technological

1 At the time of writing, the ethical clearance required to distribute these materials had not yet been acquired. However, a number of assets subsequently produced by the schoolchildren can be accessed here: http://yarncommunity.org/stories/576 One of our intentions for this project was to provide training in the production of interactive 360° photography, binaural field recording and digital stories using the Yarn platform (http://yarncommunity.org) The assets above demonstrate that this aim was achieved.

2 http://www.ahrc.ac.uk/funding/opportunities/current/research-and-partnership-development-call-for-the-next-generation-of-immersive-experiences/

3 These included the Bergen-Belsen Memorial Site, the Neuengamme Memorial Site, the Anne Frank Museum, the UK Holocaust Memorial Foundation, the Imperial War Museum and the National Holocaust Centre, as well as two digital media companies working in the commercial world of VR.

4 Gathered through projects such as New Dimensions in Testimony (Swartout et al., 2012) which implements 3D projection and 'natural language processing' technologies in order to create virtual interactions with Holocaust survivors.

methods developed as part of *Experience Temple Works* have found pertinence and has the potential to attain very meaningful social, political and economic impact.

Although somewhat tangential to the primary theoretical and methodological contributions introduced in this practice-led PhD, a publication was authored as a result of a workshop which took place at Temple Works (Akama and Jackson, 2015). Part of a series of academic events instigated by Akama, the workshop brought together scholars from a broad range of disciplines in order to "explore the theme of uncertainty in an uncertain space" (ibid). Following the event, all of the participants contributed to an informal online publication (Akama et al., 2015) and, as a result of the fascinating insights which these contributions revealed, the workshop later formed the basis of a book chapter (Jackson et al., forthcoming) which explores the concepts of 'surrendering to' and 'tracing' uncertainty. Although this publication does not directly address the research questions posed in this thesis, the activities which took place during the workshop generated numerous shared experiences, all of which are accompanied by critical reflections from the contrasting perspectives of scholars from different disciplines. This valuable combination of experiential and reflective data is cited on a number of occasions in this thesis, providing illustrative examples which substantiate the theoretical arguments. The book chapter might also be considered an original and significant publication, and a contribution to knowledge outside of the expected remit of this project.

In conclusion, the development of *Experience Temple Works*, and the dissemination of the associated research findings, generated a broad range of synchronous and subsequent research projects. These additional academic outputs, all evidenced within the 'dossier' associated with this thesis[1], demonstrate that this practice-led PhD is not a singular or isolated piece of research, but rather a project with the potential to make an enduring contribution to ethnographic research methods and theory and the potential to be applied in a variety of research contexts. In this section, the contributions external to the specific locale of Temple Works have been the focus, but what follows is an explication of the impact that has been attained locally, and with the intentions of the *Temple.Works.Leeds* community in mind.

[1] Accessible here: http://www.multisensoryethnography.com

5.4 UTILISATION

Experience Temple Works was intended to have a positive impact for the *Temple.Works.Leeds* community from the inception of the project. When the usual fees associated with becoming a 'resident artist' were waived (see section 5.1, above), it was on the understanding that the virtual archive resulting from this practice-led PhD would be made available on the Temple Works website and used to promote it as a space for hire. From an early stage in its development, the project was prominently featured on the home page and anecdotal evidence[1] suggests that it was successful in achieving its aim of attracting bookings. However, as the project was developed, its impact for *Temple.Works.Leeds* was soon recognised to extend beyond issues of financial viability. In this brief section of the chapter, a number of the unexpected utilisations of *Experience Temple Works* will be outlined in order to further illustrate its impact and the meaning it came to acquire for a large number of people financially and emotionally invested in the future of the site.

