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The Interactive Museum Experience:

Investigating experiential tendencies and
audience focus in
the Galleries of Modern London and
the High Arctic exhibition

Irida Ntalla

Ph.D. Thesis

This thesis is submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Culture and Creative Industries.



**CITY UNIVERSITY
LONDON**

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To my daughter, Niovi, whose arrival filled this process with smiles and giggles.

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Declaration

This thesis has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree other than Doctor of Philosophy of the City University London.

I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

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Kidd, J., Ntalla, I., & Lyons, W. (2011). Multi-touch interfaces in museum spaces: reporting preliminary findings on the nature of interaction. In *Proceedings of the International Conference Re-thinking Technology in Museums, Emerging Experiences*, edited by Ciolfi, Luigina., Scott, Katherine and Barbieri, Sara, 5-13. Ireland: University of Limerick, 2011.

Conference proceedings

Ntalla I. (2012). Interactivity and audience experience in the modern museum; discussing findings from case study on the 'High Arctic' immersive installation, National Maritime Museum, London. In E. Kristiansen (Eds.), *Proceedings of the Dream Conference: The Transformative Museum Conference* (252-266). Roskilde University, Denmark.

Abstract

Although there are many studies on interactivity in museums in terms of enhancing learning, achieving educational objectives, structuring and orchestrating visitor engagement, democratising knowledge, exploring social interaction and bringing more audiences in to the museum space, they often do not take the multifaceted nature and context-dependency of interactivity into account. Throughout the thesis, I argue that the practice of digital interactivity in museum spaces should not be fetishized, but it must be examined and understood, depending on the context and the setting it takes place in. The approach undertaken in this study brings philosophical and theoretical perspectives on physical, emotional and technological interactivity and its multiple threads into dialogue with ethnographic research in two exhibition spaces: the permanent Galleries of Modern London, at the Museum of London, and the temporary High Arctic exhibition, at the National Maritime Museum, London. The study extends existing literature in two respects. First, attention is paid to the concerns reflected in different approaches to the digital interactivity in museum spaces: I term *factual* and *poetic* interactivity as two techniques and forms directly related to the empirical examples. The analysis and this distinction offer a platform to theorise and discuss nuances and tendencies of digital interactivity in museum spaces. Second, it identifies the multiplicity of modes of interactivity as perceived by visitors and museum professionals in and around two museums, foregrounding not only the technological aspect, but also the content and the processes of interaction through sensorial and embodied means such as touch, play and immersion. Together, the findings foreground and engage with an approach to digital interactivity, which discusses how a complex assemblage of institutional practices, multisensory experiences, and affective and cognitive dimensions are at work and at play in digitally mediated environments.

Keywords: museums, digital interactivity, experience, audience, visitors

Introduction

‘πάντα χωρεῖ καὶ οὐδὲν μένει καὶ δις εἰς τὸν αὐτὸν ποταμὸν οὐκ ἂν ἐμβαίῃς’

Pánta chōreî kai oudèn ménēi kai dis es tòn autòn potamòn ouk àn embaiēs

‘All things move and nothing remains still, and you cannot step twice into the same stream’

Heraclitus, quoted in The Cratylus of Plato (Ademollo, 2011: 203)

This study, ‘The Interactive Museum Experience: Investigating the experiential tendency and audience focus in two museum exhibitions’, analyses perceptions and practices of the concepts of digital interactivity and interactive experience in the museum space. It examines visitors’ activity and experience through their encounters with interactive exhibits at the permanent Galleries of Modern London at the Museum of London and the temporary High Arctic exhibition at the National Maritime Museum in London. The thesis considers what the museum produces and understands by the notion of digital ‘interactivity’, taking into account both the multiplicity of interactive forms and audience behaviours.

Interactivity means many things – for some, too many (Morse, 2003: 17), and we can apply it in a myriad of contexts (Poster, 1995: 33). Nevertheless, most frequently interactivity is recognised as the engagement between human and machine, in a wide range of expressions of contemporary life, from applications of e-commerce to art and culture. We are witnessing a moment in time when interactive media and purposefully designed interactive experiences, specifically in technologically advanced Western societies, are increasingly present and affect the vast majority of sociocultural practices and applications. As cultural and media historian Erkki Huhtamo (2015: 260-261) writes, interactivity has seeped into the fabric of contemporary life, being almost everywhere and

in many cases unmentioned or even unnoticed. The development of interactive digital culture certainly influences us in personal, cultural and social as well as in political ways. It shapes the ways we think, work, play, experience, communicate and consume. It affects how we comprehend and produce new forms of knowledge, learning and participation in public life, including how we experience cultural matters and understand and control everyday realities.

In museum settings, forms and techniques of digital interactivity have become a common practice directly impacting the visitors' experience of exhibitions and their content, arguably encouraging participation, empowerment, alternative approaches to engaging with dominant histories, on-going and controversial issues and a degree of liberation from didactic models of knowledge production. These types of knowledge and experience, frequently presented as 'novel', are part of longer histories of practice in the museum. These include interpretative and explanatory technologies such as text panels, historical reconstructions, dioramas and slideshows from the late eighteenth and early nineteenth centuries (Henning, 2006; van der Starre, 2002). Regarding culture and specifically art, the fundamental conceptual break in terms of seeing interactivity as a new cultural pattern happens during the 1960s and 1970s (Huhtamo, 1994; Morse, 2003: 17). Whilst interactive interfaces act as modes of display and sensory experiences, mediating between visitors and institutions, curator and user (Huhtamo, 1999) research indicates that there is a lack of understanding about how interactive exhibits in museums are actually used (Heath & vom Lehn, 2009).

In order to investigate how interactivity as a cultural expression and a technological application has been practised and experienced in the museum space, the thesis brings together an extensive cultural analysis of digital interactivity with an empirical ethnographic research into the Galleries of Modern London and the High Arctic exhibition. The Galleries of Modern London at the Museum of London offer a characteristic and graphic illustration of contemporary museum digital interactivity, as they deploy a number of touch-screen and computer 'interactives' in their gallery spaces, which are different in style and size and positioned next to traditional forms of exhibition curation and design. This type of exhibit works via a command-and-response style of communication, where the visitors touch the surface and get a reaction from the system.

They are often densely informative, and depend on the individual's willingness to engage with the interface and explore its content further in order to reach its 'interactive' potential.

The second example, the High Arctic exhibition at the National Maritime Museum in London, was introduced to the public as a 'big interactive experience' (as stated in the museum's press releases on the exhibition). This temporary exhibition's approach to the concept of interactivity diverges in a number of significant ways from the one used at the Galleries of Modern London. The specific exhibition, part of a new Sammy Ofer wing and capital-build project of the museum, includes neither informative touch-screen interfaces, text-based panels, images and photographs; nor is it embedded within the space of the permanent collections. Instead, it occupies its own temporary gallery space and emphasises movement, embodiment and an atmospheric environment. The intention is to create a different type of experience, one that envelops the audience and transforms visitors into 'explorers' and participants of an artistic intervention in apprehending the complexity of climate change. Physical interaction with the exhibition occurs through the visitors' bodies, through the freedom to move and investigate the space, which aspires to create interconnections between the Arctic context, place, poems, soundscape and the visitor.

I ask what the purpose and function of digital interactivity in these specific museum experiences is both for the institutions and their visitors. The amalgam of theoretical analysis combined with empirical data helps contribute to new understandings, engaging with institutional histories and practices, interrogating interactivity as a form of contemporary culture and excavating the experiential and sensory elements of audience encounters. Along with the detailed analysis of the empirical data produced through an investigation of the two museum exhibitions, and a with a discussion of interdisciplinary methodology, the thesis identifies digital interactivity as rooted in physical and emotional aspects of experience, patterns of learning and knowledge, and reciprocal interactions and engagement with exhibits and their content. Similarly, the examples incorporate, in different ways, incomplete, current and 'intangible' events in their exhibition storytelling. They were designed to encourage what Andrea Witcomb (2014: 58) calls 'a pedagogy of feeling', inspiring bodily sensations and emotional forms of intelligence. Described by

James Clifford (1997: 192) as ‘contact zones’, museums are today, as I discuss in chapters Two and Three, widely interpreted as having a role to play in communicating complex social, economic, cultural and scientific issues (Cameron & Neilson, 2015: 6). Often, as in these cases, the ‘enabling’ and ‘liberating’ interactive technologies (Huhtamo, 1994) and their experiential and affective appeal are viewed as effective and powerful solutions to portray and engage museum-goers on issues as challenging and controversial as climate change. This thesis examines in depth two such self-consciously interactive exhibitions in order to engage with wider theories of interactivity.

i. Relations between humans and technology

Key postmodern and poststructuralist theories have shown how the human has always been technological, and digital, and new media technologies influence the sensory experiences of embodied human beings (Hansen, 2003a). In this context, the relation of the technological and cultural forms of interactivity with human thinking and behaviour, affect and experience constantly need to be questioned, examined and re-examined. Discussions on the philosophy of new media are rich and multiple, and one can grasp their urgency to ‘embrace the machine’ as an equal part of the relationship with the human rather than as an instrument of knowledge (see Frabetti, 2011; Hansen, 2003a; McCarty, 2009; Stielger, 2009). Computers and technological applications are frequently perceived and acted upon as tools, rather than as a medium, affirming the Cartesian duality that defines machines from the point of view of humans (Kittler, 1996: 41). In this utilitarian model of technology, which is still prominent in regards to our relationship with the machine today (Frabetti, 2011), technology is viewed as an instrument and agent of representation (Murphie, 1996). This model is particularly the case in the context of exhibitions making connections to experiences and interactions that follow ‘tried and tested schema of older cultural forms’ (Cubitt, 1998: 41). I bring theories of technology and digital culture into the thesis’ discussion in order to comprehend and examine the wider foundations of digital culture and the ‘interactive’ mode in the contemporary sociocultural and economic era; the connections and influences that it has to wider thinking and practices; and the roles of the audience to these encounters. Digital and computer technology have been interchangeable terms for over sixty years, argues Charlie Gere (2002: 12) in his book *Digital Culture*, and ‘digitality is a marker of culture as

artefacts and system of signification and communication that most clearly demarcate our contemporary way of life from others'. Technologies are cultural and governmental (Rose, 1999; Barry, 2001); they are intellectual discourses as well as practical applications that form our way of living (Hand, 2008: 5).

Cultural studies and philosophical concepts derived from postmodernism and poststructuralism provide this study with an overarching umbrella that allows a critical view towards established discourses. As Lyotard (1989), one of the most explicit postmodernist theorists, argues, one cannot tell large stories about the world, but only small stories from the various and diverse positions of individuals and groups. Postmodernism speculates on knowledge that is placed in a particular context driven by cultural, historical and social momentum as well as being traced to different discourses and practices. Through a range of tools drawn from cultural studies, contemporary debates and theories, the thesis examines the relations between forms, techniques, content and impact of accounts of the 'culture of interactivity' as Huhtamo (2011, 2012) phrases it, and the present narratives of institutional organisation and reorganisation as becoming 'interactive', 'democratising knowledge' and empowering the visitor: in the process, closely noting, observing and when relevant *critiquing* its claimed progressive potential. Cultural and media studies are particularly beneficial and explanatory disciplines to draw on with regard to the communicative capacity of museum institutions, and have frequently considered the ideological role and issues around museum governance (see Bennett, 1995), but equally have often disregarded or marginalised the experiential and affective aspects of these institutions (Henning, 2006: 2).

Museums are a medium of communication, and their exhibitions are constructed texts that emerge as a consequence of the intricate relations between institutional and individual forces and the multitude of different experiences perceived by the visitors, argued Roger Silverstone (1988: 37). The diverse relationship between museum and media, from the comparison with mass communications forms such as television (Silverstone, 1988), to more recent emphasis on the material means of media and their tangible and experiential aspects (Henning, 2006: 71-73), offer multiple elements for consideration in regards to interactivity in the museum setting. The museum as media has also brought visitors and audience into a prominent position in regards to their role in

that relationship, beyond a technocratic focus on the management of the public. Media studies since the 1950s, following studies of ‘effects’, have predominantly argued against the ‘passive audience’ model and indicated the importance of the social context in the reception of the message, whereas museum studies on visitors and audiences had a more limited approach (Hooper-Greenhill, 1995: 7). There is a now common conception that the view of visitors and the audience has changed for cultural institutions: from the dominant nineteenth-century view of a substantially passive mass audience (Butsch, 2000: 2) to the increasingly active, self-directed, selective and plural audience (Livingstone, 2013: 27), including the audience’s notion of themselves as ‘an audience’ (ibid., 2013: 4). I consider a binary opposition of ‘passive’ versus ‘active’ audience highly problematic, especially when directly implied as a consequence of audience engaging with interactive practices.

While cultural studies ask questions of power, media studies, like the fields of computing and interactive design, often ask how these technologies *work*, and have established prevailing ways of perceiving usability and user experience (see Jensen, 1998; Kioussis, 2002; McCarthy & Wright, 2004; Rafaeli & Sudweeks, 1997). In this thesis I argue that digital interactivity in the museum setting cannot be explored by focusing on singular or universal qualities but instead needs to involve analysing the multiplicity and complexity of the assemblage: of the type of museum exhibitions and exhibits, the institutions’ positioning and organisation, the audience and the patterns of using such technologies. When exploring the actual exhibits and exhibitions, I also engage in their relationship with the media, design, the technology, and the development and conceptualisation of human-machine interfaces. These elements directly reflect users’ and audiences’ relationships with their mediated environments. Drawing from a number of fields without necessarily anchoring the researcher’s views in one field can be beneficial and eye opening for the themes discussed.

ii. Visions of interactivity

It has also become closely associated with consumer culture, where the museum is a tourist and leisure destination that competes with the global entertainment market (see Barry, 1998; Dicks, 2004; Henning, 2006; Hooper-Greenhill, 1992; Silverstone, 1992).

'Experiencing interactivity' is a phrase often loaded with positive connotations of technological and personal development, individual choice, hypermodernity, the democratisation of histories and narratives and/or grassroots democracy. Research and literature on museums and interactivity have tended to focus on technocratic issues of application: learning (Falk & Dierking, 2000; Hein & Alexander, 1998); ways to create effective exhibitions that achieve their educational objectives (Caulton, 2002; Falk & Dierking, 1992; Hein, 1998); designing digital experiences (Gammon & Burch, 2008; Gilbert & Stocklmayer, 2001); structuring visitor engagement and participation (McLean, 1993; Russell, 1994; Walker, 2008), and assessing the different types of digitally mediated exhibitions, including the role of interactivity for online and virtual museums (Bearman & Trant, 2003).

Interactivity has been discussed with great interest in case studies of science centres and museums (see Barry, 1998; Dicks, 2004; Heath & vom Lehn, 2004; Huhtamo, 2015). Science centres, particularly Frank Oppenheimer's San Francisco-based Exploratorium, have set the scene for what we perceive and consume today as interactive museum exhibits. Andrew Barry's work (1998: 99) on interactivity in this setting was an early critical study looking at the theoretical concept, the politics of interaction and the 'political anatomy' of the visitor. Studies have also explored the role that interactive exhibits play in museum exhibition-making concerning memory and 'challenging' histories such as the Holocaust (see Reading, 2003). Andrea Witcomb (2006) flags up the value of the social definition of interactivity and the importance of social interaction. In more recent work, she examines the experiential mode of exhibitions, using particular examples of colonial history and indigenous communities, arguing for a shift from Bennett's 'pedagogy of walking' (1995) to 'pedagogy of feeling' (Witcomb, 2014: 58). Heath and vom Lehn (2004) provide a number of studies on social interaction through their analysis of visitors' movements, gestures and verbal discussions around interactive exhibits. Recent publications such as *Museum Media*, edited by Michelle Henning (2015), include a number of contributions on techniques and manifestations of immersion and interactivity in museum exhibitions and institutions. The 'culture of interactivity' and its applications in this context, while implying progression, is understood as equally controversial (Huhtamo, 2015: 261).

Critical academic arguments have also interpreted interactivity as a disciplining technology in a neo-liberal framework (Jarret, 2008), enabling corporations to produce a 'direct' relationship between and amalgamation of producer and consumer, or 'prosumer' (Hand, 2008: 12). Artists have also engaged with the notion as a liberating form experimenting and challenging the ephemeral experience of the artwork and their relationship with audiences (see Dyson, 2009; Grau, 2003; Saltz, 1997; Stern, 2011). Morrison suggests that the interactive artwork is just an image of the viewer who is invited to participate in the collapse of her own culture (Morrison, 2004), while Knight (1996: 19) argues that exciting interactive forms of art have failed to materialise. Another argument is that users are freed from the passive experience by being given 'control' and agency (Dyson, 2009). Huhtamo (2015: 261) also proposes that to examine the advantages and disadvantages of interactive system, the social, ideological and economic contexts within which they are used should be taken into consideration. These arguments suggest that we should question utilitarian models of technology and positivist accounts of interactivity and interactive experiences; taking into account techniques of power, broader societal influences, internal processes and relationships.

The thesis considers and analyses these broad and particular theoretical and cultural underpinnings while investigating two specific examples of interactivity in the contemporary museum through its empirical qualitative research study. In short: the purpose of my study is to examine notions of interactivity and their impact on audience experiences in contemporary museums. I examine empirical and discursive understandings and deployments of interactivity in these two London-based museum spaces. Both the Galleries of Modern London and the High Arctic exhibition embrace the concept of interactivity, with the use of digital technologies for display and communication of their content and histories also aiming to attract the younger generations often identified as 'digital natives' (Prensky, 2001).

The cultural landscape moves quickly, with interactive practices increasingly being part of experiences in museums, theatre, cinema, and exhibitions (see Barry, 2001; Bouko, 2014; Dyson, 2009; Machon, 2013; Witcomb, 2006). The modern museum is not immune to the changes brought from consumer culture where tailored, personalised 'visitor experiences' are proliferating (Henning, 2006: 8; Biehl-Missal & vom Lehn, 2015: 235). Similar 'novel'

designs of museum experiences are practised in all types of museums, internationally, also reflecting audience expectations. However, equally, interactivity in museum spaces is frequently translated as an add-on, featuring standardised devices that become part of the temporary and permanent exhibitions with the ability to carry a vast amount of information, often in a database format giving pre-set limited options (Manovich, 2001). The thesis situates the use of interactivity in this wider cultural context and interrogates some of the possibilities and limitations of its creative reach.

iii. Personal trajectories

My professional experience in media and digital art projects labelled as ‘participatory’, ‘interactive’ or ‘engaging’ and based in cultural and art institutions such as museums and galleries has influenced my research interest in these spaces. The study works on these tensions across supposed objective knowledge, the researcher’s subjectivity and that of the participants, and has been initiated by an enthusiasm for gathering different perspectives on the subject matter. The substance of the thesis has challenged both my academic and professional inquiry, with both the tensions and ambiguity of the concept of interactivity in academic texts, and its implementation within art and cultural practices, triggering my curiosity in the subject. Therefore, I have combined this professionally-inspired empirical work with my interrogation of theoretical stances on, and assumptions about, the subject matter. As mentioned above, while museums and galleries have their dedicated discipline of museum studies, their new roles – especially when considering their communicative functions, the impact of digital and the ethics of participation – have also intrigued cultural and media studies (Kidd, 2014: 4), and this thesis draws on both zones. In order to research how audiences and museum practices perceive interactivity, I have immersed myself in the professional world of the museum, examining theoretical material from museum studies and new museology and evaluating their impact on museum professionals and practices. An awareness of the socioeconomic climate within which these practices and institutions exist is significant, and the study also connects to debates on the role that governmental and institutional policies have played in the practices of these branches of the cultural and creative industries.

New museology engages with controversial themes such as race and gender, identity and nation, multiculturalism, new connections between the audience and the curator, the objects and the process of meaning-making, and the materiality of the museum in a digital era. There needs to be a dialogue in the museum where complex connections between narratives, spaces, artefacts, media and people are analysed and debated. In spite of the acknowledgement of this need, there is, I argue, still often a strong non-critical or positivist attitude in the museum field, especially in relation to technological innovations and the embracing of new media. Indeed, I contend, at times the fetish of interactivity can be where conservative discourse about the momental character of the museum is reanimated. From the new relationships that derive from the role of the museum as media (Henning, 2006; 2015) and media-makers (Kidd, 2014), and the interdependence of museum and new media, arise multiple dilemmas and questions about the role of the museum.

Throughout the years of compiling this research, I have participated in various roundtables, research groups and projects related to the thesis' subject matter. Apart from the qualitative research undertaken at the two London museums, I was involved for several years as a committee member in the Museum Computer Group, a group formed by museum professionals and academics interested in the affairs of the museum with digital technologies. This group focuses on the use of computer-based and digital technologies online and on-site at museums, generating interest from museum professionals, academics, digital providers, cultural technologists, and internal and external members who contribute to the development of museum digital mediated experiences. The work of the group certainly provides insights in regards to the practical aspects of creating online or on-site exhibitions, games and other mediated platforms that include new media technologies within their technical parameters and issues. The annual conferences also embrace the role of the digital in the professional roles of museum staff. But it repeatedly struck me that there is frequently a general techno-determinism in the

¹The Museums Computer Group (MCG) is a UK-based independent group for museum, gallery, archive and higher education professionals who work with museum technology and digital heritage. Our members include technologists, educators, academics, marketing people and other professionals working in or around museums and digital technologies, from back-end collections systems to the latest social media. (<http://museumscomputergroup.org.uk/>)

museum sector whereby professionals invest a lot in technological novelties, often with a lack of critical thinking and questioning in regards to the role of new media, technologies and their overall impact on their work.

In the first year of the research study, I worked with my supervisor at that time on a short-term research project funded by the Art and Humanities Research Council titled 'Investigating the social museum' that included the on-site research study at the Galleries of Modern London in the Museum of London. The empirical research, which is analysed in Chapter Five, was used as the initial study for the thesis. The preliminary results derived from the Museum of London's example revealed a number of attributes of interactivity and computer 'interactives' that formulated the development of the thesis in its initial stages. The responses of the audience and what they highlighted as being important, valid and exceptional characteristics of their experiences were concepts I reflected on, analysed and engaged via theoretical avenues. In order to obtain a more substantial amount of empirical data, it was significant for the research study and for the empirical data to conduct a second stage of on-site research in another museum institution that shared similarities and differences with the Galleries of Modern London. While the case of the Museum of London provided rich material for the thesis' question, I found its way of implementing interactivity limiting in examples of computer 'interactives' and touch-screen interfaces. I was also interested in grasping the distinct 'cultures of interactivity' (Huhtamo, 2011) and the High Arctic installation provided an appropriate case in that respect. The National Maritime Museum had just opened a new exhibition space, the Sammy Ofer Wing, and the first exhibition that introduced that space to the public was novel and different, particularly if we take into account the rather traditional nature of the National Maritime Museum's narratives as well as its audience. United Visual Artists, an art and design agency based in London, implemented the High Arctic

² Along with my supervisor at that time, Dr. Jenny Kidd, currently Lecturer at the Cardiff School of Journal, Media and Cultural Studies, Cardiff University, we set a number of questions applicable to my doctoral thesis' investigation.

³ For both examples, I used the same set of questions for the visitors and a similar (adapted in context) set of questions for the museum professionals, artists and collaborators.

⁴ United Visual Artists (UVA) is a London-based art practice that combines a wide range of disciplines to create emotionally engaging work: uva.co.uk/.

exhibition in partnership with Cape Farewell, a UK-based, artist-led organisation that created responses to climate change through cultural interventions commissioned by the museum. The enthusiasm of the museum in introducing this new interactive space propelled my research investigations, particularly as the exhibition had a 'minimal' viewpoint in regards to facts and information, in contrast to the overflow of text-based information held at the interactive exhibits at the Galleries of Modern London. The Galleries at the Museum of London were also a new project: this permanent exhibition for the Museum of London was relaunched in 2010.

iv. Research questions and methodological considerations

The thesis' primary question is 'What does digital interactivity mean in the context of museum experience?' Both of the examples that I draw upon aim to investigate the strands of interactive museum experience starting with the initial consideration of what the visitors perceive and experience within these spaces. I analyse these perceptions in Chapter Two, Three and Four through cultural contemporary debates around the genealogy of the museum, the politics of institutional practices, digital and new media discourses, and the sensory and experiential realm of arts and culture. My development of this empirical research is described more fully in Chapter One. However, to summarise, the on-site research included semi-structured interviews based around the following core set of questions, which in turn aimed to help generate responses to the thesis' question. The set of questions were asked of a sample group of the audience (museum visitors who engaged in different extents with the interactive exhibits) and experts and key informants (museum professionals, artists, partners and designers). The judgment of museum professionals was deemed useful considering given their 'driving' position and role in shaping interactivity, alongside the factor that they may share knowledge of both traditional and new audiences (Hooper-Greenhill, 2006: 570).

1. How do the visitors describe their encounters with the two museum exhibitions and particularly the digital interactive exhibits? (What are the aspects that are most prominent in relation to the notion of interactivity, these specific interactive exhibits and their experience?)

2. How do digital interactivity and interactive experiences relate to the engagement and learning of the visitors to the museum?
3. How do the visitors comprehend the notion of digital interactivity and how does that reflect to their encounters with the exhibits and exhibition?
4. What does digital interactivity mean in these specific museum spaces?

This research used these basic questions to focus specifically on these two different museum exhibition spaces, whilst taking into consideration the complexity of practising and theorising digital interactivity, the element of process *within* it, and its role in determining new forms of cultural knowledge and experience. As a researcher, a professional and an individual, I also bring my own experience to the study. I am engaged in a process where I confront my *a priori* knowledge, challenge that existing knowledge, and aim to develop and present new findings. Undoubtedly, there are always connections between the way one might view socially constructed realities and the choice in regards to methodological considerations (Cohen, Manion & Morrison, 2011: 3). As mentioned above, the selection of the exhibitions and museums that are used as the core for this study was initially made on an exploratory basis considering the complexity of the research question. With regards to the participants in the study, my intention from the very beginning until the very last stages of the analysis has been to allow their voices and responses to shape the main themes that the thesis analyses. As I discuss below in the methodological section, it is often argued that a good interviewer or observer should learn by making sense of the data without first engaging in deep epistemological and philosophical reflection (Patton, 2002: 69). This does not imply that you proceed in the research process without any assumptions or theoretical beliefs, but that these beliefs are not fully recognised or shaped. Indeed, with on-site research within the museum spaces being conducted early in the stages of this study, the research and the interaction with the participants allowed the responses to influence suppositions, and allowed notions to be shaped and rethought, depending on the context of the research. In that way, the realities of each member of the audience informed and challenged the *a priori* knowledge and speculations from the initial questions. Revisiting the early approaches to the research throughout the assemblage of the thesis facilitated the development of the research process in uncovering and expanding my own perceptions.