During the 30-month ethnography at Temple Works, it became very clear that it was a highly contested site. The ownership of the building and surrounding land and the functions for which they might be utilised were in ceaseless negotiation between a number of parties: the owners of the building[2], Leeds City Council[3], the *Temple.Works.Leeds* community[4], the company responsible for the security of the building, private investors and a number of community heritage groups. Sourcing investment for the restoration of the building, the transformation of the 'main space' into a gallery, the formation of a 'community interest company' in order to manage the activities taking place within the building, and many other strategies intended to secure a meaningful future for the building were debated and pursued in rapid succession. *Experience Temple Works* was commonly employed throughout these negotiations, used to illustrate important aspects of the building such as the spaces it has to offer, the signature architectural features it possesses (such as the 'main space' and roof), its current state of repair, the cultural and historical significance of things contained within it and the functions for which it was currently being used. The extent to which *Experience Temple Works* might have influenced these negotiations, all of which were of central concern to the future of the site, is far from clear but there is no doubt that the project was considered to

1 The 'creative director' of *Temple.Works.Leeds*, Susan Williamson, suggested that a number of enquiries had resulted from interactions with the project.
2 At the time of writing, the Barclay family, who inherited the building when they acquired previous occupants, Kays.
3 At the time of writing, Leeds City council owned a significant amount of the surrounding land and were responsible for aspects of the maintenance of the Grade I listed building.
4 *Temple.Works.Leeds* held a lease to utilise the building as a 'cultural project'.

be very significant. On several occasions, I was tasked with ensuring that a particular space was available within the project in time for a meeting with a current or potential stakeholder.

Being informed by the other resident artists that I was doing something 'important' was a common occurrence during my fieldwork at Temple Works. As this pattern continued, I began to explore this idea further, asking those people making this assertion why they thought the project was important and reflecting upon their responses. That something of cultural significance was happening at Temple Works during this time, and that it was important to have a 'record' of it, was the most salient opinion. This discovery not only made me reflect upon the efficacy of *Experience Temple Works* as a form of co-constructed virtual archive (see sections 4.3 and 4.4, above), serving as a spatial and located mode of representing this field of study, it also made me re-evaluate my work as a method through which such sites might be 'reclaimed'[1]. The cultural value of 'industrial ruins' (Edensor, 2007) or 'urban non-places' (Brogden, 2011) and the activities which take place within them might not always be recognised and in all of the processes associated with the selection of Temple Works as a locus of academic enquiry, the implementation of this project and the dissemination of the findings, this particular site might be 'reclaimed' as something 'important'. It was certainly the case that many of the other resident artists were eager to be 'present' within the archive and following their inclusion, proudly utilised it to illustrate their association with the space.

Following the vacation of Temple Works in July 2016, funding from the Arts Council England was quickly secured for a 'legacy exhibition' at Leeds Central Library (Williamson et al., 2016), celebrating the many accomplishments of the *Temple.Works.Leeds* community. It was during the meetings in which this exhibition was formalised that I came to understand another very significant outcome of this practice-led PhD. It was widely agreed amongst those present at the meetings that the most significant 'legacy' of the community was *Experience Temple Works* and that it should therefore 'take centre stage' at the exhibition. Offering a vivid sensory experience of the site during the occupancy of *Temple.Works. Leeds*, representing many of the 'cultural artefacts' created by members of the community and offering everyone the capacity to share their memories, stories and related audio-visual media through the participatory functionality (see section 4.4, above), *Experience Temple Works* is not simply an archive of ethnographic data, it is a meaningful component of the socially constructed and shared legacy of the community.

[1] See for instance Poole, 2005 and Brogden, 2011.

In conclusion, this practice-led PhD has not only had impact within academia, generating publications, fostering new research collaborations and securing funding, it has also had significant social and cultural impact for Temple Works and those people in some way 'invested' in the site. Some of this impact was expected and planned, but other outcomes were unforeseen and revealed during the development of the project. The extent to which *Experience Temple Works* was used to negotiate the future of this highly contested space, engendered a sense of cultural value through its very creation and became an important part of the shared legacy of the *Temple.Works.Leeds* community, are all illustrative of outcomes it achieved beyond the original and intended remit of the project.

5.5 AUTO-ETHNOGRAPHIC REFLECTIONS

In spite of the many problems associated with the method (see for instance Hayano, 1979 and Delamont, 2007), this final section of the chapter offers a brief auto-ethnographic reflection on the impact of the *Experience Temple Works* project on me and, in turn, the potential implications of this for the project. The impact of the project within academia, for a wider public and for Temple Works itself are addressed in sections 5.2 - 5.4 (above). The final component of this reflective chapter is therefore to shed light on how I was 'transformed'[1] by this project. This is not only a key component of the deep reflexivity which sensory ethnography demands, it is also aligned with the theoretical framework introduced in chapter 3 (above), which argues that sensory stimuli elicit actions which constantly reconfigure the relationships between sensory experience, the sentient body and cultural phenomena, including lasting changes to the psychology and physiology of the ethnographer.