The study is not directly about individual people but about the patterns of behaviours in which they engage, with their voices being significant in my aim to capture a variety of perspectives on interacting. When I examine the visitors' involvement, their responses and experiences with the exhibits and the environment, I take into account the fact that these individuals and groups are a vital part of these interactions and situations. The study of audiences often incorporates textual analysis as well as interviewing, surveying and monitoring individuals' and groups' behaviours. Qualitative audience research methods in the social sciences are often rather loose and, due to the fluidity of the disciplines themselves and their ever-changing nature, researchers have to adapt and alter their methods according to the nature of the study. As museums are increasingly 'visitor-centered' (Anderson, 2004: 1; Hooper-Greenhill, 1999: 260), the public is dominantly perceived as an active and vital part of museum processes (see Black, 2005; Davies, 2005; Lang, Reeve & Woollard, 2006; Witcomb, 2003). Early visitor research in museum spaces was particularly interested in evaluating audience behaviour concerning the educational purpose of the museum (Bitgood, 2002; Hein, 1998). Research on audiences has since extended, particularly in the field of media studies, with the notion shifting and reconceptualising in moving media environments that have been a significant influence on researching museum audiences. Audiences and visitors have become users, producers, consumers and publics, increasingly participatory in their continual immersion in mediated digital environments (see Baym, 2012; Carpentier 2012; Livingstone, 2013; Papacharissi, 2014).

Qualitative research tends to embrace diverse approaches from a number of intellectual and disciplinary fields, often with different philosophical assumptions. It can enfold a number of disciplines from ethnography, phenomenology and cultural studies, incorporating interviews and participants' observations. These multiple methodologies can cut across a range of fields within arts and humanities but are also imbued with their own disciplinary histories (Denzin & Lincoln, 2005). The methodological framework that I use, discussed in more detail in Chapter One, is a mixed method ethnographic approach drawing from a number of disciplines, informed both by the philosophical traditions mentioned earlier and by ethnomethodology (Garfinkel, 1967). Its core primary research methods used include interviews, observation and document reviews. It aims to analyse what meaning individuals and groups attribute to activities, and how that relates to their

actions and activities, with a clear understanding that this is a construction of reality according to the data (Eichelberger, 1989).

As outlined earlier, there is no single universal definition of interactivity, but there are numerous theoretical and technical definitions, resulting in debates and critiques of ideologies and technologies associated with it (Aarseth, 1999). The notion of interactivity has evolved from the initial focus on the technological aspect to a more elaborated understanding that concentrates on both elements of technology and culture. From my literature research, both academic and practice-based, there is a vast range of writings and discussions on interactivity and 'interactives' (Allen, 2004; Kioussis, 2002; Manovich, 2001; Morse, 2003; Sundar, 2004). However, the museum experience raises issues about the need to contextualise and conceptualise such expressions and implementations of interactivity in relation to the use of digital technologies. The concepts of interactivity and interaction often appear to be synonymous, even if the first is a broader concept while the latter refers to a specific activity; but it is important to understand the nature of them both according to the role of the museum audience in relation to screen-based and digital media.

Analysing both the empirical study and the surrounding theoretical reflection, the thesis investigates digital interactivity in the museum, considering it as a space of experience, a 'domain of cultural practices, and a magnet for the average visitor's and the professional critic's responses to those practices' (Carbonell, 2006: 2). The concept of the museum is interrogated in relation to preconceived expectations and constructed memories, formed by previous experiences within the museum itself (Boekenkamp, 2012: 110). In doing so the thesis argues that it is important to investigate how the use of these 'alternative' display forms of digital interactivity affects the perceptions of visitors and may disrupt more traditional meanings and functions of the museum exhibition.

As mentioned above, previous studies have explored the field of interactivity, specifically 'touch interfaces' and their allowance of visitors' interaction with some parts of the museum to discover new experiences (Hornecker, 2008; Kidd, 2014). Likewise, work has been compiled on the relationship of new technology with engagement and learning (Dicks, 2013; Falk & Dierking, 2004), social interaction (vom Lehm & Heath, 2005;

Witcomb, 2006), and increased social engagement, observed by participation, co-participation and multi-participation of people, especially when individuals and groups communicate with one another around the content (Kidd, Ntalla & Lyons, 2011). However, this research will expand existing understandings of interactive experiences and digital interactivity by connecting empirical and theoretical investigation into the museum as an entity, analysing its shift in purpose from object-curating towards providing experiences, its embrace of interactive technologies and the *normalisation* of such experiences. Most significantly, the study interrogates the integration of sensory, cognitive, emotional, affective and social processes that are part of a contemporary interactive and experiential museum mode and draws out some of the different forms of interactivity this entails, thus expanding the existing body of knowledge in relation to interactivity in museum spaces.

The theoretical framework, which encapsulates my philosophical position, is a critical and influential strand of the research design and methodology, forming connections between the theoretical and the practical aspects of the investigation. This perspective relates to the philosophical assumptions with regards to the researcher's view, as it advises every decision undertaken in the process (Mertens, 1998: 3). The theoretical framework of this thesis draws from postmodernist and poststructuralist traditions that have influenced not only disciplines such as philosophy and aesthetic theory but also increasingly the arts and humanities, affecting the fields of new media studies, media and communication studies, museum studies, design and computing. The discourses are constantly shifting, influenced and engaging with each other; 'none of these disciplines is an island entire in itself' (Youngblood, 2007: 1). One of the trickiest elements throughout the research study and analysis has been its interdisciplinary approach. This study's theoretical positioning deploys, borrows and reads concepts and ideas from a number of disciplines, including museum and cultural studies, media and communication, new media and design and computing. As the thesis uses sources from different disciplines to form and analyse the questions, which exist and are posed within these diverse fields, it holds an interdisciplinary remit and extends interdisciplinary understandings of interactivity.

The line between multidisciplinary and interdisciplinary is blurred, but we can say that multidisciplinary research tends to draw from a number of disciplines aiming to benefit a

particular area, whereas interdisciplinary research looks at issues that may talk to various disciplines and their borderlines to create a synthesis. From its etymology we understand that research is always interdisciplinary when more than one discipline, theory and perhaps method are used (Locker, 1994: 138; Nissani, 1995: 122; Richards, 1996: 124). I come to translate interdisciplinary research as integrating diverse and often contradicting insights, allowing for a more cohesive and inclusive reflection on the phenomena studied. The problem of interdisciplinary work lies in the practical aspects, such as working beyond the existing ways and therefore with possibilities, even mistakes, being time-consuming, leading and reinforcing the existing suspicions on the ones that view expertise and specialisation as a package (Sumner, 2003: 2). However, increasingly, social, cultural, political and economic issues belong to and 'trouble' more than one discipline. An interdisciplinary approach can signify new ways of knowing (Kellner, 1997), but can also lead to difficulty when it comes to the closure of a study.

During the doctoral research study, I developed an interdisciplinary project related to my thesis' topic of enquiry, which was funded by the Arts and Humanities Research Council. The project, titled *New Media, Audiences and Affective Experiences*, led to a series of three research seminars in the fields of digital media arts and design, cultural studies and digital humanities, and a one-day conference on 'Affective Experiences' held at the end of 2013. It intended to provide scope for new knowledge and skills development in researching experience and affect in digitally mediated platforms and art interventions in the mentioned crossing disciplines. The project included in its development a team of doctoral researchers from four academic institutions in the disciplines of digital humanities, cultural and museum studies, art and interactive design, with the intention of exploring how art and humanities researchers, artists and designers work with, translate and comprehend these areas of work from the different angles of expertise. Certainly, providing an open space for dialogue among those diverse practices can be challenging. With a focus on understanding how a researcher captures the interactive and affective experiences, formulates research questions and utilises research methods, issues were raised. As expected, definitions differ across the disciplines as well as understandings of human engagement with technology, measuring and capturing experiences, notions of audience, participant and user. Nevertheless, open discussions occurred among the participants in the various interventions of the project (seminars, conference and online

discussions) that proved the necessity and motivation for these hybrids to emerge, leading to new strands of work and knowledge exchange.

The contribution of that project to this study is multifarious. It provided the thesis with a grounded example to discuss positive aspects and the problematic nature of interdisciplinary work as mentioned above. Its overall theme that entails the concept of affective experiences in relation to digital mediated cultural interactions is discussed in more detail in Chapter Four. Most significantly, my reflections on the project indicate that while it is easy to draw generalisations on the interactive processes of audiences within digital environments, the most valid points derive from research where theory is put and used into a specific context. Similarly, therefore, the thesis avoids generalising its conclusive points to all digital museum interactivity and instead attempts to carefully draw conclusions that relate to the specific situations and can allow 'food for thought' for broader relationships and contexts.

When working with the concepts of postmodernism and poststructuralism, the difficulty of definition derives, as both viewpoints have their consequences in ontological and epistemological perspectives. They encourage and work on processes and abandon epistemological claims of truth, instead viewing relativity, fragmentation and ambiguity (Crotty, 1998: 185). Dynamic, fluid and fragmented perspectives replace idealised truths. Both philosophical orientations share commonalities with constructivism, as they recognise multiple realities, and with pragmatism, noting that decisions are context-dependent. Hermeneutics are also close to the methodological approach of poststructuralism, operating on subjective realities constructed through the process of meaning-making (Sandu, 2011). Scholars have also argued that postmodernism can accompany ethnomethodology and phenomenology (Mehan & Wood, 1975, quoted in Agger, 1991).

The methodological implications of the philosophical traditions discussed above include the rejection of a singular universal narrative (Lyotard, 1979/1984) that challenges singular methodologies and argues for multiple ones, along with critical thinking and reflection on the interpretive frames on people's experiences and responses (Agger, 1991: 120). In Deleuze and Guattari's book *A Thousand Plateaus*, 'a book of concepts' (Colombat, 1991:

10), the authors suggest navigating the sections of the book in no fixed order, just reading different passages – the various plateaus will connect and expand like a rhizome. Their theory is like Foucault's 'tool box', where the tools are concepts that are made available to other fields of research (for an extensive discussion, see Baker, 2007). That open system, the rhizome, can be borrowed, altered and put through constant metamorphosis, which also makes it hard to capture. Besides, multiplicity is suggested instead of opposition and contradiction. When conducting a mixed-method ethnographic research, in understanding a process that incorporates the various sources and the links that lead to new realizations, rhizomatic thinking is almost unavoidable. The temporality and multiplicity of the rhizome provoke a challenging but fruitful engagement with the material, the interaction, the trajectories and the experiences occurring within interactive museum spaces. In addition, methodological thinking allows flexibility of concepts, theories and qualities of various disciplines to develop multiplicities, process and connectivity rather than existing in opposition or silence from one another.

'It really makes sense only when applied to a variety of experimental fields –philosophy, arts, the sciences, or even everyday life'(Colombat, 1991: 15).

Theoretically, this study draws in particular from contemporary and postmodern theories and conceptualisations of grand narratives and rhizomatic thinking. The notion of the rhizome is 'one of the most powerful metaphors of our age' (Senagala, 1998). Borrowed from Deleuze and Guattari (1987: 16), a rhizome is a system of points and positions that fixes all of the possibilities within a grid with centres of significance and subjectification, like organised memories. The word 'rhizome' comes from the Greek words *rhizōma*, meaning mass of roots, from *rhizoun*, to cause to take root and shoot, and from *rhiza*, root, reflecting a mode of growing. In contrast to hierarchical modes of communication, the rhizome is 'an acentered, nonhierarchical, non-signifying system without an organising

⁵ In botanical studies, the rhizome is described as a 'horizontal underground plant stem capable of producing the upward shoot and downward root systems of a new plant. This capability allows vegetative (asexual) propagation and enables plants to survive an annual unfavourable season underground. In some plants, the rhizome is the only stem of the plant. In such cases, only the leaves and flowers are readily visible' (*Encyclopaedia Britannica*, 2013).

memory or central automaton' (Deleuze & Guattari, 1987: 21). It indicates the process of thinking beyond these assemblages and it reveals the importance of the encounter with the various machines and components. The rhizome exploits continual connections and changes coming into being and the never-ending process of becoming based on opposition, alterity and difference regarding senses, experience, choice, action. The encounter happens in between forces with 'the forces existing in relation with other forces, a force that defines its very self by the power to affect other forces and to be affected by other forces' (Zouvabichvili, 2012: 69). The encounter happens when these forces meet. They can be sensed and realised in affective tones and intensities that in turn force a new process of thoughts upon an audience (Cull, 2012).

Technologies and interactive media are part of broader processes, influencing how we perceive the world around us through information, interfaces and experiences that immerse the senses, also challenging the weakness of the human body. They affect the way learning is produced, and knowledge is gathered, classified and understood. In the postmodern age, Lyotard (1979/1984) has argued for the decline of grand narratives, which concerns the *metanarrative*. It is about a comprehensive making sense of history that derives from connections of smaller narratives and scientific/technical knowledge being incomplete without the inclusion of narrative knowledge. The way we learn is interconnected with the way we think, a style of thinking that is decentred and non-linear, with no beginnings or ends, forming rhizomes and becomings rather than trees and structured images. Similarly, this study considers the rhizome as a metaphor for the museum and its processes, a *pan-mouseion* (a museum that involves all), a space of interactivity, affect, socialisation, participation, engagement, play and learning.

iv.1 Rhizomatic thinking

The flexibility of the notion of rhizome and becoming permits entering different fields. Deleuze and Guattari's conceptions of rhizome, multiplicity and becoming provide interesting, complex and rich metaphors to structure and comprehend the changing environments and experiences in which we are encapsulated. Taking into account the mobile concept of digital interactivity and interactive experience, the tool of concepts that the theorists introduce accommodates a flexible theoretical framework. Deleuze and

Guattari's book *A Thousand Plateaus* (1987) commences by proposing a new mode of thinking that starts from within, a style of thinking that is decentring. It moves away from the tree towards becoming rhizomatic. According to Deleuze and Guattari (1987: 16), the image of root and tree as filiation inspires the traditional manner of thinking on the basis of a hierarchical system, a system of points and positions that fix all of the possible within a grid with centres of significance and subjectification, like organised memories. The rhizome, on the other hand, is a model, an assemblage that has no hierarchy but exists on points of intersection, meeting links from elements and factors that are in constant flux, organic and inorganic. The assemblage is on the move, connecting and reconnecting, and defined by the circulation of all the different states and components (Deleuze & Guattari, 1987: 23). It is argued that through the use of interactive technologies the museum can immerse us in a memory device of past and future (Sparacino, Wren, Azarbayejani & Pentland, 2002: 224), allowing information and knowledge to occur through different viewpoints, entrances engaging with personal and social identities.

In *A Thousand Plateaus*, the concept of rhizome is introduced as a 'horizontal' structure, a maze of contiguous and intertwined, overlapping, half-submerged roots or passageways. That contrasts with the 'vertical', 'arboreal structure of a tree' (Deleuze & Guattari, 1987: 21), 'a thought of multiplicities' (p. 21), 'being-multiple, instead of a being-one', a substantive multiplicity or, what is the same, a subtractive unity (p. vii), which undergoes 'metamorphosis, changes in nature' (p. 21). The rhizome is not the unity emanating and guaranteed by an unfolding, pivoting, dichotomising or even abortive root (*ἀρχή*), but arises as the effect of co-functioning and alliance (p. vii). The spreading rhizome might be a less repressively structuring concept than the hierarchical tree (Deleuze & Guattari, 1987). The way in which our brain works can be viewed as rhizomatic, the connections we make, the means by which we construct narratives and relationships with the external and internal worlds. Even when we narrate and reconstruct our selfhood, the story becomes rhizomatic (Sermijn, Devlieger & Loots, 2008), having no coherent linearity and inviting and engaging sources of memories, smells, images, second-hand stories and constructed imaginaries.

The traditional thought of Western philosophy as causal, centred, hierarchical and structured by binaries (Sutton & Martin-Jones, 2008) does not provide the whole picture

of parts and wholes. Rhizomatic thinking 'is to think with AND, instead of thinking IS, instead of thinking for IS' (Deleuze & Guattari, 1987: 43), it is 'made of plateaus' (1987: 21). It is neither one thing nor the other, without beginning or end; it is always in between, between two things; it is a line of flight or flow [...], the least perceptible of things. The in-between happens through the encounter that can force thought, with thought being a result of a 'fundamental encounter' (Deleuze, 1994: 139).

Rhizomatic thinking does not occur with us as subjects outside of the world, observing and judging, as the Cartesian line of thinking would argue, but mapping the diverse positions that are formed when we encounter reality. The first principle of the rhizome concerns the possibility of the connection between radically separate parts, or the possibility of a bringing together of what but breaks apart; 'any point of a rhizome can be connected to anything other, and must be' (Deleuze & Guattari, 1987: 7). In other words, a rhizome can grow by making connections anywhere within itself, with 'things of differing status' (Deleuze & Guattari, 1987: 7), creating diversity. In contrast to the tree, a rhizome is not a totality constructed with the parts as homogeneous elements of unity but is always 'an assemblage of symbiosis, defined by the co-functioning of its heterogeneous parts' (Deleuze & Guattari, 1987: 53). The unity of the rhizome, the oneness of a collective assemblage, is an effect of the convergence or co-functioning of its heterogeneous elements: 'structures are linked to conditions of homogeneity, but assemblages are not' (Deleuze & Guattari, 1987: 39). This is a crucial aspect of becoming (Sutton & Martin-Jones, 2008). It means that the resulting unity lacks a beginning since it is not organised according to the distance that the connections have from their origin; that is to say, the structure of the assemblage neither presupposes nor effectuates the homogeneity of its components.

Even if the Deleuzian philosophy is used extensively to comprehend and expand the new media relationships with the social, the human, the political and their use as an element or function of larger assemblages, the authors did not engage directly with new media, but they explored the machine. A machine is collective, not necessarily defined by its materiality but as 'the set of interrelations of its components independent of the components themselves' (Deleuze & Guattari, 1987 quoted in Poster & Savat, 2009). Machines are part of societal assemblages expressing the dynamics of our society. The

body is a machinic assemblage; for instance, when entering a relationship with a keyboard the hand becomes a writing machine; when it encounters an interactive open space, it becomes an interactive being. Following the philosophy of Deleuze and Guattari, we cannot be separated by any social and somatic interaction with identities that are not fixed but in flux, with no being existing beyond becoming. Moreover, yet it is along this line of flight that things come to pass, becomings evolve and revolutions take shape (p. 25). It is a manner of becomings' (p. 21), which replaces given *a priori* being. Becoming is orientation, direction, entries and exits; a line of becoming has only a middle. Becoming takes place through a line or block without beginning or end, origin or destination.

v. The thesis' outline

After this initial introduction, the thesis commences by outlining its methodology in Chapter One. This chapter provides the details of the case studies that the thesis is exploring and outlines the methodology chosen and activated by the thesis: an assemblage of theoretical analysis and empirical ethnographic on-site research. It defines its mixed methods approach and influences such as ethnomethodology, as well as discussing the specific methods used for data collection, including the sampling, ethical procedures and limitations of the study. Throughout the chapter, I examine the questions asked at the start of the research and consider how the methods I use have provided and impacted upon the production of a certain type of knowledge, reflecting therefore on the role of *process* in the research.

The following three chapters explore theoretical conceptualisations of digital interactivity in conversation with the empirical research. The empirical study of the two London-based museum exhibitions portray the world of museum practices and professionals and, along with the theoretical arguments, I bring these understandings of interactivity into a close critical analysis. In the quest to understand patterns, actions and behaviours in the museum setting, the observations and the audiences' responses have been a starting point; but that codification may neglect differences depending on the context or reasons and influences that may affect these responses. Museums frequently focus on showcasing a progressive and institutional self via the embracing of new technologies as part of a strategy for bringing more and more audiences into their physical and online spaces. The

museum has been used to provide 'primary evidence' in a number of disciplines such as archaeology, history, ethnology, art and the natural sciences, and, therefore, it is usually taken as representing an important source of knowledge (Lewis, 2004:1). It is often argued that functions such as 'keeping' and 'sorting' have remained persistent, but that the context and the meanings in which these operations have taken place varied in different historical periods (Gordon, 2010: 2). Chapter Two, *The Museum In Motion*, elaborates upon the traditional historical path of the Western museum in major historical moments. Interpreting the dominant role of the museum in particular epochs offers means to a more complex understanding and an embracing of the fluidity of its identity: most significantly, it offers a starting point in the quest for a philosophical and theoretical approach to the contemporary meanings of interactivity.

This chapter therefore explains the historical sociocultural transformation of the museum from *μουσείον*, as a setting of Muses that taught human mysteries (*μυείν*) and curious things and as a research centre of the classical world, into a 'theatre of nature' (Findlen, 2006: 277), a private and public institutional setting in which different structures of collecting, ordering and knowing intersect. Following this, the chapter explores how the museum exists as a dominant feature of our culture, in different forms and even obligations at times, formulating knowledge, beliefs and views. Museum studies scholars have argued for the adaptable aspects of the museum and the importance of investigating its existence to understand the process of these changes throughout changing social and historical periods (Hooper-Greenhill, 1992; Marstine, 2005). Postmodernism alters the very structure of the epistemic body of knowledge marking the era of modernity, by accentuating notions of multiplicity, breakages and non-linearity. This movement also exposes something of how the overall sociocultural and economic climate influences the motives and drivers of the museum's practices and nature of its being. Examining the 'long' history of the museum is important, I argue, both in order to situate the contemporary engagement with interactivity in historical context, and to relativise, and relate current uses of interactivity to other modes of interactivity from different eras.

Chapter Three, *Interactive Digital Practices in Museum Exhibitions*, demonstrates how and in what ways digital interactivity has been accepted as a 'natural' element, an important foundation of cultural practices in relation to the realm of new media and

digital culture. The empirical results offer insights from the initial encounters of the visitors with the exhibits, the potential of digital interactivity to support museum learning, aspects of engagement and social interaction, and interactive exhibits as spaces of shared information and experiences. Interactivity has been recognised as a tool to distinguish between old and new media (Manovich, 2001) and identified as a feature of 'new' technology, digital spaces and networking environments. 'Cultural experiences' are becoming a defining mechanism for perceiving, acknowledging and digesting our environment, and the expressions and techniques of digital interactivity are often positioned on the top of the list of such experiences, demanding the subject's participation and alertness. It becomes apparent that a single definition of the term cannot be captured even if the concept is widely integrated, utilised and accepted in a variety of sociocultural settings. Interactivity concerning cultural practices, Chapter Three argues, reveals its complexity and vastness, often leading it to be overdetermined (Morse, 2003). It implies the power and agency of the user with an emphasis on collaboration and participation, yet it is modelled on ideas of consumption and production and with interest and focus on technological materiality (Fuery, 2009). This chapter, therefore, also analyses the forms and expressions of digital interactivity in relation to specific cultural context, having outlined the roles of the contemporary museum and explored this alongside audience responses. The discussions in both this and the next chapter unpack the two 'types' or paradigms of interactivity to be found in these museum settings: the *factual* and the *poetic* (see an introductory comparative table in Chapter One). It also draws on audience theories to extend its analysis of the nuances of interactivity in museum settings, of their reception and interpretation. I argue that interactivity has to be scrutinised and contextualised in relation to their specific context, cultural practices and experiences. It needs to be reconsidered beyond given and familiar forms of causality, feedback and sender-receiver relationships, beyond linearity, representation and singular narratives. Whilst the digital in the museum is often fetishized, we need to parse the meaning of digital interactivity in more nuanced terms, as I show through my examples.

Chapter Four, Museum Multisensory and Interactive Experiences, interrogates the shift from the object-based museum towards experience (see Dicks, 2004; Henning, 2006; Hein, 2000), particularly in relation to the 'culture of interactivity' (Huhtamo, 2012). Museums are increasingly adopting interactive strategies with technological

enhancement enabling culture to be reproduced as intense and exciting experiences –also a common expectation in tourism and visiting (Dicks, 2004). The centrality of ‘experience’ in museums raises questions as to their meaning, symbolism and implications in relation to the interpretation of culture and histories. I argue that a lack of existing critical views in museum professionals and – specifically when exploring fluid concepts and seeking to extract aspects of experience – can only too often lead to overly simplistic conclusions. The analysis of elements that constitute experience can become a quest for a valid interpretation, with objectivism mirroring behaviourist indicators and arguing for being ‘evidenced accurately’; whereas poststructuralist accounts see experience as tied to socio-historical structures and change (Stephenson & Papadopoulos, 2006).

This chapter engages with the diversity of experiences within museum spaces by discussing different models such as Falk’s and Storksdieck’s (2005: 747) ‘interactive experience’ (influenced by three main contexts: the personal, the social and the physical) alongside discussing the domains of consumer-oriented experience as devised by Pine and Gilmore (1998: 102). This chapter also discusses how understanding of sensations, affect and emotions in relation to our ‘experiences’ are proliferating, and fields such as social sciences and humanities come closer to neurosciences in understanding the science of emotion. Experiences are viewed as intensities (Massumi, 2002b), drivers beyond the cognitive towards an affective understanding of the world. Heraclitus’ quotes at the beginning of the section have inspired the philosophical thoughts of thinkers to current times on the uncertainty and fluidity of human and nature. His writing valorises the *gignesthai* (‘to become’) and the *logos* and the move away from seeing emotions as ‘animal spirits’. Far from undermining representation, there is a profound shift in museum spaces and their practices, a shift towards experience and, therefore, emotions and affective experiences (see Gibson, 2009; Gregory & Witcomb, 2007). This emphasis on the tensions across feelings, affect and emotion it is crucial to consider in the museum setting, as it is a driving mechanism for the production, penetration and perception of interactive practices, cultural experience and events that surround us. Chapter Four therefore makes the case for a nuanced understanding of sensory experience in the interactive museum.

The Conclusion (Chapter Five) explores the main findings related to the concept of digital interactivity as a multiple notion and experience. It regards three main dimensions

- the technological aspect, the content, and the processes of interaction - as leading to diverse individual, personal and collective experiences. It argues for the complexity of interactivity in the museum space: as a discourse subject to competing agendas and as a series of practices, which are not automatically 'good' in their effects; and provides examples where interactivity is awkward, problematic or deemed to have 'failed'. Mobile concepts such as experience, interactivity or play are subject to varied interpretation. In this study I work with the frictions across empirical research and theoretical examination, moving from the concrete to the speculative. The theoretical frameworks that precede the discussion of the empirical research are developed here in order to describe and to analyse these abstract phenomena. Theory informs our thinking and no empirical investigation can be successful without it to consult and extend its meanings. The analysis of digital interactivity, of so-called interactive experiences and their presence in museum exhibitions is framed, therefore, by an interdisciplinary theoretical investigation that draws from disciplines including museum and cultural studies, media and communication studies, and new media fields such as ICT and computing. My motivation is to extend the critical and theoretical understanding of the way that digital interactivity is practised, understood and conceptualised in museums' exhibition spaces.

CHAPTER 1

Approaching the research: methodologies and backgrounds

1.1 Introduction

The methodology deployed in this study is multifaceted. It draws on a number of disciplines, including media and cultural studies, museum studies, audience research and new media studies. These contribute to its initial extended cultural analysis (in Chapters Two, Three and Four) of interactive museum exhibitions in relation to audience role and activity. The thesis brings together interdisciplinary theoretical analysis into dialogue with empirical ethnographic research in order to analyse museum paradigms of interactivity. As mentioned, part of the methodology involves on-site research where, primarily through interviews and observation, I examine visitors' encounters with interactive and immersive exhibits.

A detailed presentation of the Galleries of Modern London and the High Arctic exhibition, where the empirical research study took place, is discussed in the first section of this chapter. Following this the chapter reflects on the mixed methods of the empirical study. The last part of the chapter describes the methods used for data collection, including the sampling, ethical procedures and limitations of the study, concluding with a discussion of the type of analysis undertaken. Throughout the chapter, I examine the questions posed at the start of the research and ask how the methods I use have shaped the production of knowledge. A primary quest of the thesis is to explore the kind of experience in which the audience is involved when encountering interactivity in the museum space and the broader implications of these display forms and techniques in the museum context, which involve both humans and technology in a complex processual relationship.

1.1.2 Reflexivity: Ethnographic research key to this project

The positioning of the research and the researcher's approach to the subject matter strongly influence the process, results and knowledge produced. Epistemology is concerned with questions such as our ways of knowing; the relationship between the researcher and what is known; and the process followed to achieve new knowledge. The epistemological framework of this research is rooted in ideas of constructionism, which follows the belief that 'reality is socially constructed' (Mertens, 1998: 11). In addition, it draws from pragmatism via the use of mixed methods. The pragmatic viewpoint of epistemology has many points in common with constructivism: both are centred on lines of action, the assertions behind those actions, and the results of the connections aiming to seek further associations. The main stance of epistemological constructivism argues that individuals and their interactions construct meanings in different ways and interpret objects and phenomena of the world, with the notion of objective truth being challenged, considering subjects and objects partners in the process of generating meanings (Crotty, 1998: 8). The constructivist model has grown by the field of phenomenology and hermeneutics (Eichelberger, 1989), and broadly is used a way of interpreting phenomena depending on their situation and its context. In this way it 'rebels' against objectivism and has a rather close relationship to relativism.

The thesis inquires into relationships between human behaviour and technologies, examining how manufactured interactive, immersive and aesthetic experiences – which differ from classic exhibition presentations – affect the ways we perceive and experience narratives and histories. One cannot disregard the complexity of these encounters, which are dependent on the existing socioeconomic and cultural patterns of the era examined, including the intricacy of human nature and the ways we exist in and perceive social and individual environments. Discussing my methodological approaches, I ask: What knowledge did my methods generate? What are the limits of my approach methods? The empirical research study analyses both audiences' and museum professionals' responses to the museums' ways of implementing the concept of interactivity. It considers audiences, experience, engagement and learning by interrogating assumptions that interactivity

produces greater involvement and participatory activity. This study also employs NVivo, qualitative analysis software supporting the organisation and analysis of large amounts of interview and observational data derived from the on-site research study. The deployment of a mixed methods approach, which includes interviewing, observation and sound recordings as well as the analysis of secondary sources, contemporary patterns and theoretical understandings, provides a fruitful platform to navigate and unravel structures, modes and experiences of visitors in knowledge production institutions.

The research fieldwork took place from July to December 2011 in the permanent Galleries of Modern London at the Museum of London and the High Arctic exhibition at London's National Maritime Museum. Both exhibitions tell unfinished histories involving past memories besides current affairs and matters of public concern. Instead of offering static artefacts, images and captions in more conventional museum displays, they engage with the matter in an interactive manner, involving visitors to different extents. The research considers how interactive exhibits; computer 'interactives', multi-touch systems, mixed interactive systems and immersive environments affect the audience's experience and how they perceive the exhibitions and their narratives. The choice of researching these specific exhibitions was made due to their conspicuous implementation of interactive dimensions to newly launched exhibitions. The museums' collaboration in participating in the process was also important in terms of enabling the research. I would, moreover, argue that as long as there are no conflicts of interest, and the research is able to maintain critical distance, it is significant for an academic study and its results to communicate with, and potentially benefit, a public museum, and its professionals expertise, thus demonstrating the validity of the research both for museum practice and for the academic community.

⁶ NVivo software supports qualitative and mixed methods research. It supports the organisation and analysis of unstructured information and provides a workspace for organising material, through to analysis, and then sharing and reporting results.

(http://www.qsrinternational.com/products_nvivo.aspx)

1.2 Research Cases

1.2.1 Interactive touch-screen interfaces at the Galleries of Modern London, Museum of London

The first study is the on-site research conducted at the Museum of London; specifically, investigating the touch and multi-touch interactive interfaces at the Galleries of Modern London (GoML). Divided into 'Expanding City', 'People's City' and 'World City', the galleries were completed in 2010. They showcase a clear shift in the use of interactive exhibits in the museum, especially when compared with the museum's older galleries, which are characterised by objects and artefacts in glass cases, reconstructed settings of London's past times, audio-visual presentations and older types of computer kiosk.

These new galleries faced certain challenges, as they had to introduce complex issues such as war, colonisation, immigration and globalisation with updated technologies and concepts. Apart from the artefacts and the ways in which information is set out throughout both gallery spaces, the use of interactive technologies changes from hands-on and kiosk-style computer 'interactives' to different style touch-screen interfaces that can accommodate more than one user at a time. In this research, the investigation was carried out on the touch and multi-touch screens, which are described below in more detail.

This section will provide some historical content and factual information with regards to the museum and its exhibitions that are important in conceptualising its roles in relation to the research aims and objectives. The Museum of London opened in 1976 and is an amalgamation of two earlier museums, the Guildhall Museum (founded in 1826) and the London Museum (founded in 1912). Its collection includes more than two million objects showcasing the story of the city of London; the museum also holds the largest archaeological archive in Europe. By 2011 the museum was attracting more than 400,000 visitors per year (Annual Review, 2010–2011).

In May 2010, the museum launched the new GoML with an on-going use of new and interactive technologies, especially in the specific galleries. The interactive technologies used at the Museum of London include computer interactives, touch and multi-touch

interfaces. The computer interactives, more visible in the older galleries but still present in the new ones, tend to be more static, acting as a computer monitor, allowing the participation of only one user at a time and with the main goal of providing information on a number of levels (through more traditional information, or sometimes in a game setting). Additionally, they tend to be characterised by their kiosk appearance and (almost necessarily) dark surroundings. The single- and multi-touch interfaces structurally accommodate mostly similar information, with the difference residing principally in the aesthetic appearance, novel look or features of the technology.

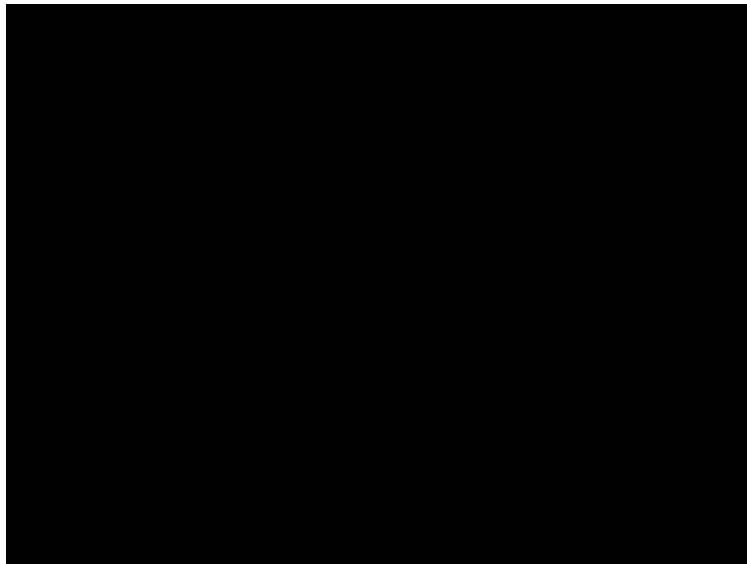


Image 1: *This is one of the spaces at the Galleries of Modern London. It incorporates a number of interactive touch-screen interfaces, video projections, glass cases and information panels. The image hints to the individual uses of the interactive exhibits, but also the 'dynamic' and 'moving' feel of the space. (Image copyright: Irida Ntalla)*

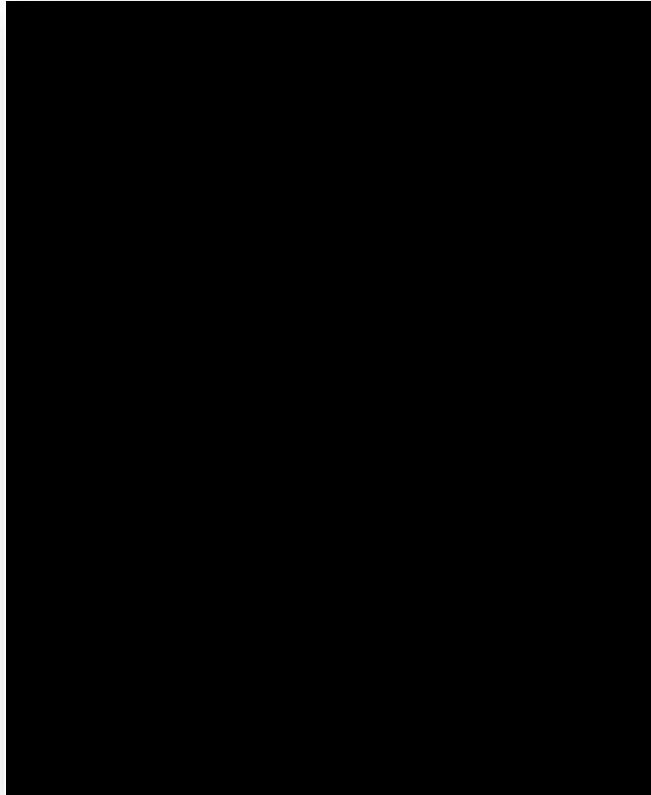


Image 2: *This image of the Galleries of Modern London indicates a 'collaborative' use of the interactive touch-screen interface. The interface itself is larger and enables more than one visitor to work with it. (Image Copyright: Irida Ntalla)*

The interfaces at the GoML tend to be flat and horizontal screens that can allow a single-use; a touch-screen based in the Medieval Gallery includes a quiz game on the lives of Londoners of these times, and an interactive touch-screen allows visitors to explore the colour-coded streets of Charles Booth's Maps Descriptive of London Poverty. A multi-touch approach allows participation by a number of people at any given time; Capital Concerns has a large touch interface that has a number of seats and more than one visitor can touch and interact at the same time. Due to changes in technology (e.g., smaller and thinner screens, touch projections and atmospheric lighting) these interfaces aesthetically integrate more smoothly into exhibitions, as there are fewer restrictions on their presentation in comparison to the kiosk-style interactive exhibits that look like old computers.

The Museum of London's main aims, as stated in its mission statement, are to increase public awareness, understanding and appreciation of London's cultural heritage (Museum of London website, 2015). This intention is pursued through multiple forms

including educational programmes and tours and archaeological projects, but predominantly by engaging the audience through their permanent and temporary exhibitions, sharing their national collection, creating 'inspirational opportunities' for the participation of diverse groups, and facilitating access to the museum's resources and expertise (Museum of London's Annual Report, 2013).

Whilst the GoML exhibition provides a unique environment to research single- and multi-touch screen interfaces – due to the diversity of the interactive exhibition and the integration of these technologies into the galleries' space – this is only one of the ways in which the Museum of London approaches the notion of interactivity. Whilst this study does not include the online aspects of interactivity, it is significant to note that the Museum of London has a strong online presence; its website includes a wide and extensive range of information related to the collections, the galleries and the museum's educational programmes. For instance, the museum has incorporated the majority of its collection, including artefacts from all boroughs of London, online, which allows web visitors to explore a vast collection whenever they wish from any corner of the world. The museum's educational department also works closely with schools and teachers, providing online resources and homework, in addition to short-term and long-term programmes. Furthermore, there is a section on the website called 'Explore Online', where users can play games, follow the museum on social media (Facebook, Twitter) and download applications for smartphones. The Museum of London constantly experiments with new technologies and projects; for example, one of their latest downloadable applications, 'Streetmuseum', mixes old and new London scenery, displaying many pictures of the old city from the museum's collection that can be revealed with the app when used in specific physical locations.

⁷ The Museum of London publicises its activities in a number of ways. The website of the Museum of London (<http://www.museumoflondon.org.uk/>) houses three institutions: the Museum of London (<http://www.museumoflondon.org.uk/london-wall/>), the Museum of London Docklands and the Archaeological Archive.

⁸ <http://www.museumoflondon.org.uk/Explore-online/>

⁹ <http://www.museumoflondon.org.uk/Resources/app/you-are-here-app/home.html>

According to the institution's annual report at the time this research was carried out, the Museum of London's target audience was 435,792, and its actual figures reached 493,026, excluding corporate visits (Museum of London Annual Review, 2010–2011). According to the key performance indicators, the number of pupils who attended for on-site formal learning programmes was 24,690, while the number for off-site ones was 12,461. In addition, 67,106 people attended informal learning events. From these figures we can understand the number of visitors making on-site visits to the museum per year, excluding those who participate and engage online. The audience of the museum is fairly diverse in regards to age, ethnic background and expectations from their museum visit. As noted in the on-site research, a large proportion of visitors to the Museum of London are tourists. That is hardly surprising, as museums are eighth on the top ten of visitors' list of attractions, according to the Museums Association in the UK; museums are frequently touted as providing economic benefits to tourism in the country (see Association of Leading Visitor Attractions: Visitors Figures, 2009). Recently, tourist engagement has become more pronounced, but at the time the research took place (July 2011), community engagement was still the driving force. Certainly, the Museum of London is aware of its diverse audience, and its multiple approaches in the exhibition spaces aims to accommodate different visitors' needs.

1.2.1.1 The interactive exhibits

This section consists of a more detailed presentation of the interactive exhibits that my research on the Museum of London investigates. The exhibits that the research is mainly focused on include the touch-screen interfaces situated in the GoML. The interfaces' structure and design differ from one another, with the majority of them being horizontal smooth surfaces used with the touch of a finger, allowing one or more visitors to explore the interfaces at once. They are spread throughout the exhibition space, in between glass cases, artefacts and objects, carrying content relevant to the overall themes of the exhibition and the specific sections where they are positioned. Their main difference in

¹⁰ Information in regards to visitors figures can be accessed online

<http://www.alva.org.uk/details.cfm?p=595>. Furthermore, the Museum Association website and a recent report by Art Council England, *The Economic Impact of Museums in England (2015)* presents facts and figures concerning the economic relevance of museums in UK.

comparison to the more dated interactive exhibits is their *social* element: they allow more people to view, touch and manipulate the screen at the same time. The specific touch-screen interactive interfaces that the study looks into are outlined in the following subsections.

1.2.1.1.1 Capital Concerns interactive exhibit

The Capital Concerns interactive interface (see Images 3 & 4) is a large-scale touch-screen interactive exhibit that was placed in the GoML in May 2010. The interface occupies a whole room and includes two tabletops, physically separated mainly due to aesthetic and presentational reasons, but part of the same exhibit and carrying the same content (see Image 2). The exhibit contains information related to affairs and issues of London such as the Olympic Games, economic and social welfare, immigration, the lack of burial spaces, the disappearance of the iconic red phone booths, drug use and much more. Graphic objects representing individual questions float and move on the abstract blue-lit interface. Visitors can select an item by touching it. Once one of the images is selected, a short piece of text pops up giving a brief story of the past and present of a specific issue. The text is followed by a multiple-choice type question, which allows the audience to give their opinion on a future possible solution to the issue. The interface provides a few different entry points where the visitor can sit down and interact with it. Nevertheless, it is worth mentioning that even though the interface allows several individuals to be around at the same time, there are restrictions in terms of social interaction; the visitors may touch the same interface but they are physically 'isolated' on one prearranged side of the tabletop, indicating how sheer physical positioning affects the social potential of interactivity.

The positioning of the exhibit attracts many members of the public, especially due to its noticeable size, attractive blue lighting and novel appearance. In the same space, the walls are covered with large paintings, which might be overlooked as for many their glory is stolen by the large interactive attraction. The Capital Concerns exhibit also differs technically from the rest of the interactive exhibits due to its lack of actual screen. Instead, the interface is projected on the table. This aspect, along with the atmosphere, abstract graphics and the decorative models of iconic London buildings that stand on the

tabletop's surface (see Images 3 & 4), appeals to a diverse range of visitors and it was busy during my visits.

The exhibition is developed through an equal collaboration across three different bodies of the museum, the departments of Collections, Learning and Exhibition Design. As part of the empirical study, I interviewed three core members of the team that created the exhibition: Cathy Ross, Director of Collections & Learning; Frazer Swift, Head of Learning, and Gail Symington, Exhibition Designer of the museum. The Capital Concerns exhibit was purposely positioned in a specific area of the museum so if the visitor follows the expected path of the exhibition, this is the last part of the overall museum visit. The team's intention was that the interaction with the exhibit and its content acts as a reflective exit moment to the facts and figures that audiences have learned and experienced during their visit. In Chapter Five, I discuss in further detail the views of the museum professionals in regards to the development of the exhibits, their role within the galleries, and their contribution to content development of the exhibition and involvement of the visitors.

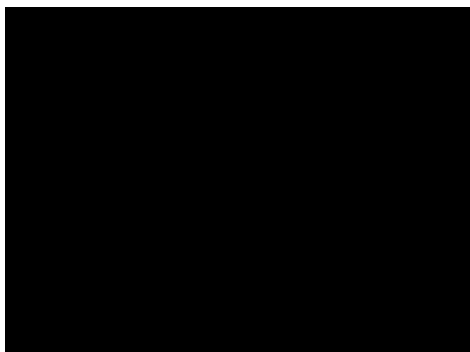


Image 3

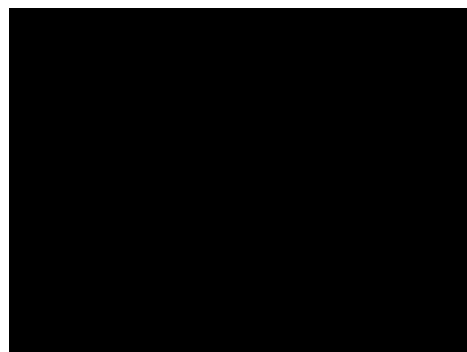


Image 4

The Capital Concerns interface is placed in a separate room, surrounded by a number of large-scale paintings. The room has low lighting, which reinforces the blue colours and the atmospheric feel of the interface. This was a busy spot, but the pictures were taken when it was less busy in order to avoid showing the visitors' faces. (Image copyright: Irida Ntalla)

1.2.1.2.2 Charles Booth's Maps Descriptive of London Poverty

The second interactive exhibit is part of the 'People's City: 1850s–1940s' section of the GoML, also completed in 2010. This section has an immersive and interactive feel to it, as visitors wander around dramatically lit old shops, restaurants and theatres to a dark room that showcases the city in wartime. One of the highlights of this section is the 'walk-in' interactive Charles Booth's 1899 Poverty Map of London (see Image 5). The work of Charles Booth, an English social researcher, and his associates was extremely important at a time when London's population was growing significantly, creating an obvious social divide between the poor and the rich. Charles Booth conducted pioneering research into poverty and living and working conditions, especially in East London. The map (see Image 7) uses seven colours to classify poverty, with black being the lowest class and yellow being the upper-middle and upper classes. The detailed research on London's people and their conditions provides a clear image of the population's relative status in different districts and suburbs of London.

The interactive exhibit (see Images 5 & 6) has a very different layout from the Capital Concerns exhibit discussed in the previous sub-section. The touch-screen exhibit is positioned in an enclosed space where the floors, walls and ceiling are decorated by the map itself. In the centre of the walk-in space, a touch-screen interface that looks rather like a small traditional computer monitor allows the visitor to zoom in and out and pan around the map. The way the enclosed space is set out, covered with static mapping information and images, allows the audience either to look at the static map, or to use the touch-screen, or both. Visitors can also select specific areas of London in order to obtain more information such as old photos that indicate the changes of particular neighbourhoods, comparing past and future (see Image 5). The detailed content reveals social transformations in the various districts in London, including information on social class and mobility, gentrification and the fast pace of change. Whilst the interactive exhibit has engaging powerful and informative content, and attractive layout and setting, the interactive element of the exhibit is basic, giving the power of interaction to only one user at a time. The enclosed space makes it more easily accessible to pairs or groups of visitors. During my research I noticed that groups tended to work and stay together, but usually they knew each other and one of the two acted as an observer (see Image 5).



Image 5: *Two visitors working together on the Charles Booth's 1899 Poverty Map of London. (Image copyright: Irida Ntalla)*

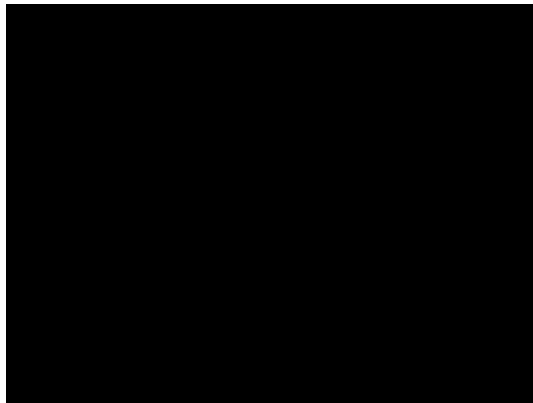


Image 6: *This image shows how the Charles Booth's 1899 Poverty Map of London looks in this museum exhibit. It includes images with descriptions of the different streets and areas of London. (Image copyright: Irida Ntalla)*

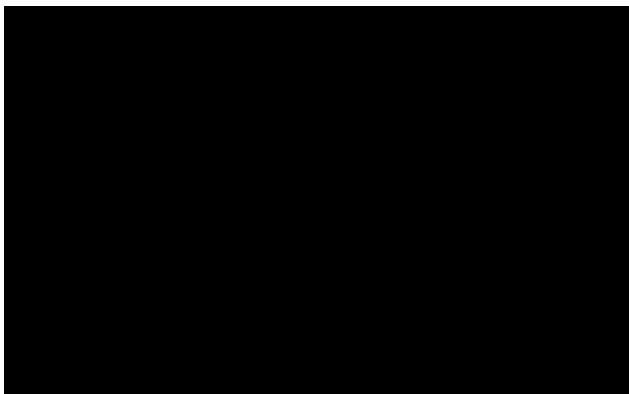


Image 7: *Original Charles Booth's 1899 Poverty Map of London. Copyright London School of Economics & Political Science Charles Booth Online Archive: Poverty map & Modern map.*

1.2.1.2.3 London street photos interactive exhibit

The third interactive exhibit that was observed during the research study is a photo-based touch-screen interactive interface (see Images 8 & 9). The exhibit welcomes visitors with

a map of London visually separated according to its boroughs (see Image 8). The interface is positioned in a busy and bright passage of the overall gallery space and is shaped as a rectangular table. It looks more like a traditional computer monitor-style interactive exhibit, but incorporates the element of touch. It is a popular exhibit with predominantly visual rather than linguistically informative content, and is of simple and straightforward aesthetic design.

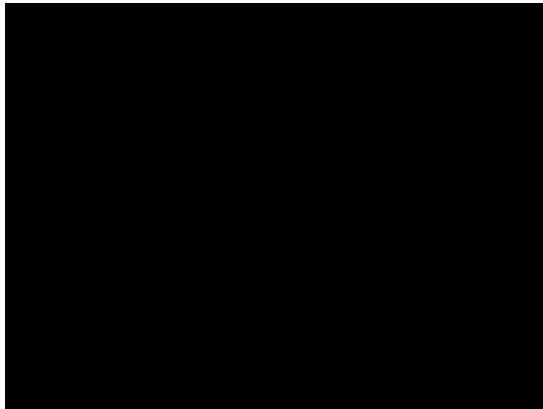


Image 8

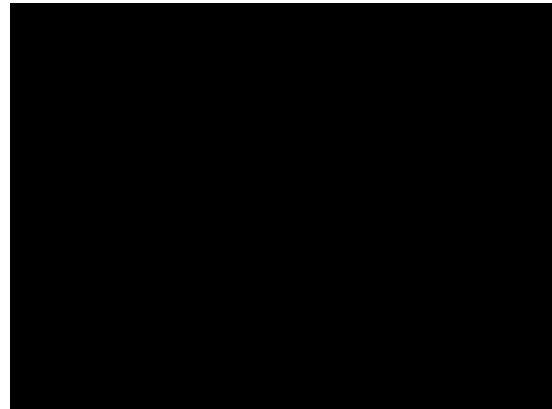


Image 9

Visitors are able to select a preferred borough of London, which leads them to a view of recent and old pictures of the specific area with a short passage of text related to the photo. (Image copyright: Irida Ntalla)

1.2.1.2.4 Other interactive exhibits

Besides these three interactive exhibits, other exhibits similar in style and design are also present which follow very similar structural and interactive processes. Commonly, the visitor touches an interface revealing further content, images or text, on the subject of each exhibit. Some of the touch-screen interactive exhibits include quiz-like elements similar to the ones in the Capital Concerns exhibit. I limited my focus to these three exhibits both because they were sufficiently different and in order to focus my research.

1.2.2 High Arctic Exhibition, National Maritime Museum, London

The National Maritime Museum, London, which is based in historical buildings that are part of the Maritime Greenwich World Heritage Site, holds the world's largest maritime collection. The site incorporates the Royal Observatory, Greenwich, and the seventeenth-century Queen's House. The museum's overall aim, according to their mission statement,

is 'to illustrate for everyone the importance of the sea, ships, time and the stars and their relationship with people' (NMM Annual Report 2014). Maritime museums tell stories of water transportation and associated contextual issues and accoutrements: shipbuilding, docklands, waterways, navigation, seafaring, maritime art, boats. Distant places of travel, labour and wonder are represented through paintings, maps and storytelling throughout the different galleries. As places of imagination, of exploration and of artistic creation, they are invitations for visitors to the museum to travel; they take them on journeys with both identified and unknown landmarks prioritising a trope of distance.