This project really got under my skin. During the 30 months of fieldwork, I developed a strong personal interest in the future of the building and the *Temple.Works.Leeds* community that was reliant upon it. The precarity of both the very fabric of the building and the financial, legal and moral responsibilities upon which its maintenance and access were dependent, presented a potent and emotive combination of forces. The more I learned about the history of the building, the cultural activities that its unique spaces were facilitating and the great potential of the proposed plans for its future, the more concerned I became about making a 'contribution' to its prospects. The more I learned about *Temple.Works.Leeds*, the community-orientated makers who comprised it and their intention to stimulate artistic

[1] See Pink (2011) and Spencer (2013) for an explication of this concept of 'transformation'.

and cultural activity in the region, the more concerned I became about advocating for, and with, the community. These emotional investments brought with them significant angst. The extent to which I felt the building itself was undervalued in Leeds (despite its Grade I listed status), the lack of awareness of the community I commonly experienced (despite the many innovative and high-profile works that its members were creating), the ceaseless financial and legal wrangles I became a part of (which instilled a persistent sense of uncertainty) and my perception that a unified response to all of these challenges was distinctly lacking, all contributed to this sense of frustration. Shortly after the development of *Experience Temple Works* commenced, I found both the building and the community occupying a lot of my thoughts, and this consequence of the project has endured to the present day. At the time of writing, Temple Works is abandoned once again, a situation which has reignited my concerns regarding how it will be physically maintained and culturally situated during this period, which inevitably brings with it a lack of 'visibility', presence and activity.[1]

Given the emotional investment described above, it is hardly surprising that my involvement with *Temple.Works.Leeds* began to exceed that which might be expected of a typical ethnography. I took on additional responsibilities for the community such as administering aspects of the website, participating in community meetings, helping to manage social media accounts and contributing to the maintenance of the building. In the context of an ethnographic project, this level of involvement with the research participants necessitates an analysis of the 'politics of integration' (Fuller, 1999). The commitment to *Temple.Works.Leeds* that my actions demonstrated, and the trust that was subsequently garnered, undoubtedly provided me with unparalleled levels of access, both to the building and to the inner workings of the community. The understandings that were developed by attending private meetings with Leeds City Council, helping to coordinate site visits with potential investors, being privy to the intimate discussions taking place within the community etc. were all very valuable ways of knowing. However, the tensions between the aims of the study and the adoption of such a politically and emotionally charged stance within the community, are problematic. As Blomley (1994) asks, "can I be an academic and an activist at the same time?... [this] takes us to the heart of many knotty and unsettling questions" (p.383). The issues associated with 'going native' are well documented[2] and include bringing

[1] In the very final stages of the writing of this thesis, it was announced that Temple Works would be auctioned with no reserve price (BBC News, 2017). This instilled further concerns for the future of the building. However, the day before the auction was due to take place, Temple Works was acquired by developers CEG (Lavery, 2017). This is undoubtedly a positive step with regards to ensuring the building does not fall into irrecoverable disrepair, as CEG have the capital and expertise to maintain it, but as a 'property company', questions regarding their intentions for the site are raised.

[2] See for instance Blomley, 1994; Kanuha, 2000 and Seale, 2012.

into question the impartiality of the ethnographer and the 'character' of the resulting data (Seale, 2012, p.249), as well as having the potential to produce more significant reactive effects. With specific regard to a sensory-informed study of culture, it is highly likely that the processes of 'interpretation' and 'action' detailed in sections 3.4 and 3.5 of the theoretical framework (above) would have been influenced by the affective and nostalgic memories created during the fieldwork. These potential shortcomings of *Experience Temple Works* and the associated ethnographic study need to be acknowledged but it must also be noted that a project of such significant scope (see section 5.1, above) would never have been accomplished without the development of the relationships detailed here.