In July 2011, the National Maritime Museum opened the Sammy Ofer Wing with the aim to set a new strategic direction for the museum through the development of physical space. It also established a new webpage showcasing a vast amount of digitised material from the collection, inviting visitors to actively engage with the museum collection (Romeo & Chiles, 2012). The project, funded by the Heritage Lottery Fund, includes a special exhibition gallery space enabling the museum to put on temporary shows, to host the welcome space Compass Lounge and launching an associated redesigned website. The Compass Lounge invites visitors to a physical-digital interplay through the use of three interactives that display a large number of digital reproductions of the museum's objects (Romeo & Chiles, 2012). Following this approach, the intention of the museum's new wing is to use 'cutting-edge' audio-visual installations to create a constant sense of movement and engagement. Along with the physical and design aspects of the exhibition spaces, the new exhibitions also aim to challenge histories of adventures, disasters, tragedies and on-going personal histories, in order to give the audience a more complete and moving history of maritime narratives (National Maritime Museum's brief on the opening of Sammy Ofer Wing, 2011). Linking traditional histories, archives and journals with rich narratives of past, present and future, the museum has repeatedly stated its intention to appeal to a wider and more diverse audience with more coherent and open narratives, enhancing understanding and enjoyment through the exhibitions, learning and events programmes (National Maritime Museum Strategy, 2009–2012).

The National Maritime Museum incorporates research as a core activity (National Maritime Museum Strategy, 2009–2012) aiming to provide stewardship of the collections and stimulate intellectual curiosity whilst attracting deeper and broader audience

understanding. The museum is keen to emphasise that it constantly considers its role, aim and practices. With the opening of this new wing, the National Maritime Museum was embracing interactive digital practices aiming to transform the experiences it offers to its diverse visitors, engaging current and future generations in the complex and contemporary histories of the sea (Digital Manager, NMM, 2011).

According to the National Maritime Museum's annual report for 2009–2012, there were 2.4 million visitors to its museum sites. The number of children participating in outreach programmes was 44,115, while the number of children under 16 in formal education groups was 117,946. In addition, the attendance of adults taking part in public programme activities was 129,025, and the number of overseas visitors was 1,271,875. The museum welcomes more than two million British and international visitors a year and is also a major centre for education and research. My onsite research revealed that, the majority of visitors to the High Arctic exhibition, described below, were loyal museum visitors, older than the visitors to the Museum of London. As the exhibition was in a new part of the building and was temporary, there were fewer tourists than British visitors. The audience also included a few families and younger visitors.

The High Arctic exhibition (HAe) was the first exhibition to be held in the museum's new Sammy Ofer Wing in July 2011. The contemporary museum exhibition was intended as a celebration of the new wing's opening, as the curator mentions in her personal blog¹¹. The large-scale digital installation was implemented in collaboration with United Visual Artists (UVA) and Cape Farewell, with the larger aim of enabling the museum to explore its new direction. The exhibition explores possible futures of the Arctic landscape through an immersive interactive installation intended to encourage questioning and understanding of 'our relationship with nature and the world around us' (High Arctic exhibition Press Release, 2011). The museum brought these two partners together to explore contemporary stories about the sea beyond the existing historical perspective on the subject, telling stories not only about the past but also about the present and the

¹¹ This information was also included in the internal museum scoping and briefs document regarding the High Arctic exhibition, which was provided to me by the museum.

¹² <http://www.rmg.co.uk/about/press/sammy-ofer-wing-press-pack>

¹³ <http://www.foeromeo.org/projects/high-arctic>

future. In doing so, it is concerned with how anthropogenic climate change is an on-going challenge – the biggest threat to humankind in the twenty-first century, its interdependence with the sea, the planet and people being unquestionable (Lewis & Boyce, 2009). Museums are increasingly positioned as playing a vital role in engaging with and communicating the complexities of climate change as a scientific, cultural, economic and social issue (Cameron & Neilson, 2015: 8). The recent edited collection *Climate Change and Museum Futures*, for example, considered the significance of collaborations between art practices and scientists beyond the didactic and traditional forms of museum approaches (Helyer & Lea, 2015; Cmielewski, 2015).

In this respect, Cape Farewell, an artist-led organisation that brings scientists, clean-tech entrepreneurs, sociologists and designers together aiming for a cultural shift in human understanding and behaviour towards climate change, was chosen as an appropriate partner for the National Maritime Museum's new exhibition. Cape Farewell brought together artists, scientists and communicators and sent them on an expedition to Svalbard, which lies between mainland Norway and the North Pole, in September 2010 to experience the west and north of the archipelago, with its beautiful and changing landscape. The expedition was designed as a forum for debate; to exchange opinions, practices and knowledge, thus inspiring engaging and interesting artworks. Cape Farewell has completed a number of similar works in this area with the Natural History Museum¹⁴, the Royal Academy of Arts¹⁵ and the Southbank Centre. The representation of environmental and climate change issues is difficult, sometimes critiqued for its inability to access pressing controversies and matters, specifically related to human and non-human environment interactions, reinforcing assumptions of human activity occurring in opposition to human inactivity (Potter, 2009).

UVA has a large portfolio of works using computer science, moving images, architecture,

¹⁴ The organisation is committed to engaging artists to participate in the cause of climate change with the belief that art metaphors and narratives can communicate the impact of climate change on a human scale to the wider public. See www.capefarewell.com

¹⁵ Art & Climate Change: originally co-produced by the Natural History Museum, now on worldwide tour and visited by more than 850,000 people in five years. (<http://artistsandclimatechange.com/>)

¹⁶ eARTH: Art of a Changing World at the Royal Academy of Arts (<http://www.capefarewell.com/art/past-exhibitions/earth-art-of-a-changing-world.html>)

communication design, engineering and fine art. Matt Clark, an artist from UVA, Nick Drake, a poet, and Max Eastley, a sound designer, went together on the 2010 expedition to Svalbard. During interviews between Nick Drake and a member of UVA, the 'importance' and 'uniqueness' of the experience was mentioned numerous times, expressing that it provided the artists with rich, personal and artistic inspiration. *'It was a great privilege to visit the Arctic. This poem grew out of that natural experience, and the conversations with scientists, artists and architects on board the Noorderlicht... The science is complex; the truth of what's happening isn't. But it is confronting, in all sorts of ways'*, writes Nick Drake in the preface of his book *The Farewell Glacier* (2012: 7), which was used in the exhibition. It was a portal of communication with scientists, nature and even polar bears, enveloped in spectacular landscapes of tundra and white ice falling from the glaciers. On their return, the team of artists worked together to create a response to their common and individual experiences for the audience of the National Maritime Museum, using elements of interactivity through interactive design, sound, lights and sculptural forms.

One of the most interesting parts of the exhibition includes its atmospheric, responsive environment, with no written information, touch-screens or photographs. The lack of text in a written form is significant, as it differs from commonly used forms of interactive exhibits that are often informative databases of collections, texts and images. The installation, purporting to be based in 2100 CE, shows a monument to the Arctic's past, going back in history to sense the changes caused by climate change. The exhibition occupies a whole gallery space and it is covered in darkness with blue-coloured lighting around the main exhibition space. Prior to their entrance to the actual exhibition, visitors can glimpse some factual informational panels on the background to the exhibition that contains a few photos and a map of where the expedition took place, as well as a video with Matt Clark describing the work. An ultraviolet light torch is provided to each visitor as a tool to navigate and interact with the installation. The artistic team's intent is to provide visitors with an empirical and personal journey. Going in, visitors start their journey by walking down a long corridor, unlocking hidden words, events and names on the wall, heading towards the main exhibition space. The light torch, as a hand 'extension', is used to reveal details and actions in the installation. Thousands of columns of various heights grouped together are 'islands' in the vast exhibition space (see Image

12).

Through the abstract landscape, where every column is a monument, each sculpture itself aims to give a sense of scale of the Arctic, unearthing its fragility over time (High Arctic exhibition Internal Brief, 2011). The exhibition included navigational and graphical elements, with natural sounds recorded in the Arctic constituting a soundscape, along with voices in the form of poetic expressions and digital floor projections. These include the following:

[REDACTED]

The soundscape, by Max Eastley and Henrik Ekeus, runs through the overall exhibition bringing the 'voice' of the Arctic along with the poetry of Nick Drake. Sound is an important dimension of the exhibition, exposing the visitors to a three-dimensional atmosphere that aims to make them feel absorbed and enveloped in the environment. Above are two extracts of the 'The Farewell Glacier' poem that was heard inside the exhibition, extracted from the printed book. Listening to the poems is one of the ways in which visitors are expected to make sense of the exhibition.

Large areas are used for the digital interactive floor projections (see Image 13). They provide a sense of a huge undercurrent of water and ice flowing through the space. The ice fragment is aware of the architecture, and collides and breaks against the columns. All

these components exist in action through the presence of the visitor. The sounds are subtly activated by the visitors' navigations; the undercurrent of ice and water also wait for the visitors to move them with their UV torches. The hidden sources of sound spread around in the environment, inside the glaciers, concealed from sight, and with each movement the quotes and poem fragments are activated and altered.

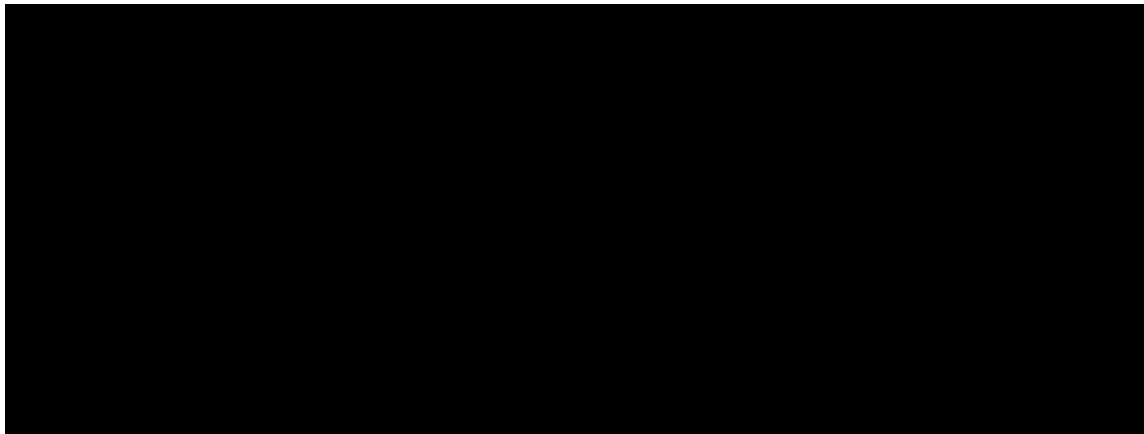


Image 10

Image 11

This is what the High Arctic installation looks like. The columns are shading names of glaciers existing and disappearing in the Svalbard region. When the visitor lights the torch to the top of each column, the name of the glacier appears. (Image 10 copyright: Irida Ntalla, Image 11 copyright NMM)

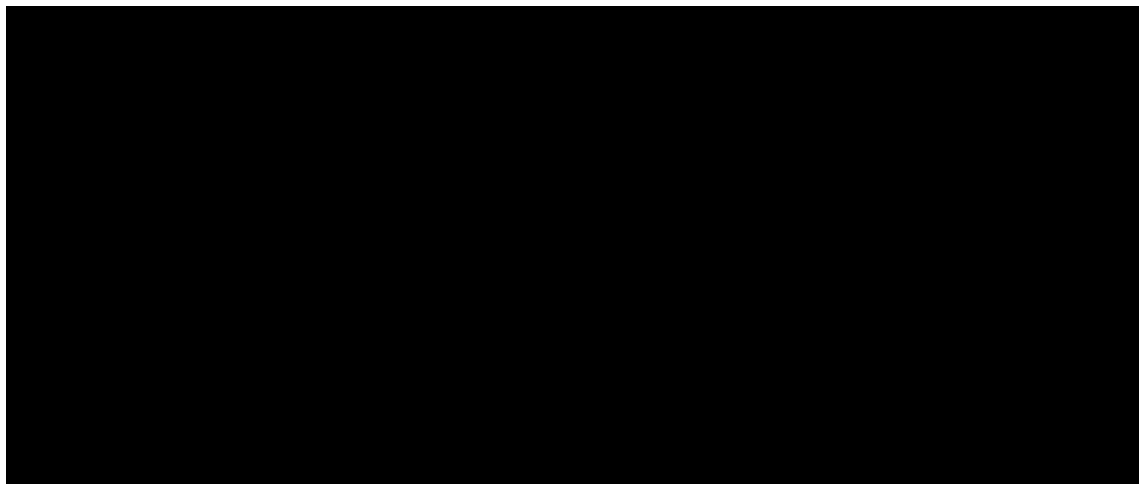


Image 12

Image 13

Young visitor use the torch to interact and affect the floor projections. In the specific projection (Image 13), with the movement of the visitors' hands, the white dots disappear. (Image copyright: Irida Ntalla)

1.3 Research Framework and Methodologies

In this research I have tried to assemble a study that brings theoretical accounts to dialogue with the empirical data. My query initiated as a process of understanding digital interactivity and 'the interactive experience' by focusing on these two different museum exhibitions. The interdependence of museums and media has for a number of academics been interpreted not only in regards to their content but also to dilemmas in regards to function, mediation, potential effectiveness, narrative, acts of representation, responsibility and role (Henning, 2006; Silverstone, 1988: 31). Museums are increasingly interpreted as media-like and 'experience-centred' (Chakrabarty, 2002; Hein, 2000: 67; Henning, 2006: 75), and in these spaces, styles and techniques of interactivity promise 'empowerment', 'accountability', 'participation' and 'an active self' (see Barry, 1998: 99; Hein, 1990). These practices have been extensively accepted, particularly in the museum field in the Western world, as a suitable approach to help democratise and engage with complex histories, breaking through the museal association of objects in the process of death and decay (Crimp, 1993: 14) and helping diversify and boost museum attendance. The complexity of the research subject meant that I decided the thesis should produce an extended theoretical analysis along with in-depth empirical research. This approach can contribute towards helping create a new body of knowledge, by revealing connections between institutional practices and histories, generating perspectives on and expressions of interactivity from the broad to the particular context, and considering internal and external processes in relation to audience encounters with such exhibits.

Taking into account the diversity of the topic of digital interactivity, and basing my analysis on the two specific examples that I introduced earlier, I identify and term two types of digital interactivity: *factual* and *poetic* interactivity. This distinction can be productive in apprehending and reflecting on different modes of interactivity. It indicates how digital interactivity is synthesized, theorised and perceived, as well as enabling a more precise analysis of trends and practices of interactive experiences in the museum space. The characteristics that I present in the table below are productively ambiguous; they should not be considered as dichotomies, polarisations or fixed entities. I will examine and unpack these complex relations in the following chapters through the empirical research and theoretical discussions.

Table 1: A table of comparison of factual and the poetic interactivity.

<i>Factual Interactivity</i>	<i>Poetic Interactivity</i>
Closed (menu-based / branch-tree interactivity)	Open (open possibilities, flexible)
Familiar interaction	Unexpected interaction
Pre-determined choices	Open possibilities
Visible technology (input device)	Invisible technology
Rational	Emotional
Data Material	Artistic expression
Learning	Feeling
Touch	Movement
Game	Play
Social experience	Solo experience
Fast	Slow
Personalised	Personal
Usability	Accessibility
Immediate	Immediate and distant
Busy/ noisy interaction	Silent / quiet interaction
Set in specific place	Spatial
Social interaction in multi-touch interfaces	Social interaction
Information experience	Sense experience
Clear purpose	Ambivalence
Projection / Touch-interfaces	Projections
Textual	Visual / Aural

I begin the cultural–theoretical analysis of the thesis, which is spread over several chapters, by providing a genealogy of digital interactivity in museums from the early times of its existence in ancient Greece to the present. In Chapter Two I discuss the museums in their different eras of existence in order to understand current tendencies and technological shifts in the ‘experiences’ that they produce. The impact of media, new media and therefore forms and techniques of interactivity have been profound on the infrastructures of society, culture and consciousness (see Hansen, 2010; Kittler, 1996; McLuhan, 1964). Chapter Three interrogates digital interactivity as a concept and practice, including definitions from disciplines such as information and communication, new media, design, media and cultural studies and museum studies. I argue that interactivity needs to be contextualised in order to be culturally analysed. The process of interactivity in this setting is not only related to the content and message of the exhibition or the technology itself, but to the social uses of technology, and the social construction of the events (Reading, 2003: 51).

Earlier visitor studies in museums often relied on behaviourist and positivist methods that overlooked the significance of audience ‘decoding’, and research in relation to visitors tended to focus on conducting surveys and collecting demographic details. For instance, statistical surveys from the 1830s demonstrate the gross visitor numbers and how these data correlate to the different days and times of the year, showing an increased attendance on Bank Holidays and Sundays (Esmel Pamies, 2009: 17). One of the first visitor studies, conducted in 1884, classified the visitors into categories of students, observers and loungers, and applied an inductive method to examine the human elements *in transitu* though the museum (Higgins 1884:185 in Hein, 1998: 42). Since the beginning of 1990s, visitor studies have emphasised making the museum accessible to the public alongside improving social access (McGuigan, 1996: 54). By the late twentieth century, as the visitor moved to the top of the museum’s list of priorities and responsibilities, the audience’s relationship with the museum became a crucial quality of concern (see Bennett, 1998; Dodd, 1998; Hooper-Greenhill, 1995; Witcomb, 2003).

More recently, museum visitors’ experiences are now more frequently discussed through ethnographic studies and more sophisticated research approaches have been adopted that regard the audience as an ‘active interpreter’ (Macdonald, 2006: 322). I argue that these

techniques need to be extended into understandings of interactive museum experiences. People also come to the museum with modern 'ways of seeing' (Henning, 2006: 105) and expectations influenced by broader socioeconomic tendencies and everyday living. Therefore, forms and applications of digital interactivity attract and produce certain kinds of audiences, carrying anticipations, ideologies and habitual practices. This is a reason why museum scholars have increasingly turned to embracing methods used by fields such as media and cultural studies, a process I engage with and help extend. The last section of Chapter Three discusses the concern over museum visitors and notions of audiences and users, arguing that museum studies still have much to learn from media studies and providing a base for my empirical research.

This thesis works to critically theorise interactive exhibits and exhibitions in relation to audiences' cognitive and sensory engagement and learning, as well as the conception and presumptions of interactivity and experiences in museum exhibition making. Only too often can research be preoccupied with practical aspects of implementations of such exhibitions, audience numeric attendance and engagement, and unquestioningly embracing the 'empowering', 'excellent', innovative' side of interactive technologies, whilst lacking critical perspectives. The forms and techniques of interactivity undoubtedly do add to the complexity of researching audiences' encounters; understanding the impact of the interactive media in this relationship as well as how visitors engage, produce meaning, learn, play and behave with these type of displays. While semiotic analysis engages with the often antithetical relationship between producer, display and receiver --how messages and narratives are constructed and communicated -- a more recent emphasis on sensual perception has led to a critique of privileging signs, discourse and language (Porcelo et al., 2010 quoted in Dicks, 2013: 663; discussed in Chapter Three). Visitors' physical actions when in a museum exhibition can be crucial in researching these encounters, and I incorporate analysis of these actions in my research. Ethnomethodology notes the significance of the immediate situation, gestures, bodily movements and social interaction around the exhibition in order to make sense of visitors' experience and meaning-making (Heath & vom Lehn, 2004).

The empirical research I conducted in the two museum exhibitions and the contexts of the exhibits are therefore investigated through ethnographic mixed methods. The on-site research was conducted at an early stage of the doctoral research. For me, that is

particularly significant as preliminary results and my own experience during the process advised and influenced to a great degree my thoughts in the quest to understand and critically engage with the meanings of interactivity in these two exhibitions. The days I was present, listening, observing and moving around the ‘happenings’ within the museum exhibitions were enlightening. The experience allowed me to apprehend in multisensory fashion the museum audiences’ very own descriptions of what the museum and interactivity in this context meant to them, and for their personal encounters to come forth during the research process. In this short period of intense ethnographic research *in situ*, being simultaneously an outsider (a visitor, an audience member) and an insider (a researcher, an advocate coming closer to the museum staff and therefore the museum’s procedures and processes), exposed interesting tensions in the relations between institutional and individual dynamics, the rhetoric and narratives of the two exhibitions, and physical and sensual encounters within the exhibition space, which I explain in various parts of the following three chapters.

As I have begun to indicate, cultural and media studies are interested primarily in the communicative capacity of the museum (Henning 2006: 1), and museum exhibitions are habitually problematised as ‘engaged in a complex process of meaning construction that involves the interdependence of producer, text and receiver’ (Silverstone, 1988: 232). Hence, in cultural studies, emphasis can often be placed on textual research, and fieldwork-based empirical research can at times be neglected and regarded with suspicion, mainly due to the field’s prominence in conceptualising and locating the topic of enquiry within a more general theoretical problem (Pickering, 2008: 3). From this perspective, cultural studies focuses primarily on culture as texts to be read, with one of its most graphic exceptions being the empirical work on audiences (Kovala, 2002: 2). This is not always the case in museum studies (e.g., Macdonald, 2006), but my aim is to bring these domains further together; an ethnographic and theoretical media and cultural studies informed my analysis of museum digital interactivity. The cultural and historical analysis of the next three chapters (Chapters Two, Three & Four) is significant in conceptualising the topic of enquiry.

Theoretical discussions within media studies as well as information and communication technologies commonly treat digital and multimedia interactivity in relation to its technological attributes. Media and communication studies tend to focus on its relevance

to cyberculture, often with no acknowledgement of the difficulties of defining interactivity (Reading, 2003: 73, Barry, 1998: 99). In the quest to analyse interactive museum experiences, the experiential tendency and museum attention to audiences, I argue that interdisciplinary cultural analysis with hands-on empirical ethnographic research into the two exhibitions is a unique and fruitful methodological approach.

Such methodology has connections to wider theoretical debates in cultural studies. Bella Dicks (2013) discusses communication, action and experience as the three methodological approaches for researching multisensory settings. Likewise, Michael Pickering (2008) recalls Angela McRobbie's 'three Es' (the empirical, the ethnographic and the experiential) enveloped within cultural studies research, allowing for a more evidence-sensitive, participant-oriented progress of the field. The adoption of practical methods in the research study, qualitative in-depth interviews and observation, analysing responses of visitors in regards to their engagement with such exhibits, capture patterns, behaviours and expressions of being within the gallery space: it puts audience interpretations in the frontline of the analysis. The extended involvement of the thesis with theory shapes conceptions, emphasising the problematic of social power and linking it to broader theoretical questions; whereas the generation and analysis of the empirical evidence inquires how meaning is pursued in everyday social contexts, and is related to phenomenological thought. The cultural analysis and empirical investigation complement each other in putting together diverse pieces of a complex puzzle and producing new knowledge in regards to the initial assumptions and the thesis' question.

1.3.1 The empirical study

The ethnographic empirical study used a mixed methods research design in order to capture primary data. Mixed methods emerged from social and behavioural sciences (Tashakkori & Teddlie, 2003: 697) and is associated with methods such as observations and interviews (Sieber, 1973), close and open-ended questions, and statistical and textual analysis. In the initial part of the empirical study and the research design, my intention was to capture and generate data on the thesis' topic of enquiry covering multiple perspectives and diversified sources. In the quest to understand the actions, experience and verbal responses of the visitors in the two exhibition spaces and the understanding of

museum professionals on the role and impact of interactivity in the practices, I explore these two examples in depth.

The main part of the study employed qualitative ethnographic research methods, but extracts of the interviews were also quantified; this is beneficial in cases such as capturing positive and negative responses, for instance. This approach is known as 'triangulation' (Denzin, 2006) and it is often argued to improve the quality of data (Mason, 2002). There are four different forms of such a method; the relevant one in this context was data triangulation, which combines data from different sources, theoretical, methodological and triangulation by investigators (Easterby-Smit, Thorpe, Lowe, 2004). The experiences of visitors in museum environments overlap between personal, social and physical contexts (Falk & Dierking, 1992), adding a number of important variables to be investigated throughout the empirical research. The present study investigates the prominent museum paradigms of interactivity influenced by ethnomethodological and interactionist research into museum work (Heath & vom Lehn, 2008).

The first research-on site at the Galleries of Modern London was implemented over the course of four days. I, along with my supervisor at that time, Jenny Kidd, completed the research design considering triangulation across the different interactive exhibits, sound recording, note taking, observation and semi-structured interviews. This approach attempted to apprehend and explain in a diverse and holistic way the complexity of human interactions and behaviour on the site by looking at it from more than one position (Cohen et al., 2011). The study involved looking into the situated ways in which audiences pursue meanings using the interactive displays and the sensory and social dimensions of their encounters. During the planning process, a number of parameters were considered, including the group/individuals dynamics in the space, the institutional interest in the study, and the tools for collecting data as well as further ethical considerations. A set of semi-structured questions was prepared, as presented in the introduction of the thesis. These questions allowed the interviewees to elaborate on the response accordingly, giving them the freedom to expand as they wished on the subject (see Introduction). I reflect further on this process and the relationship of the researcher with the object of study in the sections below.

'Being there as an observer is the first step' (Nightingale, 2008: 107). Observation, dependent on critical reflection, is a significant aspect of the research methods, as it allows the researcher to map out movements, interactions and relationships that occur when visitors move around an exhibition and engage with particular exhibits. A map of the exhibition was used to locate the exhibits most relevant to the particular study as part of the observation process, aiming to track the way that visitors navigate in the exhibition. While tracking their movements, I also noted aspects such as where they stopped, the social interaction between groups or lone visitors, the number of visiting groups when appropriate, how they approached the exhibits, and the time they spent with the exhibits. Likewise, during the days spent at the museum exhibitions, a number of recorders were placed discreetly near the exhibits in order to capture responses occurring during the visitors' engagement, particularly groups of children. Admittedly, it was difficult to gather consent forms from all the people who passed through these exhibits; a notice that informed the museum audience about the process was put in place (see Appendix, Table 7 for sample of consent form). The interviews, observations and sound recordings reflected a range of perceptions and helped to improve the integrity of the analysis. The fieldwork therefore analysed data taken from observation techniques, interviews with visitors, museum staff, designers and artists.