In conclusion, the impact attained by the development of *Experience Temple Works* extends to changes in me. The recognition of this fact and the analysis of its potential impact upon the project are key components of the deep reflexivity which sensory ethnography demands. The emotional investment which this project elicited in me, and the ways of knowing that were opened up by the level of involvement that I entered into as a direct result of it, are strengths of the project. However, this type of relationship with the research participants is also problematic and may have influenced the project in troubling ways.

CONCLUSION

The commentary and reflection in this chapter reveals why Temple Works was selected as the locus of study for this practice-led PhD, how *Experience Temple Works* was produced, the scope of the project and the impact it has attained for different audiences and communities. These insights into the development of the project are intended not only to reveal its scope and complexity, but also to illustrate how the theoretical framework, fieldwork and methodological innovations were developed concurrently and symbiotically, all informing each other. The theoretical and methodological contributions introduced in this thesis and associated practice have garnered significant interest with academia, resulting in numerous opportunities for dissemination and debate, and spawning a range of synchronous and subsequent research projects. *Experience Temple Works* has also been utilised in unexpected but impactful ways by the *Temple.Works.Leeds* community, has demonstrated the capacity to engage non-academic audiences in research and inspired a critical and reflexive analysis regarding its impact on me from an auto-ethnographic perspective. Although it was necessary to adopt a more descriptive style of writing for this chapter, the information it includes is required in order to appreciate the impact of this practice-led PhD and the relationships between the various components which constitute it.

CONCLUSION

This practice-led PhD set out to make two contributions to the emerging discipline of sensory ethnography: a new theoretical framework for understanding the relationships between sensory experience, the sentient body and cultural phenomena and a series of new sensory research methods. This thesis, the associated practice and the 'dossier' of related outputs contain a wealth of evidence to substantiate that both of these contributions have been made. The theoretical arguments presented in this thesis have been 'tested' at a wide range of events intended for academic audiences, including conferences hosted by leading anthropological associations (Jackson, 2014b and 2016d). The numerous research collaborations which synchronously and subsequently developed as a direct result of these events is indicative of the academic impact they attained (see section 5.2, above). The 'scenarios' included in chapter 3 (above) illustrate a range of instances when the theoretical framework was borne out within practical fieldwork experiences *and* evident in the resulting sensory research materials. This demonstrates that the helical model has the potential to inform the analysis of sensory experiences during fieldwork encounters, as well as the research materials which are generated for the later analysis of these experiences away from the field of study, just as it was intended to do. A series of new sensory research methods were developed, synthesised into a single, unified platform and then applied within a 'proof of concept' ethnographic study at Temple Works. The resulting multisensory and participatory virtual archive *Experience Temple Works* not only validates this PhD as a practice-led endeavour in which the development and implementation of tools and technologies were central components of the research design, it also generated new ways of analysing the sensory experience of the field of study, co-opted the research participants in the processes of knowledge production and presented academic research in a way that was meaningful to those participants, as it was intended to do. The multisensory and participatory methods developed as part of *Experience Temple Works* have been successfully integrated into other ethnographic research projects and funding applications, suggesting that they might represent a meaningful methodological contribution, of greater impact than the realisation of this single study.

Although this practice-led PhD intended to make theoretical and methodological contributions of specific relevance to sensory ethnography, the extent to which those contributions found applicability within other academic disciplines might be one of its most significant outcomes. *Experience Temple Works* engaged scholars and spawned collaborations and publications from disciplines as wide-ranging as film, theatre and

television (Jackson, 2014c), museum and archival studies (Jackson, 2014a; 2014d; 2015a and 2017b and Mutibwa et al., forthcoming), materiality (Jackson, 2015c and 2016c), digital humanities (Jackson, 2016e), earth and environment (Elliott et al., 2016), language and culture (Jackson et al., 2017), media and communication (Jackson, 2017a), visual methods (Jackson, 2017c), Holocaust memory (Boswell et al., 2017) and design research (Jackson et al., forthcoming). In demonstrating relevance to so many different disciplines, it is likely that the theoretical and methodological contributions introduced by this practice-led PhD have had impact beyond the intended purview of anthropology and ethnography.

1 How might multisensory, participatory and 'virtual' technologies impact upon the execution, dissemination and reception of ethnographic studies?

Experience Temple Works brings multisensory, participatory and 'virtual' technologies[1] together into a single, unified platform and is therefore ideally situated to provide an answer to this important methodological question. However, a comparable range of technologies was also implemented in the subsequent research project *Seismic Cities* (Elliott et al., 2016), providing another perspective on their potential impact. The execution of ethnographic studies is impacted by establishing a collaborative and dialogic relationship with the research participants using technologies which they may find relatable, engaging or even quotidian and by implementing modes of representation which foreground issues of embodiment, presence and intention, informing the processes of data collection. The dissemination of ethnographic studies is impacted by a new paradigm for the publication of ethnographic knowledge which challenges the place of language and writing for the communication of sensory experience (see question 2, below). The reception of ethnographic studies is impacted by the representation of academic knowledge in ways that might be more meaningful to the research participants (see question 3, below) and the potential for the resulting sensory research materials to facilitate contrasting interpretations of fieldwork experiences and to generate consequent research (see question 2, below).

2 Given the fundamental limitations of representing sensory experience in language and writing, how might technological modes of representation create new ways of communicating the fieldwork experiences upon which ethnographic knowledge is founded?

[1] The project can be accessed via a virtual reality headset. To switch to this type of display, click the 'VR mode' button in the bottom-left corner of the interface.

Throughout this thesis, it has been illustrated that specific aspects of the sensory experience of Temple Works can be directly accessed from within an academic text. Inserted as footnotes, URLs have been created which allow visual, auditory and, to an extent, haptic stimuli[1] to be 're-experienced'. This capability has the potential to significantly impact upon the way in which ethnographic knowledge is communicated. Language and writing no longer need to be used for descriptive purposes. The ethnographic text can focus instead upon the analysis of meaning and the construction of a theoretical narrative. Sensory experiences no longer need to be 'translated' into language and writing, a process which is not only ineffective, but has the potential to be harmful, altering the processes of analysis and failing to represent tacit and non-verbal aspects of experience. The inclusion of 'pre-reflective' sensory research materials within ethnographic publications might also impact upon the authorial process, encouraging greater humility and reflexivity in the ethnographer, facilitating contrasting interpretations of fieldwork experiences by other scholars and providing the opportunity for those research materials to be used again in subsequent studies, generating new understandings from the same data. Cumulatively, all of these qualities have the potential to instigate a rethinking of the long-established paradigms of publishing ethnographic knowledge.

3 Do multisensory and embodied technologies have the capacity to engage non-academic audiences in the processes of ethnographic research and to represent the resulting findings in ways which are meaningful to those audiences?

Experience Temple Works engendered responses from the *Temple.Works.Leeds* community, and the wider public, which suggest that it had a meaningful impact upon the relationships between non-academic audiences and the processes of research. The resident artists were eager to be 'present' within the archive, commonly describing it as something 'important' and utilising it in unexpected ways (see section 5.4, above). Although the number of contributions submitted via the participatory features of the archive could have been greater, it was clear that a 'researcher-researched' relationship had been established that was quite different to that of many other ethnographies. The resident artists had been co-opted as active participants in the construction of knowledge regarding Temple Works as a locus of creative and cultural activity and were excited to be a part of the project. Through the careful observation of user interactions during the exhibition of *Experience Temple Works* at a wide variety of public engagement activities[2], a high

1 The high-resolution 'planar hotspots' might engage the haptic sense through a process of artificial synaesthesia (see section 4.3, above).
2 See Jackson and Popple, 2015; Williamson et al., 2016 and Jackson et al., 2017.

level of confidence has been developed in its potential to communicate research findings in a manner that is meaningful to non-academic audiences. By embedding links to these multisensory research materials within the resulting publications, the potential exists for the 'academic text' to be reinvigorated as well. Allowing the reader to access aspects of the sensory experience upon which the research findings are founded, might make the theoretical narrative more relatable.

4 To what extent might a more cohesive and integrative theoretical framework inform the analysis of the relationships between sensory experience, the sentient body and cultural phenomena?