The experience of the first study was particularly advantageous for the completion and design of the on-site research of the second example, the High Arctic exhibition. A preliminary report and academic paper that derived as part of the pilot study provided me with the space to reflect on the methodological and collection techniques. While a similar structure of research design was utilised for the second research study, I had more confidence in certain processes being more successful because of this pilot. For instance, the data collected from the sound recordings of spontaneous interactions when visitors spent time at the exhibits was challenging to use and make sense of. The reason lay mainly in the level of incomprehensible noise on the recordings and the difficulty in extracting the clear purpose of conversations and interactions. It was certainly useful to hear and revisit,

¹⁷ Kidd, J., Ntalla, I., & Lyons, W. (2011). Multi-touch interfaces in museum spaces: reporting preliminary findings on the nature of interaction. In Proceedings of the International Conference Re-thinking Technology in Museums, Emerging Experiences, edited by Ciolfi, Luigina., Scott, Katherine and Barbieri, Sara, 5-13. Ireland: University of Limerick, 2011.

somewhat, the setting 'through' the recording, but the amount of useful data extracted was not substantial enough to contextualise. At the High Arctic exhibition, the space of the installation included a soundscape and a poetic narration that also made it impossible to use the same method. During the on-site research at the second exhibition I therefore used observation and interviewing as my main methods.

During the process of designing the research, a main consideration was to try to capture spontaneous (as much as that is possible in a research setting) interactions, gazes, gestures, bodily movements and discussions around the displays and physical co-participation with the exhibits without intruding in the visitors' experience. I was particularly inspired by sociological and interactionist traditions (e.g., Heath & vom Lehn, 2008) and ethnomethodology, (Garfinkel 1967: 1-2) which aims to move away from researching in hypothetical environments but rather to understand, produce and assemble 'the features of everyday life in actual settings'. Appropriately, phenomenology influenced Garfinkel's ethnomethodological approach, which adopts embodied activity and production of social interactions through lived experience, perceptual mental processes and knowledge. These everyday practices in the specific case are interpreted not by following user 'test' techniques – where the participants need to follow specific instructions in supporting the researchers' understanding – but by allowing them to engage in practices 'in their own right', with no explanation or rules provided. Ethnomethodology can therefore make it possible to analyse how audiences show behaviours without the intrusiveness of the researcher's observation.

Following on from Garfinkel, vom Lehn and Heath (2006) analysed the use of video through the perspective of ethnomethodology, as a means of understanding and analysing social practices. Other researchers such as Bella Dicks (2013) have also integrated similar methodological approaches, utilising video recordings, for instance, when exploring children's social and sensory engagement with interactive displays in science centres. These studies¹⁸ showcase the importance of using video data and reveal how such a

¹⁸The analysis of video data previously focused primarily on interaction and collaboration in the workplace (Heath & Luff, 2000; Luff, Hindmarsh & Heath, 2000); now it has begun to explore conduct and interaction in public places, auctions and museums (Heath & Luff, 2007; Llewellyn & Burrow, 2008; Hemmings et al., 2000; Vom Lehn, Heath & Hindmarsh, 2001).

framework can support the 'social and sequential organisation of people's vocal, bodily and material action' (vom Lehn & Heath, 2005). The video data could allow the audience in this specific research to move in the space with no interruption or forced movement; the key element of being able to replay the video permits the researcher to look in detail at the movement of the audience within the space. However, there are limitations in this practice, as the focus lies on the physical and communicative actions of the visitors, lacking interest in the embodied sensations that are not audible and visible (Dicks, 2013: 666).

The possibility of using video and audio data as well as extracting information from the technological pieces themselves was considered in both examples examined, but it depended also on museum policies and allowance. At the site of the first case study, the Museum of London, a detailed plan was provided for the proposed use of video recording, which included the different angles and positioning of the camera and technical details of the set-up. The plan considered the privacy of the visitors, so that the layout and set-up was completed in such a way that details of faces would not appear on the recordings. As the museum had ethical concerns, mainly involving visitors' privacy, we did not carry out this practice. In this case, the element of video data observation was replaced by traditional observation techniques such as audio recordings, as discussed earlier in this section. This data is held with clear understanding of ethical concerns.

With the second case study of the High Arctic exhibition at the National Maritime Museum, after a discussion on methodology with the museum management, we came to an agreement to use video recording in some parts of the exhibition. The museum allowed the use of the video data, partly because the lack of light in specific spots of the exhibition meant that visitors' faces couldn't be seen. Nevertheless, despite this agreement, much communication and requests, the museum never provided me with the agreed video material. This specific method of data collection would certainly provide interesting material to analyse, especially due to the ability to go back and forth to observe the interactions of the visitors with the exhibits, the interfaces, their peers and other visitors. This technique would also be useful for exploring the technical aspects of the navigation system and the usability of the interactive exhibit. Instead, in this empirical

study, I utilised observation and note-taking methods that provided a relatively similar type of data.

1.3.2 Research ethics

As already indicated above, this empirical study carries a number of ethical considerations, as the researcher is both interacting with members of the public within the museum and alongside museum professionals. The research carried out also follows the guidelines and the Research Ethics Code of Practice of City University London and gained the approval of its committee. The interviewees were selected randomly during the on-site research from the visitors to each museum exhibition. The visitors participated in the interviews by choice, after being briefed on the research aims and objectives and the interview process.

Groups of schoolchildren and young people were not interviewed. By taking this line, ethical risks are minimised, as the sample consists of visitors to the exhibitions who were able to self-assess their ability to participate in the interview process. The doctrine of 'valid consent' was therefore in operation here. The participants entered the research freely once they understood what they were agreeing to take part in. They were also informed that they could withdraw at any time (see Appendix, Table 7).

As the study took place within two museum spaces, health and safety issues were covered under the umbrella of both museums' policies. This secured the safety of the visitors on the site, including the staff, who were in charge of the smooth running of the galleries during opening hours, and all the activities that were being conducted by freelancers, external researchers or volunteers. Likewise, the museums carried out risk assessments for all its spaces and activities to ensure the visit was safe for everyone.

1.4 Data Collection

The data collection of the empirical study was completed in two separate periods of fieldwork, in the two museum exhibitions. Primary and secondary data was gathered through semi-structured interviews and observations of visitors (mainly groups and a few individuals) visiting the museum and engaging with the interactive exhibits and exhibition and semi-structured interviews with museum professionals, artists and

collaborators. Secondary data material was collected in the form of museum websites, marketing material and Annual Reports. Additionally, reviewing of existing data, literature and publications related to the exhibitions was part of my data collection.

1.4.1 The sample

Audience. 114 participants were interviewed in the study: 54 visitors (48%) to the Museum of London and 60 visitors (52%) to the National Maritime Museum (see Figure 1). They were all adults, coming from England and other countries, including USA, Singapore, France, Italy and Croatia.

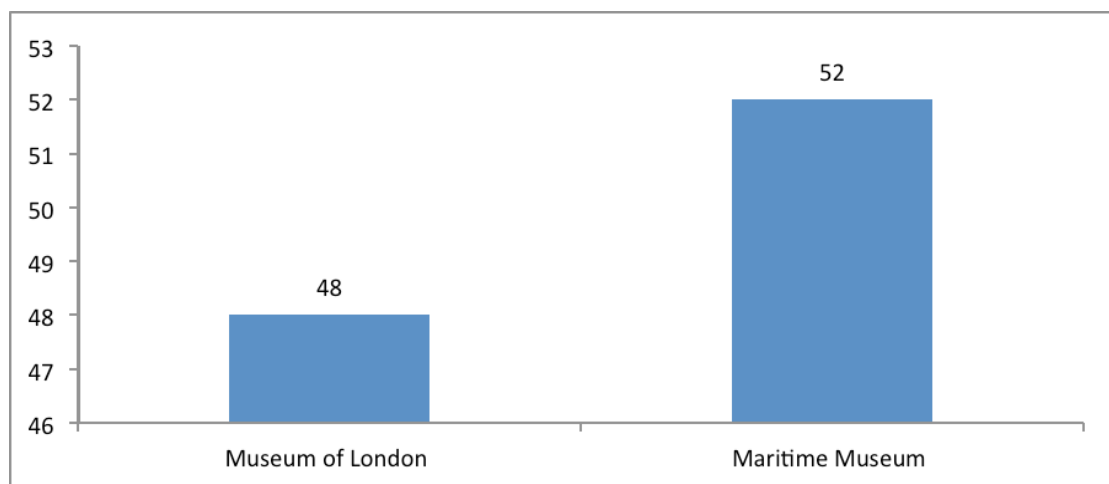


Figure 1. The percentage of participants according to the museums.

Museum professionals, artists and collaborators. Six members of the exhibitions' teams were interviewed, three from the Museum of London and three from the National Maritime Museum. For the National Maritime Museum, the interviewing process included the creative director of United Visual Artists, who commissioned the artistic group for the High Arctic exhibition, the poet Nick Drake, and a member of Cape Farewell, collaborators on the development of the exhibition. At the Galleries of Modern London at the Museum of London, I interviewed the Director of collections, the Director of learning and the exhibition designer, who together constituted the project team.

1.4.2 Interviews

Interviewing is a key method of qualitative research (Platt, 2002) that is particularly relevant when the research relates to people's motivations and opinions (Keats, 2000). In this empirical study, the aim was to capture the spontaneous encounters of the audience with the interactive aspects of the exhibitions, and analyse the meanings produced through these interactions. The research participants were viewed as active producers of meanings; able to influence the events they are part of, rather than just consuming culture. In that respect, interviews offered a productive platform to study the processes of meaning-making. This shared ground on the significance of meaning brings an affinity between qualitative methods and cultural studies (Myer, 2008: 70). There were not a fixed number of interviews to be achieved; instead, interviews were carried out until there was enough material to interrogate and explore the range of questions.

The interview questions were exploratory and semi-structured, taking into account issues raised from an initial literature review on the dominant paradigm of interactivity in museum practices, the functions of such forms and techniques from the audience's point of view, aesthetic dimensions, sensory and physical engagement, meaning-making, tension between learning and entertainment. Data collected from the interviews focused on understanding the audience's verbal and physical expressions in relation to physical and conceptual dimensions of their experience with interactive museum exhibits. Initially, questions on digital interfaces, social interaction, sensory and emotional engagement were explored. Learning and discovery were also part of the question themes, as well as possible connections with the purpose of the overall museum, the exhibition narratives or other exhibits in the museum. The audience was also asked to recall activity and discussions referring to bodily movements, in relation to usability, users' experience, and familiarity with technology and content. The word 'interactivity' and the audiences' opinion of it were only used at the end point of the interview in order to avoid influencing their responses.

The study followed a semi-structured interviewing style, where the same set of questions was asked to all visitors in the same order, yet it allowed adaptability to the questions' positions according to the respondents' answers (see Appendix, Table 2 & 3). A flexible and open-ended interview approach has been beneficial to this study as the interviewees

could express their views and positions relatively freely and add unexpected points to the overall discussion. However, it is important to note that in both exhibitions, a detailed research design was put in place, which included a structure and schedule of the day in relation to the interview process and observations. That was very helpful for me as it allowed me to feel confident and familiar with the research questions and my position in the exhibition space as a researcher and an observer.

The time of the interviews differed, but each of them lasted around 20–30 minutes with the visitors and up to an hour with the professionals. At the end of the individual interviews, whenever possible, and at the end of each day of fieldwork, I concluded with some reflective notes. The interviews were recorded and transcribed. I found it important to record the exact words and not to rely on note taking, therefore allowing the ‘raw’ material to be revisited. This process of revisiting the recorded and transcribed material gave me an additional opportunity to reflect on the collected data. During the interviewing process, some visuals from the exhibits were shown in order to remind the visitors of the specific exhibits that each question focused on. The interviewees were informed at the ticket desk or with signs around the gallery about the study and were approached by me as discussed below.

Audience. The on-site research at the Museum of London happened over the course of four days. 54 visitors were interviewed in groups rather than individually due to my interest in exploring the exhibition’s dimensions of social interaction. The Galleries of Modern London are a particularly busy environment with visitors from all over the world, as the museum is a popular tourist destination. During the on-site research, specific places were set near the end of the ‘exhibition route’, where interviews could be conducted; these were quieter places with space to sit down. During the observation, groups of visitors that engaged with interactive exhibits were identified, and once they reached the specific point in the exhibition near to its exit, they were asked to participate in the interview process. Responses were mostly positive, but there were also a number of visitors who declined to take part. A number of interviewees were tourists with English being their second language. This was not a major issue due to the sufficient number of participants impacting on the findings, but in a few interviews communication was not easy, as the visitors had difficulties in understanding the questions, which led to rather simplistic

answers. Another point that I noted in the two exhibition spaces, the Galleries of Modern London and the High Arctic exhibition, was that visitors could be overly 'kind' in their responses, saying what they think the researcher would like to hear. The open-ended nature of the interviews was advantageous in that respect, as it provided space to move beyond unquestioning, approving comments towards more analytical views.

My on-site research at the High Arctic exhibition lasted three days, when 60 visitors were interviewed. The physical arrangement of the space made it easier to approach visitors and ask their permission to be interviewed, as there was a separate entry and exit route. Furthermore, as the exhibition was held in a separate gallery space, it was less hectic, which made visitors more approachable and less distracted by other visitors or happenings around them. Therefore, they were more open to agreeing to participate in the research and spending time with the interviewer, which led to notably longer interviews in comparison those at the Galleries of Modern London. Additionally, the fact that this was the second case that I was researching meant I had gained experience and familiarity with the process and communication with the research participants, allowing the interviewing dynamics to be more fluid and smooth. The visitors to the second exhibition had purposely come and paid for a ticket to see the specific installation, therefore, they usually had greater expectations and/or knowledge of the subject matter or what to expect, a factor that made their points of view firmer. It also meant the discussions were more focused and, due to the different nature of the exhibition in what may have been expected, the audience was excited and passionate to talk about it and share their experiences.

Museum professionals, artists and collaborators. Three members of the exhibition teams from each example responsible for the exhibition decision-making, management, design and implementation were asked to participate in semi-structured interviews. My focal point, particularly in the initial part of the research planning, was on the audience's perspectives and 'stories' of them experiencing the interactive museum exhibits. Nevertheless, interviewing the production team, who were involved in the different stages of the museum exhibitions' implementation, gave me numerous insights into the role and implementation of such practices in a museum setting. It also indicated the changing in relationships between museums and visitors, museum professions and

management, and the contradictions and difficulties that the interactive and experiential aspects of the museum bring to museum tradition and processes. My interview questions for staff had some similarities with the participants' interviewing scripts (see Appendix, Table 4 & 5), but focus was given to certain aspects relevant to the specific role of the individuals, and the interviewees were asked to elaborate further on certain elements.

The interview began with an introduction to my research aims and objectives, the interview process and requirement, an explanation of the consent form, and gave the interviewee the option to withdraw at any time during the interview. The first three questions were more generic, allowing the interviewee to describe their role in the museum or in the exhibition, to give their views on the use and techniques of interactivity within the museum exhibitions and galleries, and to elaborate on these points specifically within their personal experience and professional field.

Next, respondents were asked to discuss the specific exhibits/exhibitions. The questions explored processes of narrative creation throughout the galleries, the selection of information/content, and the use of new media and visual approaches in the exhibition design. The succeeding set of four questions related directly to their views on the relationship between visitors and museums and their expectations of one another. What were the museum's views on the visitors' experience when interacting with the specific exhibits? Were the visitors provided with further relevant research material, and what were the expected learning and general outcomes? The last set of questions aimed to grasp the personal understanding and experience of the respondents towards interactive exhibits and interactivity within these museums and galleries, and find out what makes a 'good' exhibit/exhibition according to their subjective and professional views. Last, the interviewees were given the space to add any further comments if they wished.

In the Galleries of Modern London, I interviewed three core members of the team who created the exhibition: Cathy Ross, Director of Collections & Learning; Frazer Swift, Head of Learning, and Gail Symington, Exhibition Designer of the museum. The interviews took place at the offices of the interviewees in July 2011. Their responses to the request to participate in the research study were supportive and helpful in terms of accommodating the interview process. At the High Arctic exhibition, the arrangement of interviewing the exhibition-making team was more complex, as apart from the digital

manager, who was part of the NMM staff, the other members of the team who had contributed to the development of the exhibition were external, commissioned artists and collaborators. The exhibition manager, Fiona Romeo, was also informally interviewed and provided me with the contact details of the core members who contributed to the different parts of the exhibition. I interviewed the member of the United Visual Artists (UVA) team, Judith Hornman, the poet Nick Drake and a producer/director of Cape Farewell, Natasha Freeman. The museum acted as a commissioner and a place to host this temporary interactive exhibition. This indicates a shift of dynamics, where the power and influence of the exhibition's narrative and display does not belong solely to the museum team. Therefore, I was keen to get an understanding of the external team's views and processes in regards to these practices in a museum setting. All interviews took place in November 2011.

1.4.3 Observation

Fieldwork involves different ways of capturing the ephemeral nature of communication and interactions, words and gestures, transforming it into analysable forms (Nightingale, 2008: 105). During the time spent at the museum exhibitions, I took notes and photographs in order to analyse the movements of the audience around the exhibition, their relevance to the set 'exhibition route', and verbal and physical actions and reactions of the visitors with the exhibits and/or other visitors in the space. Keeping a record of impressions and feelings while being in the museum is significant for examining the social, cultural and spatial interactions that occur. Observation is an established method when studying museums as it allows consideration of the physical space within the museum, the nature of the exhibits and the behaviour of the visitors (Goulding, 2000).

In this study I also focused on groups of museum visitors as a means to apprehend and extract elements of social interaction within these groups. I had a limited role to play in the setting and was conscious of not disturbing the participants, or making my presence too invasive. In order to make the observation process more efficient, notes were taken on predesigned sheets that contained areas to fill in relevant to the research questions (see Appendix, Table 6). Having some structure on paper allowed me to focus on certain areas of interest while observing. In addition, a map of the area was sketched on the back of the

observation sheet so a route of the visitors in the gallery space could be tracked. The data extracted from this method aided the discussion and analysis, particularly in regards to the amount of time visitors spent in the interactive exhibits/exhibition and how they initially approached and interacted with the exhibits/exhibition, taking into account body language, gestures and expressions, and aspects of social interaction.

1.4.4 Secondary sources

The qualitative approach to the research study also includes data from secondary research material such as museum reports, image analysis, online discussion and websites, which play a supporting role to the interviews and observation methods. Museum reports are a particularly useful source of rich data on museum attendance, strategies in regards to the embracing of digital technologies, and audience development, most often related to specific audiences and serving a particular purpose, therefore carrying a potential for bias (Bryman & Bell, 2007). The websites of both museums and their social media presence were also considered, as a tool aiming to build a relationship between the museum and wider publics. My extensive use of theoretical sources was also combined with the secondary data.

1.4.5 Empirical data analysis

Depending on the basic theoretical approach, many methods of data analysis can be used and assisted by simultaneous flows of activity: data reduction, data display, and conclusion verification (Miles & Huberman, 1994). Initially, my interviews were taped and fully transcribed. In the process of transcription, an initial analysis was conducted by collecting preliminary results that supported the further development of coding. This stage involved the descriptive codes of the data material (Flick, 2002) based on the aims of the research and questions and the key findings from the thesis' literature. Following that, the data was sorted, ordered and compared. The data was revisited, re-examined and re-evaluated several times throughout the progress of the analysis. The final detailed findings and analysis are discussed at length in Chapter Five.

As mentioned, a computer-assisted analytical tool was used in my research apart from traditional thematisation and coding. There are advantages and disadvantages in the use of such tools. On the positive side, the features of the software enable working in detail with a large amount of qualitative data, to code multiple categories, to construct searchable categories, memos and annotations. Further, it can provide a platform to complexify the data and code structures, through lexicological analysis, for example. However, there are arguments that working with the data in that manner can neglect the contextual analysis of the material or affect the flow of the narrative (Easterby-Smith et al., 2002). In this study, I initially engaged with traditional qualitative analysis and used NVivo 7.0 software, produced by QSR, in order to add diverse layers of interpretation to the empirical data.

NVivo is a qualitative data analysis software package used to organise and analyse interviews, field notes, textual sources, and other types of qualitative data including image, audio and video files. This software proved to be adequate for analysing responses to open questions and, in particular, to reduce the complexity of the raw textual data (Walsh, 2003: 253), to extract the most relevant information, and to provide a synthetic representation of the semantic structure conveyed by the text. The interview transcripts and notes of the two examples were imported into the software as well as an existing number of codes that was established through the traditional data analysis. The themes are discussed in Chapter Five, while relevant graphs and visualisations extracted from the NVivo-based analysis are integrated in the Appendix. The observations were initially coded in an Excel document, following the categories given in the starting point of the research. The field notes were ordered into categories, including the number of people in the group observed, the time the group spent using the interactive exhibit or inside the exhibition, the type of interaction and the way of approaching the exhibits/exhibition. However, I seek to redress the potential limitations of such an approach through my extensive theoretical contextualization in Chapters Two, Three and Four.

1.5 Conclusion

Qualitative research holds limitations, as does any research practice. This involves its descriptive and subjective nature. In this chapter, I have discussed how my choice of

methodology and methods intends to challenge limitations and be as transparent as possible. Limitations are also reflected in a few practical choices of methods. The chapter's intent has been to illustrate the positioning of the researcher in relation to the research questions, the argument of the thesis and the angle from which the topic of enquiry is approached and examined. The beginning of the chapter discussed the research philosophy and methodology deployed in the study. The investigation of visitor activity within museum exhibitions involves numerous variables, and this section has discussed the way the thesis combines extended cultural analysis with empirical research study in these two museum exhibitions. My detailed description of the two examples where the on-site ethnographic research took place (see Section 1.2) has prepared the ground for the analysis of the empirical data in Chapter Five. The discussion of the thesis' research framework includes the mixed methods research design, integrated qualitative ethnographic method, the ethical considerations and the data collection methods. The data generated in the empirical research study is intended to investigate the research questions presented in the introduction, which are explored and analysed through the extended cultural analysis and empirical data in the following chapters.

CHAPTER 2

The Museum in Motion

*We live today in a profoundly museological world –
a world that in no small measure is itself a product and effect
of some two centuries of museological mediations'*

Presiozi, 1996: 72

2.1 Introduction

This chapter begins by tracing a history of the museum's meaning, identity and existence with a concluding focus on the themes of digital interactivity and cultural change. The presence of the museum from the mouseion of the Muses until the current day indicates the significance of its practices and the relevance of its influence to each era of its existence. For interdisciplinary research in the fields of museology and museum studies, media and new media studies, cultural studies and the cultural policies perspectives, the force of the museum as a process remains historically and culturally contingent. It is suggested that the museum is 'in effect a palimpsest': as one unfolds layers of its existence, traces of earlier institutions, hierarchies of values, ideologies and aesthetics appear (Carbonell, 2006: 2). As this research investigates current practices focusing on the technologically and digitally interactive experiences that the museum produces through examples taken from two major museums in London, one could wonder about the reason for travelling back in time. The literature that looks into the museum's identity emphasises few points that are strongly relevant to this work. Specific questions are raised in this study around the meaning and usage of the buzzword of digital interactivity, which is often closely related to its relationship with the public, notions of meaning-making, engagement and being audience-focused. Besides that, a prominent issue relates to the museum's ability to change, and perhaps to question and to critique its role as an authoritative pedagogical apparatus through its embrace of these phenomena. This chapter therefore considers: how do changes in what the museum does and its overall existence take place, and what are the motives and drivers for that change? How do museums embrace current socioeconomic and cultural trends and how has that affected the way in which the museum acts today?

On the question of why one should investigate the museum's work and practices, looking at the historical trajectory, it is notable that the museum is and has been a dominant feature of our cultural landscape, as Presiozi (2004) has argued, framing the more 'basic assumptions about the past and about ourselves' (Marstine, 2005: 1). Janet Marstine (2005:1) agrees that 'to grasp the complexity of the moment and to decide yourself whether the museum has the potential for substantive change, it is crucial to look back into its history'. The historical paths of the museum's existence indicate the significance of its presence in our society by reflecting the stories and histories of all times, affecting our understanding of past, present and future. The museum is certainly influenced by earlier institutions but its history is non-linear, impacted by constant tensions arising from different socioeconomic and cultural eras.

Museums shape knowledge, holding power that can influence our identities argues Hooper-Greenhill (1992). Foucault's emphasis on discontinuity and difference in history and his notion of 'effective history' has been influential for the author to analyse, understand and evaluate why the museum is as it is now by investigating the ways it has been in the past; calling for a 'history that must abandon its absolutes, instead of attempting to find generalizations and unities, should look for differences, for change, and rupture'; perhaps then possibilities of radical change can arise (Hooper-Greenhill, 1992: 10). This statement on change in the sense of historical continuity and memory occurs with complexities in museum practices. Museums and their objects have a place in the centre of our world argues Presiozi (2006: 82), and they have always been catalysts for our desires as individuals and citizen-subjects (2006: 83). Particularly as institutions of the nineteenth century, they were expected to enhance national identity and 'served to organise new types of social cohesion' (Bennett, 1999), something that is often portrayed as a museum of modernity, the public museum, as opposed to the museum of the era of postmodernism, which arguably embraces interactivity, participation, multiplicity and fragmented histories and allows uncertainties to occur. Social changes from the 1970s led to the appellation of post-modernism, a desired escape from the universal 'totalising' of modernity (Harvey, 1990). Of course, the reaction to modernity, an era that carries ideals of Enlightenment, post-war tensions and immense developments in technical and social conditions of communication is imposed upon a complex history. Later in the chapter (see

Section 2.2 & 2.3), I will discuss in more details how modern and postmodern beliefs impact the museum, its practices, the construction of meaning and its relationship with the audience.

The museum's role as a safe and glamorous cabinet for distanced objects, unquestioning of a colonial past and documenting the success of the West, has now for a long time been understood as problematic and one-sided. Instead, it is now widely accepted in academia that attention should be given to the various contexts associated with and shaping museums' collections and artefacts. The research revisits the museum's non-linear history to examine the communication of its subjective character, the questioning of the idea of the death of one grand narrative and the condition of knowledge (Lyotard, 1984: 4) that requires critical thinking in its practices by professionals and theorists as well as museum visitors and audiences. For the shift from a focus on the objects towards experiences, stories and processes of the meaning-making and showing (Henning, 2006: 3-4) to become critical, a challenge to the dominant historiography and an engagement with multiple histories is crucial.

The intent of this part of the thesis is to understand the conditions by which the museum has historically shaped the public, the visitor and their experience and the circumstances that gave rise to and sustained the museum as an idea of reaffirming universal principles (Steyn, 2006); a treasure house of material and spiritual wealth; and a sociocultural institution (Duncan & Wallach, 2004) for the creation of beliefs and consciousness. I initiate the discussion with an investigation of the values and beliefs that the museum has communicated over different times related to cultural-historical conditions. Museums, their collections and narratives have been constructing identities and nations for centuries, regardless of the number of people visiting and reviewing these collections. Unraveling the meaning of the museum from Ancient Greece to now allows us to question the idea of there being one grand narrative, the 'authentic' object. The museum in the era of postmodernity and the current era, it has been argued, has moved away from its authoritative position to become a museum of many, small, personal narratives, attracting a more diverse and wider audience who are arguably engaging, participating and influencing museum exhibitions. The High Arctic exhibition at the National Maritime Museum London provides us with a museum narrative on climate change in

which the objects are not the focal point but rather the atmosphere is; the voices and the poems play the significant role in communicating the stories and the feelings. Dealing not only with past artefacts and 'dead' objects but also with on-going, even living, histories, these 'universal' institutions of knowledge production are intervening in subjective domains through affective and ambient techniques.

This chapter seeks to explore the relations and influences that have led to the ideas that we carry about the museum today: the visitor-friendly museum, the educational face of the institution, the embracing of notions of engagement, experience and interactivity influenced by the two particular examples and literature from diverse disciplines. In the thesis, I argue that museum professionals and arts and humanities scholars have an ethical responsibility to understand and analyse the core experiences arising from the forms and techniques of digital interactivity and interactive practices through technologically mediated environments.

2.2 The Forerunners of the Museum

The museum both commonly and institutionally is understood as an establishment that collects, preserves, presents or uses cultural property for the public, directed by professional staff who are driven by the mission to explain culture, history and the arts and to encourage love and appreciation, working according to considered standards and procedures (Gordon, 2010: 1). Such an institution offers an important source of knowledge for citizens, as it encapsulates and showcases primary historical and scientific evidence from the disciplines of natural sciences, archaeology, culture and the arts (Lewis, 2004: 1). Some thinkers consider the history of the museum to be linear and evolutionary in terms of its functions. Along with libraries, botanical and zoological gardens and research laboratories, museums are still in the business of keeping and sorting the products of humankind and nature and promoting the understanding of their significance (Impey & Macgregor, 1985: 1). It is argued that the functions of keeping and sorting have remained consistent, but that the context and the meanings in which these operations have taken place have varied in different historical periods (Gordon, 2010: 2). For instance, the emergence of the museum is related to collection-based practices that occurred in remote antiquity. In all the pre-Alexandrian civilisations – Mesopotamia (ca.

3350 BCE–ca. 612 BCE) (Lewis, 2004: 1), Egypt (ca. 3100 BCE through the foundation of Alexandria, 331 BCE) (Foster, 2005: 1023), Mycenae (ca. 1600 BCE–ca. 1100 BCE) (Driessen, 2000: 22–24) and Ancient Greece of the Archaic period (800–500 BCE) (Staikos, 2004) – documents, objects and artefacts were collected and organised with regard to their practical and educational use.

During the classical age, the museum (in Greek: *mouseion* (μουσεῖον)) signified a temple dedicated to the Muses (*mousa*: αι μουσαι, *hai moĩsai*¹⁹), a sacred space of knowledge defined by its special relation to them, who collectively inspired the human mind, spirit and soul to dance, sing, speak and compose works of myths and reasons. The Muses were daughters of Mnemosyne, the prosopopoeia of memory; therefore, the Greek *mouseion* contains not only meanings deriving from the Muses' inspiration, but also relating closely to collective memory. Mnemosyne's role was to tell the mortals stories and to help them remember the past. The temples were places of learning and insights into the cultural means of past societies, as well as places of offerings. Offerings were stores of treasures²⁰ acting as displays of power and influence (Gordon, 2010: 2).

The most famous 'prototypal' museum (Hein, 2000: 5) of the Classical age, the museum of Alexandria, was part of a colossal library. It included statues of influential leaders and thinkers, medical and scientific devices, and zoological and botanical gardens (Alexander, 1979: 6). The library was in its organic terms referred to as a university, and for 200 years it was claimed to be the most important centre of learning in the Western world (Meskens, 2010). Alexander the Great housed his museum within a city, belonging to the city, and in turn owned by the outer world. We could develop a discussion that the museum was an expression of cultural policy in the true sense of the word (El-Abbadi, 2004). Euclid, Archimedes, Eratosthenes and other well-known scholars of the Classical period made use of the library for dissection and scientific studies (Alexander, 1979: 7). In general, the museum in Alexandria housed a scholarly community exhibiting a decidedly post-Aristotelian epistemological approach, with the diligent collection of phenomena being followed by reasoning to a conclusion. The identity of the museum was linked to

¹⁹ The term derives from the Indo-European root *men-*, which is also the source of the Greek word *Mnemosyne* and the English words 'mind', 'mental' and 'memory' (Wikipedia, 2010).

²⁰ Greek: θησαυροί/*thesauroi*

knowledge and scholarship as well as being a space in which beautiful objects were gathered together to inspire the public who had access to it. The complexity, fragility, beauty, as well as the determinacy of this 'prototypal' museum, argues the importance of culture and its relation to episteme. Episteme, following its etymological meaning of knowledge or science, as well as the Foucaultian understanding of the concept as the 'apparatus' – as processes that interfere with the production of scientific knowledge at any given moment, is the epistemological field that defines the conditions of possibility of all knowledge (Foucault, 1987). Knowledge, Foucault (1969) argues, depends on the social, historical and political conditions where statements count as true or false.

Affiliated with the concept of the museum is the *pinacotheca*²¹, the first of which was constructed in 437–432 BCE as a space to house significant paintings in the Acropolis in Athens, usually on planks honoring the gods and Muses. The paintings were ordered above a marble dado, lit by two windows from the south and protected by shutters (Alexander, 1979: 7). Pinacothecas were also known in the Roman period, and the paintings and sculptures would usually be placed in public places such as public gardens, temples, theatres and baths. The collections in these spaces incorporated artefacts, artworks, and natural and exotic physical objects brought together from different parts of the empire (Lewis, 2004: 1). This version of the museum shares some features similar to the later status of the museum as a space staging objects of wonder and admiration available to public view²². During the Renaissance (1300–1600), the museum concept was expressed through the terms 'antiquarian', 'gallery'²³, 'cabinet'²⁴ and 'Wunderkammer'²⁵ (Alexander, 1995: 7; Sider, 2005: 117). During the same period, scientific collections began to appear in universities in Pisa (1543), Padua (1545), Bologna (1567), Leiden (1587), Heidelberg and Montpellier (1593) and Oxford (1620) (Alexander, 1995). Antiquities and

²¹ From the Latin *pinacotheca*, the word derives from Greek: πίναξ +θήκη depository of tables or tablets.

²² For example, General Marcus Agrippa (63 BCE–12 BCE) encouraged wealthy people to share statues and pictures with the public (Gordon, 2010: 2).

²³ The term derives from the Latin *galleria*, a place for a collection of pictures and sculpture.

²⁴ The term derives from the Latin *cabinetto*: a square-shaped room filled with animals, botanical rarities, small works of art, artefacts and curios.

²⁵ The term derives from the German: cabinets of curiosity.

natural objects 'collections were subject to an intensive inquiry driven by the aim to apprehend understand the wonders of nature and culture and gain universal knowledge in ways that harkened back to Aristotelian natural philosophy' (Findlen, 1994: 49).

The Medici Villa (1574), which included a private collection of sculptures in the gallery (Sider, 2005: 117), is considered the 'nodal point' in the history of the development of museums (Hooper-Greenhill, 1992: 70), as being like the museum we know and experience in our times. It enveloped a 'general epistemic field', articulating different aspects such as private domestic space, material things, wealth, patronage, mercantilism, a sense of the past, and the supernatural (Hooper-Greenhill, 1992: 23). At that time, it is also acknowledged that there was a shift in collecting practices. The older practices used by medieval princes to hoard treasures were overtaken by newer ones where the focus was on collecting classical artefacts such as sculptures and manuscripts; this reflected collectors' progressive interest in the philosophy of ancient Greece and Rome. Still, the shift in preference reflected the demand for those artefacts from wealthy individuals. The word *musaeum* entered the English language in 1656 with the collection of 'John Tradescant's Musaeum Tradescantianum', which later became the Ashmolean Museum in Oxford (Alexander, 2008: 5). The Tradescant collection included rare and curious specimens brought back from travels, which were organised for teaching purposes (Hudson, 1987: 21). The significance here lies in the recognition that the collections and items from journeys and travels had evolved from objects of curiosity into artefacts of science. The credibility of curiosity collections in the eighteenth century was in decline, and this type of material evidence was related to superficiality, unintelligibility, and a form of amusement and popular entertainment (Henning, 2006: 21-25). The new kinds of collections participated in the new geographical sensibilities of the Renaissance and the organisation of knowledge at home (Findlen, 1994: 49).

The Renaissance museum was a 'world at home'; 'a resilient edifice for housing knowledge' that drew upon 'conventions about the possession of knowledge and the housing of family treasures and secrets that had been in play for at least two centuries prior to its emergence' (Findlen, 1994: 49). These private places of wonder were available to 'qualified' visitors, such as royal family members, wealthy merchants and clerics, and they contributed to the rapid growth of banking and trading activities. The collections

constructed symbols of social status, along with the glory and success of a family (Hooper-Greenhill, 1992: 24). The *musaeum* existed in between private and public space, housing collections that served the social demands of prestige and status as well as the humanistic notion of collecting. It followed an epistemological structure and, as an imaginary space, incorporated both the intellectual and philosophical categories of thesaurus and the spatial construct of a *cabinet/gabinetto* and *galleria*. The museum was a *theatrum mundi*, a microcosm, a treasure, a mirror and an archive (Findlen, 1989: 59–78).

This brings us to Foucault's systems of knowledge as a foundation for examining museum history. The three epistemes – Renaissance, classical and modern – that Foucault (1966) discusses in his work *The Order of Things* offer an interpretative logic for the formation of these institutions. The Renaissance episteme, based in collections organised to showcase ancient social processes, looks for connections, similarities of meaning and significance that bring the world together. The desire to understand the objects of wonder and travel piled up in the cabinet of curiosities encapsulates the Renaissance era, where knowledge was sought by identifying and exploring until then undiscovered objects. The classical episteme replaces the Renaissance one with the principles of classification, and scientific taxonomy takes its place in the arrangement of the museum's collection. A significant shift is the one from the classical episteme to the modern one, especially in the creation of the public museum. Tony Bennett (1999), following Foucault's thinking, describes the shift towards the modern episteme, as constituted by the relations between the evolutionary series organised by the emergence of a new set of knowledges (geology, biology, archaeology, anthropology, history and art history). He argues while the power and knowledge relations are genuinely more democratic in this shift, the museum is still hijacked by all sorts of particular social ideologies with the ultimate aim to tell the story of 'the Man'.

Assessing the relationship of the museum with other studies in the social history of science, Findlen (1994: 48) described the museum as 'one of the primary locations in which the scientific revolution occurred ... through the ministrations of the many naturalists, inventors and virtuosi who brought the museum into being'. The contribution of the early museum to the organisation of scientific culture and knowledge made it the most dynamic and durable scientific institution in Europe. First, museums connected

certain forms of natural inquiry to urban culture by insisting that material culture could be a matter of public concern. Museums contributed to the cultural aspirations of the local elite, whether they were in a princely or a republican setting. Second, collectors strengthened ties between natural philosophers and royals, linking scientific activities to the political and often imperial ambitions of the early modern state. Third, the museum became a centre of continuous interaction between patrons, producers and consumers of scientific knowledge. This interaction contributed to the survival and durability of the museum (Findlen, 1994: 61–62) and the first conceptualisation of the science museums. Terms like ‘library’, ‘study’, ‘cabinet’ and ‘galleria’ are forerunners of the museum, as we know it today, which, it can be argued, still carries some of their qualities. The interest in learning, rarity and the encyclopedic approach to inquiry and sacred values are a few of the elements inherent to the modern museum. In the following sections, I discuss what makes these new public institutions distinct from its various predecessors, if and how these functions of the museum in its contemporary forms may relate to the interactive exhibition practice at the Museum of London and the National Maritime Museum.

2.3 The Modern Museum and The Public

The spread of collecting through the Renaissance led to the creation of the public museums of the Enlightenment (Hooper-Greenhill, 2000: 13) around Europe in the seventeenth and eighteenth centuries. The museum as we know it today, it is a creation of the Enlightenment, a modernist encyclopedic space with a complete collection that acts as a universal archive (Hooper-Greenhill, 2006: 559). The Age of Enlightenment (1600–1800) was a moment in time and a cultural movement where values, understandings and ways of thinking were fundamentally redefined. The intellectual effort on the part of Enlightenment thinkers to develop objective knowledge with a scientific prevalence, to liberate from the irrationalities of myths, religion and superstition is what Habermas (1983: 9) calls the ‘project of modernity’ (Harvey, 1990: 12). The French Revolution is the most catalytic event in the spark of these ideas of progress and universal reason, and in the new form of the museum, a direct result was the opening of the institutions’ doors to the general public beyond the privileged few (see Bennett, 1999; Presiozi, 2006: 75). ‘Enlightenment was a secular movement that sought to demystify knowledge and social organisation in order to liberate humans from their chains’ (Harvey, 1990: 12–13).

The Museum of Enlightenment follows the effects of moral idealism of museum founders along with historical interpretation and scientific rationalism (Knell et al., 2007). This new institution exposed what had been private for so long, creating the conditions for a new 'truth' and a new rationality (Hooper-Greenhill, 1989: 63), with the intent to educate citizens and serve the collective good. It was intended to be a rational and encyclopedic space, in which collections covered the achievements of time and space in human history. In 1683, Elias Ashmore introduced the Ashmolean Museum, the first scientific collection, to Oxford University. This is generally regarded as the first encyclopedic museum that was open to the public, with an in-house school of natural history, lecture and demonstration rooms, a chemistry laboratory and an exhibition room (Macgregor, 2001: 126). Other museums sprang up, including the British Museum in London, which opened in 1759, and the Louvre in Paris, which opened in 1793²⁶. The Vatican also established several museums in about 1750 (Alexander, 1995). In addition, with the Enlightenment came the establishment of art academies in Florence, Venice and London, with their collections and exhibitions being used to inspire and to teach students.

While the pre-modern museum represented the idea that true concepts and things are perfectly adequate to one another in a universe created by God, the world of the modern Enlightenment museum responds to the gap between mind and worlds, concepts and things (Lord, 2006: 5). A significant aspect of Enlightenment and modern thought is the concern with the epistemic structure of knowledge, which is premised on a deistic apprehension of the universe, a divide of the mind and body, with the most vital and important part being the mind (inheriting Descartes' philosophy). The binary structure of thought observed in such dualist concepts as mind/body, male/female and nature/technology emerged in the museums of this period, which were divided into private and public spaces. The private spaces offered the opportunity for scholarly research and knowledge production: they led to exhibitions and catalogues. The public spaces, on the other hand, were spaces for knowledge *consumption*, for educating and exhibiting, welcoming the mass of the general public. According to Bennett (1990), this also implies an institution with a division between the producers and the consumers of

²⁶ Both museums were government initiatives, with the British Museum being a result of three private collections and the Louvre exhibiting the royal collection.

knowledge – the inaccessible spaces of the museum where knowledge is produced, and the open space for the masses ready to be taught and to consume. This relationship is vital, particularly in regards to the focus of current museum practices, the relationship of producer/consumer today, and their claimed commitment towards serving the public and democratising knowledge.

The ideas of the period of the Enlightenment are undoubtedly contradictory in that respect, and perhaps doomed from the beginning with a danger of the quest for human emancipation to be transformed to a system of universal oppression (Harvey, 1990). Public museums were created with antithetical functions: to be an elite space for art appreciation, to democratise education, and to act as an instrument of the disciplinary society (Hooper-Greenhill (1989: 63). Grand narratives or meta-narratives were developed to explain various events in history, giving them meanings of universal knowledge or schema (Hooper-Greenhill, 2000: 13–14). They functioned as major sites of displaying the power of nations and cultural capital, introducing surveillance and public order (Classen & Howes, 2006: 207).

As collections of curiosity in the eighteenth century were perceived as populist, driving pleasure and a sense of wonder (Henning, 2006: 22–25), engaging with the display through ‘lower’ senses such as touch or smell beyond the ‘noble’ sense of sight was also perceived as ‘un-civilised’ (Classen & Howes, 2006: 205–207). Michelle Henning (2006: 24–25) discusses the differentiation of scientific curiosity with the ‘nondescript’ collections that were negatively valued and associated with amusement parks and department stores. We might here briefly consider the current presence of these sensations of wonder and the spectacular displays of curiosities in museum and gallery spaces. Few years ago, Turner Contemporary based in Margate hosted the exhibition ‘Curiosity: Art and the Pleasure of Knowing’, inviting visitors to experience the spectacular and the bizarre art works and historical objects, restructuring its gallery to a cabinet of curiosities. Without acting as a chronological and classified archive, the exhibition plays with the wonder and peculiarity of the suppressed from the Enlightenment cabinet of curiosities. It can be argued that the exhibition carries postmodern traits of fragmentation and discontinuity, commenting on the contradictions and margins of pleasure and knowledge. For instance, the artwork of May Botz (Image 14) shakes perceived expectations of a doll-house through dioramas

that reveal secrets held by the Baltimore police department, representing a real death, corpses in bed, blood on the walls and so on (Hazelton, 2013). The desire for curiosity, wonder and sensation of the unfamiliar never went away, but today the education and entertainment divide is weakening (McClellan, 2003: xvi). These aspects of continuity and audience desire are useful for analysing the interactive and immersive digital mediated spaces of current museum exhibitions, which I engage further in following sections.

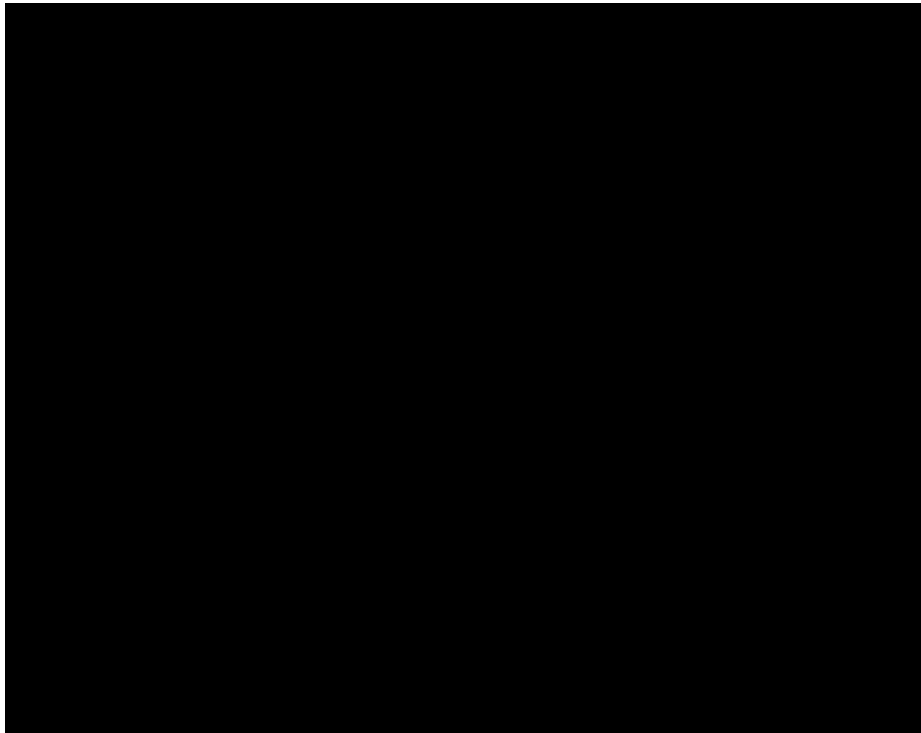


Image 14: Corinne May Botz, *The Kitchen at the Curiosity: Art and the Pleasure of Knowing* exhibition, Turner Contemporary.

The public museum reflects many of the forms and trends familiar to our knowledge of the museum we know and expect to experience today. Like its early precursors, the mid-nineteenth-century museum and its reformation of a microcosmos hold a position of power and knowledge. It is rooted in questions of representation and power, holding the capacity to name and create official versions, to represent the social and cultural current and the past world (Hooper-Greenhill, 2000: 19). What is new, then, in the seventeenth, eighteenth and nineteenth centuries is representation, particularly 'the representation of the past' (see Walsh, 1992), which enters the field of knowledge and transforms it. Representation of the progress of the past authoritatively produced an unquestioned museum display that allows control over history (Walsh, 1992: 33). Representation makes

possible a museum that interprets objects and stories in the conceptual system of reason. Presenting themselves as a space of representation, the museums of the Enlightenment invited the public to consider how conceptual schemes are related to artefacts and whether other conceptual schemes are more or less adequate to represent these objects (Lord, 2006: 6). The objective vision of the museum was mostly directed to the representation of difference by objectifying national and cultural identities. Cultural objects and materials seemed factual and real; they were conceptualised as property or as possessions (Macdonald, 2003: 3), essential to the Western concept of a distinctive cultural identity. In practice, representation, particularly in museums of the eighteenth and nineteenth century, was influenced by the dominant social ideologies of Western conquest, hidden stories of slavery and racism, exclusion and biases echoing in favour of the elite.

Public museums by design collect fragments from spaces and places and reassemble them, navigating the public towards a story. The power and knowledge relations of the public museum are democratic only because they have decided to include the unaware public in their structures, still originating from a privileged and controlling perspective and a position of knowledge and vision (Bennett, 1999). They function as monuments of collapsed cultures and rituals, monuments of the past, collecting pieces, removing their dark and unpleasant connotations and neutralising historical events in their act of displacement. Objective, singular and value-free knowledge is transferred, applying 'a linear process of communication in which an authoritative source delivers the message to an uninformed receiver' (Hooper-Greenhill, 2000: 15). The modernist museum adopts a particular stance towards its visitors: an approach of communication defined best as 'imparting', 'transmitting' and 'sending' that ignores social and cultural elements that shape the transmission of knowledge (Hooper-Greenhill, 2006: 560-1) and disregards complex processes of contact between the transmitters and receivers, especially in a social sphere. In museum practice today, it is strongly acknowledged that visitors and audience are not passive absorbers but active participators in the interpretation of the display, at the very least. I will elaborate further on this transition in the following chapter, where I analyse the embrace of digital interactivity by museum practice and its impact on the relationship between museum exhibits and their visitors.

In the course of the nineteenth century, knowing relates closely to 'the idea of the specificity and uniqueness of national identities' (Berger, 2011: 35) and national museums appeared in major European cities (Aronsson & Elgenius, 2011). Nation-states and cities within them established important collections in impressive buildings in order to show their power, pride and prestige (Gordon, 2010: 3). Throughout the UK, historical, natural and art collections held by various societies were turned into public museums (Mellinghoff, 1977: 87). The openings of the Victoria and Albert Museum, the Science Museum and the Natural History Museum followed, and similar initiatives opened in Wales, Ireland and Scotland (Watson & Sawyer, 2011: 109). These municipal institutions were largely influenced in their collection and policies by the national ones. Museums opened in France (Musée des Monuments Français: 1801), in Budapest (Hungarian National Museum: 1818), in many German states and statelets (history museums: after 1815), in Latvia (the Museum of the Province of Couronia: 1818) and in Denmark (Danish National Museum in Copenhagen: 1819) (Gordon, 2010). In general, private collections of paintings became art museums; furniture and memorabilia became history and design museums, and seashells fitted into natural history museums' exhibitions (Friedman, 2007: 66).

Unavoidably, this model of identity was also displayed in and formed local museums. They articulated different kinds of identities, 'those of local community, inter-community divisions and direct kinship with the individual displayed here' (Macdonald, 2003: 4). Other types of museums emerged and their collections captured specific disciplines such as art, natural history, geology, archaeology and ethnography. The purpose of these was different as they were centered on scientific discovery, education and learning, and national, cultural, economic or political recreation. The scope of the museum prioritised education while still hardly being accessible to the educated middle class. The institutions viewed their existence as distant from the everyday world, instead standing for 'higher', 'purer' values (Hooper-Greenhill, 2000: 14-15), and education was apprehended and practised as a process of making known, and passing on, information that aimed to constitute the subject as an ideal citizen. Hooper-Greenhill's work focuses on the aspect of knowledge production in the museum influenced by the epistemological arrangement by Foucault as discussed in the previous section.

In this sense, the museum became a space of objects, of the regularity and discipline of history (Bennett, 2002: 32 in Henning, 2006: 40), and it used its power to explain the existence of the contemporary society in which every citizen is involved. Both Tony Bennett (1988, 1999) and Eilean Hooper-Greenhill (2000) have investigated the way modern museums have produced a 'disciplined' population. Bennett fashions his argument by attempting to deploy Foucault's analysis of modern forms of government and the development of institutions such as the prison, the hospital and the asylum as institutions that confine individuals and populations. While using the Foucaultian power-knowledge set of relations, Bennett (1995: 44) differentiates between the organisation and functioning of the prison, for instance, which is to discipline and punish, in comparison to that of the museum that its aim is fundamentally pedagogic. Beyond that, the trajectory of the museums' development is the reverse of that of the prison, the asylum and the clinic. In this sense, the public museum exposes objects previously kept secret and accessible to the few, in contrast to the other institutions that impacted on the enclosure of populations, arguing that in that respect, there is something radically distinct about the public museum in comparison to its predecessors (Bennett, 1992).