The analysis of these complex and interdependent relationships presents a very significant challenge to any scholar attempting to use sensory experience as a way of understanding the lives of others. The theoretical framework in chapter 3 (above) is an attempt to 'make sense' of sensory experience by breaking down the perceptual process down into a number of 'stages', all of which have the potential to be informed by cultural, anatomical, psychological and contextual factors, and all of which may result in actions which reconfigure the subsequent 'stages'. The helical model which results from this way of thinking through the meaning and significance of sensory experience might be criticised for being reductive but it does provide a feasible and realistic way of approaching this complex task which, even if it fails to accurately represent all of the processes, nuances and subjectivities associated with perception, does ensure that a number of the most significant considerations are foregrounded.

5 What social, cultural, technological and academic impact might be attained by the creation of a multisensory and participatory virtual archive of Temple Works, a Grade I listed building in South Leeds?

Temple Works is a highly contested space with an uncertain future. The social and cultural impact of this practice-led PhD was therefore the creation of a platform through which the value of both the building itself and the resident *Temple.Works.Leeds* community could be represented and communicated to key stakeholders and the wider public. The project was commonly used during negotiations regarding the future of the building and the impact that any proposed plans might have for the *Temple.Works.Leeds* community. It was also used to engage the general public in debates regarding cultural value, heritage and social responsibility, forming an integral part of the 'heritage open days' at the site and being exhibited at high-profile public engagement events. Technological impact was attained

through the design, development and dissemination of the tools and technologies which form the basis of the new sensory research methods. In the development of this original combination of technologies, and their unification into a single online platform, many significant challenges had to be overcome. However, in their realisation, it was not only possible to attain the social and cultural impact above, numerous other research projects were also initiated. The academic impact, therefore, was the contribution of new sensory research methods which not only made this project possible, but which also have the potential to be applied in many different contexts. The other research projects instigated as a direct result of the development of *Experience Temple Works* have, in turn, also attained social and cultural impact (see section 5.3, above).

In addressing each of the research questions (above), the implications of this practice-led PhD have been outlined. This thesis, the associated practice and 'dossier' of related outputs provide a wealth of evidence to substantiate that this project not only represents a meaningful theoretical and methodological contribution to the emerging discipline of sensory ethnography, but also has the potential to inform scholarly practice in a wide range of other disciplines. The future of this research lies in two key areas: the implementation of the theory and methods in other contexts, further testing the efficacy and impact of their use, and a commitment to continually revisit and update both the theoretical and methodological contributions this practice-led PhD has made, not simply in response to technological developments, but also with the intention of informing them. In instigating new research projects, having academic publications 'in press' and establishing forthcoming collaborations with digital media companies, these processes have already commenced. However, given that sensory ethnography is very much in its infancy, the potential exists to make many more contributions towards establishing it as an enduring and meaningful development within anthropology.

APPENDIX 1

Quotations from published academic articles in which scholars have attempted to represent sensory experience in linguistic form.

Context	Quotation	Reference
Architect Heide Imai describing the sound of shoes worn by shopkeepers in a Japanese alley.	"A shopkeeper is walking in front of me, making a sound with his wooden sandals "ka ... ka ... ka," and a quicker "kakakakaka" when he recognizes me."	Imai, 2008, p.331
Historian and sociologist Mody Cyrus describing the sounds of lab equipment.	"the whirr of micrograph plates being moved inside a TEM, the chuk-chuk of a probe being lowered on an atomic force microscope (AFM), the sproing and click of a coil being shoved into place on a microprobe."	Mody, 2005, p.186
Journalist Victoria Kaharl attempting to describe the sound of the 'transponder pings' aboard 'Alvin', the first manned submersible vehicle developed for scientific research.	"Wa WA wawa WAWA wowo wowo WOWO wawa WAWA ... POP weewee wo WOP ka POP weewee wo"	Kaharl, 1990, p.337
Anthropologist Stefan Helmreich describing the sounds of the same submersible vehicle as above.	"These bleep-blooping, burbling, and babbling sounds do, in fact, contribute, I find, to a feeling of immersion."	Heimreich 2007, p.621

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