Tony Bennett (1995: 90) argues that the museum, like the prison, informed by Foucault's account on political rationalities, has been constantly subject to demands for reform. Bennett's discussion indicates that the motivation of the demands for change carried similar traces throughout the last century, aiming for openness and accessibility to all and representational equality towards diverse cultures and values. The two principles he points out are those of *public rights* and *representational adequacy*. These demands remain the same to the current date, including a need to move away from dominant historiography and to embrace multiple histories, which facilitates the potential of the museum to act as a critical intervention into current moments of reality such as inequality, class war or climate change. These demands are insatiable, Bennett (1995) concludes, as they are produced by the museum's contradictory political rationality, the rhetoric of

²⁷ Calls to reform prisons are often unsuccessful, as there is confusion between the rhetoric that governs the aims of technologies of control and the political rationalities embodied in the actual modes of functioning. The reforms are ineffective as the viability of the actual prison as a technology for the exercise of power and class separations is not put into question (Bennett, 1995).

museums and the political rationality embodied in their modes of functioning. Under the umbrella of this contradiction, he suggests that museum politics have to be acknowledged and negotiated within the specific cultural dynamics and relations of the museum, and endeavours should be dedicated to transforming the relationship between the museum exhibition, the organiser and the visitors (Bennett, 1995).

In his work on the rational recreation movement and national public museums, Bennett describes museums as 'artefacts of government', where the bourgeois elite as a way of distinguish itself from the masses (Bennett, 1995: 11) imposing consensus on other groups distinguishing itself from the masses. This relation between culture and state government as elaborated by Bennett (1995) manifests a societal unease towards the fixity of Enlightenment thought after the revolutions of 1848 with one of its results being the insertion of the class dimension by the socialist movement. As he asks: whose side were the cultural producers on? (Harvey, 1990: 29). The rational recreation movement of the museum refers to the intent to manage behaviour through technologies and the spatial arrangement of the museum place, introducing codes of behaviour that act as a separation between classes. Attitudes towards the 'public', its inclusiveness and rights, the ability to access the museum experiences and gain something from it, was and continues to be a subject of discussion (Carbonell, 2006: 3).

In Britain, the Great Exhibition of 1851 was a significant instance in regards to the development of museum culture, as we know it today. Fairs and exhibitions pushed forward the transition from monumental didacticism to delirious fairy scene (de Cauter, 1993: 13). These alternative exhibition formats have also formed the evolution, character and ideology of museum exhibitions today, or the larger 'exhibitionary culture' as Bennett would put it (Bennett, 1995: 6). The evolution of the museum and international exhibition can add insights to the thinking of the exhibition development of the twentieth and twenty-first centuries as it moves beyond pedagogical purpose (Bennett, 1995:4). It hints a museum culture of modernity that 'allows' distraction and pleasure for the visitors, as well as making them question the imposed habits when visiting museums (Henning, 2006: 44), as the rules around the visitors' behaviour were less strict in comparison to the ones that the museum had set. Using novel techniques of display such as dioramas, panoramas and lightings, 'these world fairs became sensational spectacles, laboratories of

exoticism and tourism flooded with the ethos of consumption and instant pleasure' (de Cauter, 1993: 14). Still governed by rhetorics of progress and innovation (Bennett, 1995), the representation of that progress, also discussed earlier, shifts towards 'fragmented distraction' (de Cauter, 1993: 20). Certainly, these practices as entertainment machines set forth to the way we experience culture and museums in the present day. I will come back to this point when I discuss the use of digital interactivity and experiences of the museum today in Chapter three.

The moral dimension of education has been a significant function of the museum from the beginning of its existence, but with variable purposes. During modernity, the museum and cultural institutions were aiming to educate the masses – the working and lower classes – to enlighten and form good citizens for society according to the standard of the middle classes. Direct rules were established in regards to visitors' behaviour in their physical spaces, such as not touching the exhibits, not eating or drinking, moving around the exhibitions in a certain way, and adhering to dress codes, and these rules led to certain patterns of informal exclusions (Bennett, 1995). The museum display was, at its core, didactic, presenting the order of things as historical and progressive, and leaving little room for contesting curatorial authority (Lord, 2006: 6). It became urgent for the role of the expert such as the curator to function beyond the organisation of knowledge production and move towards an ability to assist the public in understanding and using the resources that the institution provides (Bennett, 1999). The public museum of the nineteenth century therefore already indicated that extensive attention was being paid not only to what was shown but also to the processes and practices of exhibition-making and the relationship it cultivated between the museum and the public.

The architectural framing of the modern museum belongs to the same status as palaces, churches and temples, which are also argued to promote specific ideologies (Duncan & Wallach, 1978: 28). Preziosi (2003: 19) also views the aesthetic activity of the museum as vital to the fabrication and transformation of modern identity, both individual and collective. As we have become more and more aware of certain inevitable modes of knowledge and power that the museum produces and exercises, the question of the possibilities and capacity to reframe and to reform these relationships of power becomes more conspicuous. A close analysis not only of the museum but of its practices, cultural

products, techniques and tendencies is necessary to understand the processes of change, of the conflicting viewpoints of past and present and to rethink the establishment of institutionalised histories. In the museum today, while objects are still present and hold their place within the museum space, they share their interpretative and aesthetic situation with other forms of exhibition arrangement and narration. The words 'experience' and 'interactivity' have become prevalent, and a variety of approaches in regards to representation and interpretations arise. Questions about the impact of exhibition narratives in the construction and/or portrayal of individual and collective identity today are still relevant, particularly considering the fluidity of identity, tangible and intangible heritage, and histories including the increasing embrace of digital interventions in cultural contexts.

2.4 In Succession to the Museum of Modernity

The museum is not immune to the social and cultural changes that have swept the world, but is of them and shaped by them. The previous section traced a genealogical path as to how the notion and identity of the museum has developed and changed from ancient times until the period of modernity. Considering the relationship of the museum with the public, questions arise with regards to 'the museum as a public place, its responsibility for stimulating critical thinking and provoking public debate' (Pollock & Zemans, 2007: 20). The museum as an educator of the wider public is changing arguably to become a facilitator of a multiplicity of histories, positions, needs and purposes. The shift of the museum towards self-criticality and reassessment of the authorial voice of their exhibitions has contributed to the development of critical approaches in exhibitionary displays and cultural, curatorial and educational practices.

Part of the wider context for this shift is the transformation in social life from the 1960s and 1970s; which, as Huyssen (1984 in Harvey 1990: 39) puts it, is 'a shift in sensibility, practice and discourse formations that distinguishes a postmodern set of assumptions, experiences and propositions for a preceding period'. Postmodernism is seen as a reaction to the ideas of modernism, and it is generally agreed that the postmodern artefact is a playful and self-ironising response to the autonomy of high modernism (Harvey, 1990:7). For Griselda Pollock (2007: 30-34) and according to her paper 'Un-Framing the Modern:

Critical Space/Public Possibility', postmodernism involves us thinking about history and trauma: what to remember, what to forget, and how to represent. For her, modernism is only 'the object of an archaeological impulse in which the critical re-reading of what at any point was institutionalized as modernism becomes the site of a critical release from some of the aporias and amnesias of the postmodern present'. The moral crisis of our time is a crisis of the Enlightenment thought' argues Harvey (1990: 41).

It is important to recognise that what we call postmodernism today is constituted by the modern and consequently carries traces of its being within it. This realisation, as simple and straightforward as it is, also allows us not to forget why we may still hold on to certain modernistic approaches within museum practices and new media discourses. Lyotard (1984: 78) mentions that postmodernism is not modernism in its end but in the emerging state, and this state is constant. 'The rather complex historical geography of modernism makes it complex to understand and interpret exactly what modernism was about' (Harvey, 1990: 24), which consequently makes defining what postmodernism is, rather problematic. However, Lyotard places postmodern thought firmly in the social and political transition in the language of communication in capitalist societies (Harvey, 1990: 49).

The discussion of the modern and postmodern, their relationship and meaning, has troubled a large number of thinkers, with postmodernism stimulating fields such as architecture, arts and humanities and social sciences by encouraging a move away from fixed notions, towards multiplicity and non-linearity, even so far as anarchy and indeterminacy. Modernity and postmodernity suggests the epochal meaning of the terms and when we speak of postmodernity, Mike Featherstone (2007: 3) suggests 'we speak of a break from modernity that involves a new social totality with its own organising principles'. Ihab Hassan (2001) argues that postmodernism refers to the cultural sphere (postmodernism in the arts, feminism in social discourse, cybertechnologies and more), and when we talk of postmodernity, we shall think of a world process, an umbrella for all these phenomena. Postmodernism concerns a wide range of disciplines and practices, as it directs attention to the shifts in contemporary culture, including changes in the modes of production, consumption and circulation of symbolic goods. Furthermore, it relates to broader transitions in power and interdependences between groups, as well as changes in

everyday experiences and practices of different groups that may be the result of new means of orientation and identity structures (Featherstone, 2007: 11). In this section I discuss how museums changed in the context of this broader and cultural shift and how these changes may be encapsulated by the term 'postmodern'.

Throughout the twentieth century, especially after the Second World War and more recently, trends such as globalisation, the development of new media and communication networks, and the collapse of political traditions and beliefs across the world led to the social formation of postmodernism. Confronted with this shift, the authoritative institutions needed to react to interests of the new global economy. Art historian Serge Guilbaut (2015) argues that major museums' prompt response to this change has primarily been through the reshaping of their architecture: the building new wings and the upgrading of their buildings, in order to increase their visibility to the global world. Frank Gehry's Bilbao Museum Guggenheim in Spain, a franchise of the Guggenheim Museum in New York and its eccentric architectural design is a key example of the response to the need to democratise art and culture in the postmodern world. The Guggenheim, however, like the Tate, also symbolise the free-enterprise culture that became predominant during the 1990s.

Both examples that I focus in the empirical research, the Museum of London and the National Maritime Museum, can still be described by terms such as *galleria*., cabinets of curiosity, library and study, bringing connotations of the precursors of the museum. They are spaces with vast collections of artefacts and histories that are showcased in glass cases, prearranged in ways that aim to educate their visitors. Conserving, collecting, researching, exhibiting and communicating are still relevant actions, part of their ideology and their code of ethics*. The Museum of London directs visitors to gaze at skulls, human skeletons, axes and other artefacts from the prehistoric times (450,000 BCE) of the Thames Valley; stones and sculptures of Londinium, the city built by the Romans (50 CE-410 CE); painting, leatherwork and everyday objects of the city of London in medieval times, as well as telling stories of war, plague and the Great Fire. The architectural site itself, I argue, is well fitted to the city museum and its features can be translated through characteristics of postmodernism. It does not hold the prestige of

buildings such as the British Museum or the National Maritime Museum; instead, it stands behind the towers and terraces of the Barbican, overlooking office blocks, high buildings and a busy London's life. Its entry is not as obvious or glorious, but it offers a view over London's Roman and medieval walls; it becomes part of the display itself (Brawne, 2012). The National Maritime Museum opened in 1937 and its architectural landscape, the Maritime Greenwich, is a World Heritage Site that has existed since the early 1800s. The modern architecture and the historical importance is part of the museum visit itself. The museum's buildings hold a collection of the history of Britain at sea and it includes art, manuscripts, ship models, navigational and scientific instruments and a range of other relevant artefacts. The two museums' commonalities and relevance to the forerunners of the museum is not necessarily denying their progressive changes, but it poses questions about the conditions, levels and practices of any reform.

However, Guilbaut's (2015) claim that museums' response to the need for visibility to the postmodern calls is seen in their architectural projects and new buildings, correlates directly to both examples of this study. The Museum of London and the interactive exhibits I engaged with during the empirical research are part of the Galleries of Modern London, new gallery spaces that were completed in 2010. In the summer of 2011, the National Maritime Museum opened a new 'attractive' physical space, the Sammy Ofer Wing with the aim to set a new strategic direction (see Image 16). As I discuss in the first chapter (see Section 1.2.2) this new space aims to bring new type of 'engaging' exhibitions that tell current and on-going stories of the sea, appealing to a wider and diverse audiences enhancing learning and engagement.



Image 15: National Maritime Museum London, Maritime Greenwich World Heritage Site
Copyright: www.londonpass.com



Image 16: Sammy Offer Wing, National Maritime Museum London
Copyright: nykyinen.com

There is certainly a notable growth of museums in the world with museums as sign of culture being everywhere. In Britain one museum opens every week, and in Japan and China one can note an extreme opening of diverse type of museums (Harvey, 1990: 62). In this 'museification of the world', old factories and abandoned spaces have been transformed to spaces of culture; whole villages are transformed to open-air museums (see Harvey, 1990: 62; Guilbaut, 2015). While this can reflect the openness of culture to the wider public and the acceptance of any history as part of contemporary culture, it also demonstrates the museum as a sign of tourist attraction with the number of visitors being a vital factor for the museum in the competitive market environment. Postmodernism and heritage industry are linked that intervenes between present lives and our history (Hewison, 1987: 135 in Harvey 1990: 62).

There are differences between modern forms of knowing and the ways in which postmodern discourses are generated and communicated. The museum institution becomes one that welcomes visitors as a priority and also recharges its energy towards its educational character. These two come together to make the museum more 'visitable', and knowledge more accessible to the non-specialist audience (Dicks, 2004: 145). In order to achieve these objectives, many museums try to combine existing educational techniques with other forms such as temporary and 'blockbuster' exhibitions, using a range of sensory and interactive forms of display. An important difference between modernism and postmodernism in the museum context is the concept of experience (Šliuzaitė, 2013: 23).

Chapter Four analyses the multiplicity of such experiences within the museum space, the relevance and relation to interactive functions, exploring sensory and other modes of engagement. In the next part, I intend to relate the impact of the idea of postmodernism in the museum, the post-museum and the notions of digital interactivity, experience and its multiple interpretations. Theorising understandings and practices in the museum will allow me to explore further interactive experiences, social engagement, emotional and affective interaction, play and learning. As I have started discussing above, the shift from modernism and postmodernism and the meaning of 'post-' in that context has brought a range of theoretical analyses, agreeing in general that the terms share similar characteristics.

2.4.1 Tensions between modernism and postmodernism in museum practices

Habermas (1996), defender of modernity, in his work *Modernity: An Unfinished Project* brings the subject to the centre of modern discourse, recognising that the difference between the modern and the postmodern lies in the exploration of what subjectivity is and how it develops and interacts with others and the world. According to Jameson (1991: ix), while modernism absorbed itself into observing the 'new' coming into being, postmodernism looks for breaks and events. The two areas reflect on ways and forms of knowing, on cultural and art practices and on the discourses that surround the museum environment. From the singularities and fixed objectivities of the modern, the postmodern takes us to the plural, the open-ended, the chaotic and unfixed. For others, it is a threat to the enlightenment of modernism that still holds elitist views with a will to 'educate' the masses, a democratisation of cultures, which is equally critiqued to lead to consumerism, culture as a commodity and the museum as entertainer that offers spectacles unable to move beyond linear narratives.

Thinkers such as Foucault who have been defined as poststructuralist or postmodernist see the values of modernity as being based on the illusion that the subject is the foundation of all knowledge. It acts against the epistemic or historical advantage of the Cartesian view of subjectivity or the rational, autonomous human ideal (Peters, 1995).

The debate is complex, often taking the form of polarisation between modernity and postmodernity. For Ihab Hassan (2003: 305), postmodernism is 'the equivocal autobiography' of our age: 'an interpretation of our lives in developed societies, linked to an epochal crisis of identity'. While modernism is organised around romanticism, closed form, purpose, hierarchy, distance, tantalisation, root, symptom, cause, determinacy and transcendence, postmodernism focuses on open form, play, anarchy, participation, deconstruction, rhizome, desire, difference, indeterminacy and immanence (Hassan, 1982: 591). Hassan's schematic characterisations should not be perceived as oppositions but the differences that he displays can be helpful to capture and understand their relevance with shifts in culture (Harvey, 1990: 42).

Postmodernism has also been related to the post-industrial age by thinkers such as Jean Baudrillard and Jean-François Lyotard. The first marks the importance in the new forms of technology and information, as they create simulations and models that of the world making the separation of real and appearance impossible (Featherstone, 2007: 3). The broader picture of postmodern culture was expansively defined by the work of Lyotard, whose writings focus on the condition of knowledge and the death of grand narratives. According to Lyotard (1984: 4), as social and cultural practices engage in the postmodern age and combine with the intensification of technological applications, 'the computerization of society', the condition of knowledge is altered. In his work *The Postmodern Condition* (1979), he perceives the 'narrative' knowledge and the 'scientific' knowledge, with the second being the dominant legitimated one capturing events and knowledge while lacking recognition of the first. He spoke about the 'Anything Goes' multinational, multimedia culture and how the new 'condition of transformation of knowledge' 'since the end of the nineteenth century, have altered the game rules for science, literature, and the arts' (Lyotard, 1992: 8, 1984: xxiii).

Postmodernism is defined as an 'incredulity toward metanarratives' (Lyotard, 1984: xxiv); the 'grand narrative has lost its credibility, regardless of what mode of unification it uses, regardless of whether it is a speculative narrative or a narrative of emancipation' (Lyotard, 1984: 37). The speculative grand narrative progresses by increasing its true knowledge, whereas emancipation takes forms of releasing from moral restraints driving freedom from control. During the Enlightenment, the driving human process, the emancipation of

humanity, was associated with the ideas of reason, logic, criticism and freedom of thought over dogma, blind faith and superstition. The criteria of universalism and emancipation are replaced by profit and 'mini-narratives', which are 'situational, provisional, contingent, and temporary, making no claim to universality, truth, reason, or stability' (Klages, 2006: 169). With the loss of authority of grand narratives, the position of the subject is argued to be more fluid, taking up various roles and breaking into heterogeneous moments of subjectivity. What Lyotard argues, in effect, is the end of history, as we had known it.

The 'postmodern' is an image of communication out of control. Seeming to have lost its mooring in objective conformity or correspondence, it appears uncaused, unmotivated, in endless, unguaranteed 'slippage' (Massumi, 2002a: xv).

Efficiency is linked to legitimisation of knowledge and the capacity of science to reach the objective truth, as postmodernism is defined by fragmentation and pluralism; there are no big stories and grand narratives that explain the world. It is related to the move from the straightforward, fixed subject to components of subjectification, rejecting singular totalities and opening up plurality, diversity and heterogeneity. All histories and their fragments have validity and a role in contributing knowledge of our world, self and existence, arguably offering the possibility of objective knowledge. Postmodernism, with its orientation to plurality, brings us closer to the idea of the diversity of experience, sensitivity to differences and 'tolerance to the incommensurable' (Lyotard, 1984: xxv). The advent of technologies and the network society opened new possibilities under the title of postmodernism, arguing for the collapse of representational paradigms and the proliferation of interventions, especially in culture and arts.

Representation and objects of recognition do not awaken thought as it fools us with the comfort of familiarity, understanding and reaffirmation. The French theorist Zouavichvili (2012: 68) argues that what escapes 'representation is a sign, with the sign being that of the Other, an expression of an enveloped, possible world but which would become mine if I were to become other by occupying the new point of view'. Museum exhibitions often experiment through diverse techniques to disturb traditional forms. It is evident that such artistic interventions are perhaps assigned or intend to disturb thought, moving away from representation and objects of recognition, by shaping and reshaping

and taking us to encounters that can lead to transformation. For Deleuze, art makes aware and perceptible the forces and dynamics of the world; it affects and makes us become (Deleuze, 1994: 182). What makes us think, what brings the desire for search, that encounter can be anything – a voice, a text, an image, a building, a touch. The transformation and the becoming-active occur when these forces enter into a relation as constant composing forces. Can this transformation occur in museum spaces through interactive environments that argue multiplicity, non-linearity and sensory engagement? Can the encounters of the audience when experiencing those exhibits and exhibitions awaken thought and encourage rhizomatic thinking?

'Digital media and particularly this great connectivity of past with present they unfold, requires new kind of excavation and interrogation' argue Hoskins and Holdsworth (2015: 28) in their paper on 'Media Archaeology of/in the Museum'. Media archaeology moves beyond the historical continuity that arrives from media history (from writing, printing to digital data processes), replacing it with a concept of mediatic short-circuits. Immersive exhibition techniques, a vast amount of digitisation of objects that are made available to the audience through online portals and mobile applications, personalised mobile experiences and storytelling are few of the practices that indicate the potential of a 'newly, extended and diffused museums that challenges its principal authority of containment and closure' (Hoskins & Holdsworth, 2015: 37). The Museum of London have developed a mobile application called 'StreetMap' that offers a different outlook to the current street of London, creating personal trails. Images of the museum collection and historical facts reveal while one walks in the streets of the capital fostering spatial, social and personal connections and a sense temporality to this archival and historical material. At the National Maritime Museum, the development of the new wing also included a new welcome space, the Compass Lounge, and launching an associated redesigned website. The Compass Lounge invites visitors to a physical-digital interplay through the use of three interactives that display a large number of digital reproductions of the museum's objects. The new webpage showcases a vast amount of digitised material from the collection, inviting visitors to actively engage with the museum collection (Romeo & Chiles, 2012). Therefore, museum content exists beyond the walls of the institutions. Media archaeology is inevitably an effect and a strategy of/in the museum argue Hoskins and Holdsworth (2015). It is a great portal for the museums to reveal discontinuities and

disruptions while considering their nonlinear archival memory. It shapes the experience of proximity and consequently appears to minimise historical distance.

For the purpose of my research we will touch on the debates as this is beneficial in revealing tensions that may occur later with regards to issues around digital interactivity and participation, and audiences' and museums' voice and power in constructing and portraying cultural narratives. In the nineteenth century, the future was understood through notions of duration or periodicity; the relationship of future and present depended on a linear logic, where what is in the past determined what lay in the future. In the age of postmodernity, as the acceleration of societies increases and identities become unstable and fragile, the museum is undergoing a process of transformation that places equal importance on objects and audience, encountered as a knowledge process or experience (Hooper-Greenhill, 1992: 210, 2000). Danish researcher Vestergaard (2012: 4) refers to some examples of how the postmodern museum has been labelled in museological literature: post-museum (Hooper-Greenhill, 2000), reinvented museum (Anderson, 2004), engaging museum (Black, 2005), constructed museum (Hein, 2005), responsive museum (Lang, Reeve & Woollard, 2006), participatory museum (Simon, 2010), interactive museum (Drotner, Weber, Larsen, & Løssing, 2011) and dialogic museum (Tchen & Ševčenko, 2011). Museums are also characterised as 'contact zones' (Clifford, 1997) for interdisciplinary dialogue in order to develop the field further (Message, 2009: 129). The museum was also distinguished between the museum as a 'collection' and as a 'contact zone' (Dibley, 2005: 8). James Clifford (1997: 192-193) argues that museums as collections are part of a power-charged set of on-going historical, political and moral relationships, whereas as contact zones they attempt to apply the spatial and temporal co-presence of subjects of diverse geo-historical settings.

The concept of postmodernism has been embraced for some time in museum studies literature, and scholars such as Hooper-Greenhill use the notion of post-museum in contrast to the 'modernist' museum. The post-museum concept refers to a set of processes and experiences that treat audiences as active visitors, encourages their participation and unseats a singular locus of authority (Hooper-Greenhill, 2000: 142, 152-153). Vergo (1989) and others have developed a 'new museology', bringing to the fore the museum's social, cultural and educational processes that involve the audience as its new heart. They re-evaluate the idea of the museum as a collector, or as a centre of ultimate knowledge and

instead analyse the newly foregrounded focus on experience and communication. New museology emerged in the 1980s, the period when postmodern thinking occurs, indicating that there is a need for rethinking developments of museology and allowing the ability to deal with what is new. The consideration of the audience as an active part of museum practices, the understanding and meaning-making of an artefact as dependent on context rather than fixed, and the attention to entertainment are the main factors that encouraged the move towards new museology (Macdonald, 2006: 2).

The social and political changes of the postmodern world have involved a process of change in the museum as social organisation. This process can be demonstrated by looking at two definitions of museums drawn up by the Museums Association (The UK's professional body for museums staff) before and after 1999. Prior to 1998, a museum is '...an institution that collects, documents, exhibits and interprets material evidence and associated information for the public benefit.' Post-1998, 'museums enable people to explore collections for inspiration, learning and enjoyment. They are institutions that collect, safeguard and make accessible artefacts and specimens which they hold in trust for society' (Museums Association, 1998, in Lang, Reeve & Woollard, 2009: 33). The first definition describes the museum's professional activities, the importance of the staff and the collections, whereas the second places emphasis on the purpose of museums – recognising the importance of the visitor and the significance of their own experiences by being inspired through learning and enjoyment. As mentioned earlier, the words 'make accessible' and 'learning' show the museum's shift to create a closer relationship with its audience.

Serving the public (Hooper-Greenhill, 1999; Weil, 1999) is the main purpose of the museum, taking away some of the attention to older traditions such as collection. Collections, of course, still live at the heart of the museum but a growing emphasis is put in the non-physical activities and actions of the institution (Keene, 2006: 195) and their embrace of intangible heritage. The museum, in parts, evolves as a site of individualised and immersive experiences and reconstructions of learning and entertainment (see Keene, 2006; Watermeyer, 2011). The role of the curator, often representing the museum's voice, has been a troubled one within this changing climate. The curator is the person who traditionally decides what is important enough to be laid out in an exhibition space, the

narrative that is to be followed, and consequently the story to be told. These dynamics have indeed been shaken, which has led to extensive academic and professional debates over the last decades on the 'death of the curator'. Bennett (1995: 103–104) argues for the repositioning of the curator as someone who is less of an expert who disseminates erudite knowledge and more of a facilitator of inter-communal exchange. The focus on audience engagement, co-authorship, participation and collaboration requires adjustments in the expertise of the curator, who needs to be revisited and moved beyond the one who makes the story to the one who accommodates an open space that can challenge and question the consensus. As Harvey (1990: 49–50) argues, in postmodernism the authority of the cultural producers is lessening, with opportunities opening for popular participation in the determination of cultural values. This leads to both producers and consumers participating in the production of meanings and significations.

So, the museum that embraces postmodern ideas engages with current histories, scientific knowledge and mechanisms that generate socially conscious and mobile participants (Watermeyer, 2011: 3). Often, these efforts intending to reach wider audiences can lead to other problematic representation of culture, disregarding complexities and contradictions of visibility in the museums and the power relations between those who are exhibited and those who are exhibiting (ibid, 2004: 151). For example, climate change is an urgent issue that requires urgent action. Museums are often seen by the academic and professional community as appropriate places to produce knowledge and frames that can lead to new ways of thinking and acting on this issue (see Cameron, 2015). There are numerous recent exhibitions on the topic, and the High Arctic exhibition at the National Maritime Museum in London is only one of them. Others include the exhibition at the Science Museum London 'Atmosphere: exploring climate science', 'Climate Change Wall' at Natural History Museum London, 'Ecologic' at the Powerhouse Museum in Sydney. All these exhibitions use interactive approaches and exhibits to inform the museum visitor about this complex and controversial issue. Fiona Cameron's (2015) recent article on both the Science Museum London and Natural History Museum London exhibitions is interesting in this regard. Through close analysis she demonstrates how both museums' communicative messages keep their 'modernist' approaches by acting as authoritative pedagogical apparatus (2015: 52–53). She argues that the institution should play a role in changing narratives and human philosophy when it comes to our relationship with nature,

moving beyond the performance of the duality of Culture and Nature, where non-humans, animals, rocks and earthy processes are put in the position of passive objects (2015, 51-54). Cameron's work (2015: 53) has a posthumanist premise, also palpable in the work of Deleuze and Guattari (1987), engaging with the potential to use relational and processual approaches for collapsing these dualisms and embracing the entangled relationship of human and nature.



Image 17: Atmosphere: exploring climate science - Science Museum London

Copyright: andyrussell.wordpress.com

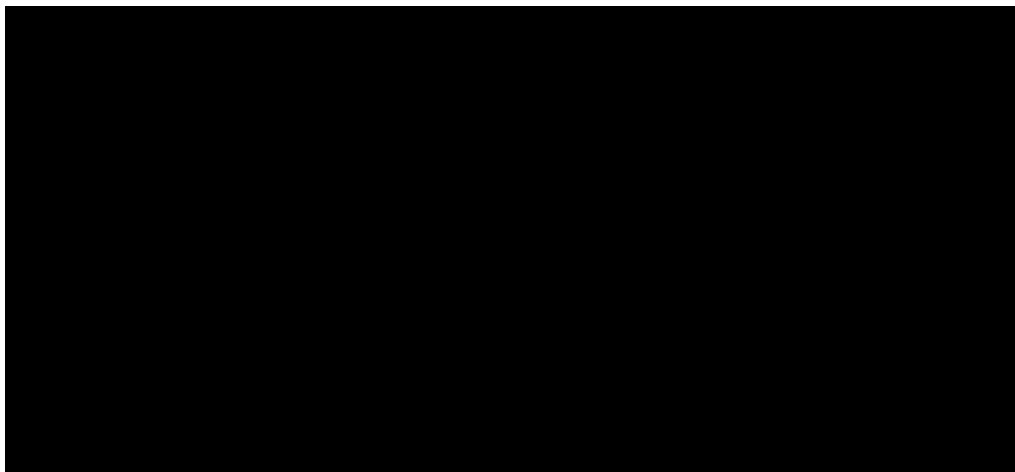


Image 18: Climate Change Wall, Natural History Museum London

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The exhibitions follow a modernist museum approach in its mode of telling the stories, in the sense that they figure the atmosphere as a thing that humans can objectify, understand and control by relying heavily on scientific facts. Both exhibitions' (see Image 17 & Image 18) designs, however, indicate an emphasis on interactive and playful experiences, which

have been often celebrated as an excellent model for experiential learning, engage diverse and non-traditional audiences; and yet are a gateway for the authoritative museum exhibition narrative. Multimedia/sensory/touch-feel experiences, affect, engagement, play and interactivity offer alternative ways of presenting and disseminating knowledge, but can also legitimise knowledge based on the delivery mechanisms rather than the quality and content (Keramidas, 2015). Interactive games and interfaces in the two exhibitions offer just another 'traditional' form of presenting solid data, where the object of inquiry becomes dualistic and objective (Cameron, 2015:55), perhaps actually distracting from analytical and critical readings of the larger debates in society (Watermeyer, 2011: 2), such as the pressing debate of climate change.

The enthusiasm for interactivity, which was spread in the late 1960s in science centres and is still prominent today, offers a view of the museum as a site of greater participation and as a zone which includes new and more diverse audiences. As part of this movement for change, the museum has embraced concepts and practices that emerge as vital for the postmodern museum. It aims to attract new visitors and engage them with multiple histories, breakages and small narratives through interactivity, engagement and personal experience. My research study focuses on interactivity as a concept, a practice and an approach utilised by museum professionals that provides new ways of communicating the exhibitions and displaying collections. It acts as a tool that can liberate the museum from its authoritative character, activate memory processes, and narrate conflicting histories through experiences that bring the visitors in action and movement, encouraging personal, sensory and emotional engagement. However, as an 'established' part of the museum practices today, it also brings a number of contradictions to the fore that requires closer inspection.

The embrace of the digital and the shift towards interactive experiences is prominent in UK cultural institutions, including the two London museums that are the focus of this thesis. The two exhibitions discussed in this research (see Section 1.2) make good cases to explore different ways in which the notion of interactivity is practised and implemented. The Galleries of Modern London, a permanent exhibition at the Museum of London, is a busy space where a mixture of objects, artefacts, mechanical and digital interactive exhibits, paintings, immersive and theatrical environments co-exist to narrate the modern

history of the city of London. The permanent exhibition and its practices of display denote:

'A move of the museum from object-based to human-focused as the Museum of London is indeed a museum of social issues and people. The objects and tools are made by people and for people and also the museum is not about events only because the events are about people. So the focus it is indeed shifted here ... with new technologies you tell stories moving from static objects and glass cases to a moving exhibition space where things are on the move' (Swift, Head of Learning, Museum of London, interview, 6 July 2011).

This is a portrayal of a *human-focused* museum that welcomes all visitors and tells stories about people. The museum still holds and cares about objects, as discussed earlier, but this shift indicates an interest in personal and individualised forms of knowledge and narratives. The objects and artefacts at the GoML stand between interactive exhibits and immersive spaces, aiming to enhance the personal experience of the visitor. 'The place of the object in a community of objects', argues Henning (2006: 11), shape not only the way that the visitor interprets it but also how one approaches it and sees it. As expressed in the quote by the Head of Learning, Fraser Swift, these new forms and techniques promote a 'moving' exhibition space, an immersive social space where perhaps the sense of historical continuity and memory embraces the postmodern characteristic of immediacy (Harvey, 1990: 54), where the museum can observe and work closely with the present. The museum narratives can, therefore, evolve from a framing of material culture that focuses on national identities to a process that encourages community dialogue and on-going construction of meanings (Watermeyer, 2011: 54). Its understanding of digital interactive technologies and interactive approaches is linked to the wider departure of the modernist museum telling a singular main narrative to instead telling fragmented, unheard, personal histories (Reading, 2003: 81).

Interactivity and the experiences that the museum produces under the concept encourage different exhibition design and display techniques that support personal and 'felt' engagement. Besides that, visitors expect and demand contemporary topics to be expressed with the use of contemporary digital technologies (Gammon & Burch, 2008: 38), attuned to new 'ways of seeing' (Henning, 2006: 105). As one of the visitors to the

Galleries of Modern London indicates: *'in a certain age, getting a map and getting a finger on it and scrolling through is sort of almost the minimum that people expect'* (GoML visitor, interview, 6 July 2011). Similarly, the museum studies scholar Ross Parry (2013) introduces the 'post-digital' museum by implying that the use of digital and interactive technologies is an integral part of the current museum and that these practices should not be viewed as an add-on or an extra component. The following chapters take that idea further to analyse the interactive digital practices in museum spaces, exploring their meanings, applications in the current socioeconomic climate, and uses in cultural institutions and art practices.

The High Arctic exhibition at the National Maritime Museum (see Section 1.2.2) was introduced to the public as 'a big interactive experience'. The inclusion of such exhibition intended to 'challenge preconceptions about the museum and re-position it as an exciting, entertaining venue with a wow factor' (NMM Internal Scoping and Briefs document, 2011). The empirical data and observation of this example brought into discussion a different approach to the concept of interactivity with the museum setting. The temporary 'un-museum like' (Romeo, Digital Manager, NMM, 2011) exhibition was aimed to act as a welcoming display for a new space of the museum, the Sammy Ofer Wing. It was a one-off exhibition that viewed, perceived and implemented the idea of interactivity beyond touch-screen and interactive monitors, but produced an abstracted *'interactive space, an imaginary journey through different times (past, recent past, present and the future)'* (Drake, interview, 24 October 2011) that turns visitors into explorers and discoverers of the relationship between humans and nature, specifically the nature of the Arctic. The High Arctic exhibition held a *'multiple'* (Drake, interview, 24 October 2011) view on the issues of climate change; it is *'more of a sensory and emotional space, something that is more of playful, musical, visual experience than just being a lecture'* (Hornman & Mitchell, UVA, interview, 18 November 2011); it *'was not meant in any didactical way, I wanted it to be multiple way of communication'* (Drake, interview, 24 October 2011). The museum intentionally produced an art interactive experience that wanted to tackle visitors' emotions in regards to the exhibition's narratives and stories. Furthermore, it did not want to overload visitors with factual information, portraying a 'narrative' knowledge (Lyotard, 1979/1984), a form of story-telling that comes from personal experience as well as encounter with 'scientific' knowledge.

The felt qualities of a space, the spatial and kinetic experience of a visitor in a museum, can produce unpredictability, Kirshenblatt-Gimblett (2005: 2–3) argues, commenting on the encounter with artworks and collections. ‘The senses are intelligent, the body knows, facts are felt and curiosity is an emotion’ (ibid., 2005: 2–3), she continues. The empirical data of the two examples show that the encounters with the exhibitions are not neutral but loaded with emotional and affective qualities. The embracing of digital media and interactive experiences in museum practices turns the attention to affect, feelings and emotions, sensibilities or disorientations, the seductive or the familiar that shape our relationship with these environments. The National Maritime Museum, fairly traditional in its form and themes, engaged and commissioned digital art to introduce the complexity of global warming and climate change. Could these types of encounters with an art piece within a maritime museum potentially lead to critical thought?

Technological innovation is also a driving force of the information and service economy, leading to the commercialisation of experience in a general feeling that accessing pleasing and novel experiences is most significant (McGuigan, 2005). Mastai (2007: 175) refers to ‘the museological practice incorporating strategies from commercial marketing in order to create and sell products’, with the main product of a museum being the exhibitions. The museum intends to create environments that attract visitors; it creates ‘paths of desire’ that direct them through the spaces, allowing them to choose and select from the information provided, argues Mastai (2007: 175). Does that example also indicate the museum relation with marketing paradigms such as the experience economy and ‘paths of desire’, using popular, accessible and ‘sexy’ themes and ways (Mastai, 2007: 175) to bring more visitors into the museum and to sell them the museum experience? Mastai speaks from a gallery educator’s point of view herself, indicating the various directions in which the museum is pulled. At the same time, museums are laboratories for experimentation, and these types of experiences allow multiple entry points to the exhibition for diverse audiences.

The function of the museum in legitimising tourism as a cultural activity and the encouragement to spend money while on the museum site has become very apparent, via directed pathways to the museum shops and café, ‘reducing the visitor to a customer’ (Mastai, 2007: 174). The funding environment in the United Kingdom has also affected

the museum sector (Museum Association, UK). Directing bodies now attempt to find and increase funding sources through sponsorships, grants, renting out its spaces, and providing attractive cafés and shops. Likewise, museum bodies usually work under an imperative to justify their public funding by attracting sufficient numbers of visitors and becoming places of popular assembly (Bennett, 1999). For instance, when a visitor enters the Museum of London, one of the first things he or she encounters is the museum shop. Similarly, the entrance to the Sammy Ofer Wing at the National Maritime Museum houses an attractive café and the museum's shop. While Bennett (1999) welcomes this type of attempt to democratise the ethos of the museum, he also argues that interactive computer displays and touch and feel exhibits are part of the museum aiming to justify public spending by becoming a popular tourist site. Since the early 1980s, museums, at least in Europe and the USA, have encountered major funding cuts and a need to find alternative sources of income from sponsorships, grants, special projects, cafés, shops and special events.

These factors indicate the problematic contemporary focus of museum practice on commercial marketing in order to sell their exhibitions, which is their main product. The debate identified as the 'Trojan horse or Rorschach blot' (Cunningham, 2009) focuses on the impact of the creative industries (industries that consist of the arts, media and software (DCMS, 1998)) discourse for culture and its policy, entangled within two domains: the 'cultural' and the 'economic' (Lee, 2014). The argument is aware of the neoliberal and marketising effects on culture and arts, becoming increasingly commercialised in the post-industrial, knowledge economy society. The other spectrum views a market success that brings financial support and resources to the sector, arguing the move from creative industries to creative economy (Cunningham, 2009). The creative industries discourse, as a Trojan horse, fears a cultural policy and culture that loses political concerns and interest in complicated aspects of society such as conflict, inequality or climate change (Lee & Brenner, 2015). Instead it produces commodifiable, new, positive and safe experiences. Museums still hold their place as institutions of power and expertise to some extent, and a change of relationship between curator and audience in regards to participation carries complexities, especially when it comes to implementation. The modernist role of the curator and other museum professionals embraces the notion of expertise, the aspect of public service, the concept of ethics linked to truth, authenticity,

integrity and honesty, and the institution embedded with cultural professionals often translated into a relation of employment and deployment of management and power (Carpentier, 2011). This approach has not been totally eliminated, but it is constantly reshaping along with the museum's identity.

2.6 Conclusion

'The museum is at once an architectural form, a concrete environment for reflection, a reservoir of tangibilities, a school for the senses, a space of conviviality, an autopoietic system, and a projection of the ideal society, notwithstanding the amply documented tensions between the utopian ideal of the museum and its instrumentalisations' (Kirshenblatt-Gimblett, 2004: 1).

In the quest of the museum's route from antiquity to now, we travelled to the places of wonder in antiquity dedicated to and inspired by the nine Muses, libraries, palaces, churches, cabinet of curiosities, pinacothecas, modern and postmodern museums. This journey back in time was an exploration of the worlds of the museum, not necessarily looking for an etymology of the museum but rather seeking what the museum was attempting to achieve in different periods in history. The chapter summarises the ability of the museum to change and to explore the context in which these alterations take place in regards to its practices and perspectives. The text initiated a route towards understanding the role of the museum, its practices and its relationship with the public, the visitor, and the audience in different periods of time. It foregrounds how socioeconomic and cultural trends alter the role of the museum and the ways of behaving as an institution through its practices. Throughout the chapter patterns have been noted that indicate the various shifts and interests that have taken place in the history of the museum. From spaces where beautiful, authentic artefacts were stored for the admiration of the royals to institutions where power and wealth was presented, reaffirming universal principles and educating the masses, to the visitor-friendly, educational and interactive place for all, the museum is contingent on its social, economic and cultural surroundings.

Museums, their collections and narratives mould and construct the identities of people and nations regardless of the number of people who visit the actual site. Their collections

existed and told stories that lasted centuries, transmitting those narratives. They are not neutral spaces but subjective voices mainly deriving from authority and power (Marstine, 2005). Following the logic of rational recreation, museums are perceived as processes of industrialisation, urbanisation and class formation (Bennett, 1999). They also formulate modes of knowledge and practices of consumption as part of the capitalist society (Hooper-Greenhill, 2000). Bennett's discussion (1995: 104) on museums being the constant subject of reforms provides useful insights into the complexity of the discourse of reform. Fuelled by the rhetoric of the aims of museums from the one side and the political rationality embodied in its modes of functioning on the other, the demands can be insatiable, argues Bennett, acknowledging that this contradiction leads to a 'complex and contradictory' contemporary museum scene.

The museum after modernism can also be named as a museum of liquid modernity (Pollock, 2007), borrowing sociologist Zygmunt Bauman's notion that indicates how, in the expanding cultures of the information age, the lack of grand narratives leads to no ultimate goal, no need to replace one old belief with another, but rather towards a continual modernisation that transforms every aspects of our lives and reveals them to be transient (Bauman, 2000). While my research examines the notion of interactive experiences within museum spaces that promises a move away from the authoritative museum to a space of many, small, personal narratives with the audience being the centre of attention, the aim of this particular part of the thesis is to understand the conditions by which the museum has historically shaped the public, the visitor and their experience and the circumstances that gave rise to these notions. Such notions promise a transformation of the museum, a move beyond one-dimensional logic to a site of rethinking living and on-going issues through interactivity and the engagement of a diverse audience. At the same time, these varieties of routines and technologies are argued to be less part of a shift in museum norms and more part of marketing programming, relations with city administrations, governmental policies and other 'centres of calculation' (Latour, 1987), which places increasing financial requirements on museums (Dibley, 2005). The attempt of a museum offering multiple and democratic narratives and engaging visitors through interactive computer displays, touch and feel exhibits, also acts as a touristic space (Bennett, 1999), altering the relationship with 'the visitor to being one with a customer' (Mastai, 2007: 178).

The museum still carries powerful traces of its 'original' identity, a bearer of 'authentic' artefacts and encyclopedic knowledge, a cabinet of curiosities, a study, a library and a space of history. What this chapter offers to the overall thesis is an understanding of the conditionality of the museum in changing, the complexity of the claimed shifts, and its unavoidable reliance on the external dynamics of each period it lives in. The active audience is vocalised as part of the current museum paradigm. However, as discussed, lines across passive and active when engaging with artefacts or historical accounts are blurred. There has always been a need of interaction between the object and the public in order for the museum experience to occur. The modes and meanings of that relationship arguably differ and/or perplex under the realm of digital technologies. The embracing of technological innovation and digitally mediated interactive experiences has influenced exhibition techniques, the relationship with visitors and artefacts, as well as the internal relationships and dynamics of museums, perhaps turning the attention to affect, feelings and emotions, sensibilities or disorientations, the seductive or the familiar that shape our relationship with these environments.

CHAPTER 3

Interactive Digital Practices in Museum Exhibitions

*‘Today, interactivity has come to be a dominant model of
how objects can be used to produce subjects.
In an interactive model, subjects are not disciplined, they are allowed’*
Barry, 2001: 129

*‘The critical discourse on interactivity is ideologically loaded,
even schizophrenic in its tension between
unpleasant connotations and utopian expectations’*
Morse, 2003: 17

3.1 Introduction

To enter and examine the phenomena of interactivity is an intricate event. The concept of interactivity demands the subject’s participation and alertness and it is deeply integrated in cultural experiences today that are becoming the defining moments of perceiving, acknowledging and digesting our environment. It soon became clear to me that a single definition of the term could not be captured even if the concept is widely integrated, used and accepted in sociocultural settings, particularly when experiences are digitally mediated. Academic literature from disciplines of information and computer studies, heritage and museum studies and digital culture offer a number of theoretical and technical descriptions of digital interactivity, with many studies searching for a single bounded universal definition and model (Downes & McMillan, 2000; Jensen, 1999). Its

overuse due to the excitement and eagerness in contemporary cultural institutions including museums and galleries has brought debate across the cultural and academic sector arising from larger questions in relation to audiences and their experiences, and the 'democratisation' of knowledge through participation, engagement and learning. In museum spaces the understanding of digital interactivity is often limited, mainly understood as an add-on process to the existing display, in the form of 'interactives', involving some type of computer technology (Heath & vom Lehn, 2008; Witcomb, 2006).

Exploring the definitions of interactivity from a range of disciplines is helpful in order to extract some of its important characteristics and factors, which I further dissect in this chapter. It seems apparent that the meaning of the concept has to be considered in the specific context in which it exists. Further, the connections and gaps across disciplines can prove to be valuable in the analysis of a concept such as digital interactivity, which for theorists such as Manovich (2001: 70-71) can often be too broad to be useful. Specific definitions of digital interactivity in information studies and computing, the forms that these have taken in the spheres of art and culture as well as the theoretical unpinnings of these practices, inform the types of digital interactivity that this study analyses.

Interactivity is mostly inspected and understood in relation to its technological attributes and widely accepted as a feature of the digital technology; however, at the same time, by its positioning as a tool and/or a technique of digital media, it still holds divided capacity between human and technology. Key contemporary theorists (see Guattari, 1995; Haraway, 1991; Hayles, 1999; Massumi, 1992; McLuhan, 1964; Stiegler, 1994) argue that we should overcome that dualism that characterised the thinking of the last decades and move beyond human-machine, human-non-human, technology-knowledge alliances in order to start thinking in terms of different processes of technology and people. The relationship between the human and the technological is constantly questioned and evaluated, arguing a divide from the Aristotelian view of technology as a tool for human nature, and bringing the relationship into a status of duality.

Technology is 'treated either as a neutral tool with the impact depending on the use or it is treated as non-neutral, always having a political effect' (Savat, 2012: 2). The discussions around politics and technology, the human and technology also reflect different uses of the world 'technology'. David Savat (2012) views Deleuze's thinking about technology as

an expression of how we live, and how we organise ourselves. In the introduction to the book *Deleuze and New Technologies*, editors Poster and Savat (2009) make clear the fact that the Deleuze never used or tried to theorise what we call new media, but he considered machines and technology mainly in regards to how we relate to them, most importantly as elements or as parts of larger assemblages. Deleuze and Guattari see those assemblages as compositions of desire, putting technology closer to the social element than the technical. Technology whether it is a simple object or a more complex machine is impossible to be viewed as separated from us. Furthermore, technology is expressed in the way we live our lives, how we act, how we think, how we formulate these actions (Savat, 2012: 67). Being no longer a question of each individual entity (Deleuze, 1995:121), these ideas are fundamental to the relationship that we shape with technology from machines that we use everyday: mobile phones; computers; interactive exhibits; online and social media encounters, to more complex technological systems and forms.

Digital interactivity came to prevail as an idea and practice largely in the mid-1990s with the invention of the mainstream media, cybernetic theory, the emphasis on feedback and, until recently, with the widely developed area of human interaction design. The human relationship with computer interfaces is by definition interactive and, while specifying interactive structures is a rather straightforward task, the understanding of users' experiences of such structures becomes complicated (Manovich, 2001). Research has generated debates over where interactivity resides (Bucy, 2004; Stromer-Galley, 2004); critique of the ideologies and technologies associated with it (Aarseth, 1999), and divided opinion on whether or not it is worth considering in that limited context (Manovich, 2001) as it is widely constructed. According to Kiouisis (2002: 379), who has written explicitly about the concept, operationally interactivity is constituted by three factors: the technological media structures, the characteristics of the communication settings, and the human perception. Other definitions argue that interactivity²⁹ is a concept that measures the media ability to allow the user to alter the content or form of a mediated

²⁹ Jensen (1998) also analyses interactivity in a media and communications context and under the complexity of the term he discusses some sub-concepts that support what interactivity acts as in that field. These sub-concepts involve the transmissional, consultational, conversational and registrational aspects of interactivity, emphasising the importance of information traffic and controlling/influencing this.

communication (Jensen, 1998). If 'interactive media' and interactivity is equated predominantly with physical actions such as pressing a button or tapping a screen, the psychological interaction can be disregarded (Manovich, 2001: 71). In the last decade, however, studies in communication and media studies, information technologies and areas of design expanded their remit on the psychological and personal input of the user in the systems. The embrace of interactive technologies in our everyday life and in socioeconomic and cultural practices has attracted attention considering the user's psychological responses to interactivity.

Before looking into the effects of interactivity on the users and their responses, it is unavoidable to ask the ontological question: why have we perceived the concept of interactivity as liberating for the user, as an expansion of the user's agency? Jenkins' work (2006a&b) on convergence culture, for example, is keen to promote the arguably positivist side of social empowerment and democratic contribution that participatory online communities and interactive media inspire. Interactivity is frequently associated with active subjectivities that are built through the flexibility and openness provided to the individual; through that interaction are potentially inspired a number of positive outcomes such as creativity, curiosity and productivity. The concept is deployed as stimulating freedom of choice by providing guidelines without rules and by allowing the user to become the expert and to challenge the voice of authority. When we consider the complexities and even assumptions, these statements of freedom seem to carry a utopian shadow (Morse, 2003: 17) of naïve technological determinism that overlooks prevailing social and cultural connections. The control that the user has can also be seen as an illusion considering the socioeconomic and political climate of neoliberal hegemony (see Carpentier, 2011; Hay, 2013).

Contemporary neoliberal societies envision a free-acting citizen with free-activating capacities (Rose, 1999: 64) being able to choose a unique individual path in society, but, I argue, still enveloped in control. Jarret (2008) argues interactivity to be evil and sees the user of interactive media being an ideal, active neoliberal subject given the fantasy of autonomous agency. Indeed, in line with consumerism, interactivity and interactive experiences can act as a tool to engage audiences and users in a world of individual choice and self-expression as being the perfect subject of contemporary capitalism. One can

argue that the importance of interactivity and interactive technologies lies in the power of the user being able to escape narrative structures that are already embedded within our being and to embrace interactivity's transformative qualities (Barry, 2001: 130) beyond technological structures. Therefore, it is significant for people who research, practise and examine interactivity to view the concept within the particular socio-historical moment of emergence and use (Jarret, 2008).

The analysis of interaction of human and computational systems is moving beyond usability and even user's experience, arguing that interactivity is undoubtedly more complex and multiple. Technology is beyond a mere tool for the human. The intensities and encounters performed and elicited through interaction with digital and new media present complex power dynamics involving individuals, collectives, institutions and commercial interests. Computers, phones, applications and interactive media experiences bring experiences close to us through affective charges (Cvetkovitch, 2003). I argue that cultural expressions and forms of interactivity carry the potential capacity to challenge traditional notions of reason and cognition, perception and memory, emotions and affection. Computing, design and usability are also part of this with the emergence and development of affective computing, emotional usability and emotional design (Picard, 2003). The ever-changing complexity of human behaviour and its relationship with the advent of products and services in the information age reflects the need to involve the emotional and psychological aspects within the broader understanding of it. Human agency that contains affective variables has become an increasingly prominent aspect of user experience and activity discussed largely in disciplines such as human interactive design, social psychology, cultural studies and beyond in the field of arts and humanities (see Damasio, 1994; Kuntsman; 2012; Papacharissi, 2014; Picard, 2003; Wetherell, 2012).

Interactivity has also been notable in the field of art from the mid-twentieth century, along with computing, communication and media studies (Dinkla, 1994). Gallery and museum visitors were invited by artists to become participants in performances, installations, and ephemeral artworks (see Bishop, 2006; Brown, 2014). The overall technological innovations have influenced the art field, through genres such as computer art, net art, new media art and performance art, integrating the questionable concept of interactivity into various levels. Interactivity's attachment to ideas of openness, freedom of choice,

movement and non-representation in that respect was embraced in attempts to break linear structures and narratives and to reinvent the relationship of the artist with the viewer.

My analysis of interactivity in the thesis does not derive directly from or concentrate on the scope of art practices. Instead, the specific exhibits and exhibitions from which I have compiled the empirical research have informed the discussion. Nevertheless, the examples I deploy allow me to refer to a comparison across various practices of digital interactivity in the setting of the museum and how they relate to art and content-based informative interactivity. The process and idea of interactivity within it is still modelled on ideas of text, production and consumption (Fuery, 2009: 30), with art forms still following approaches of spectatorship with the constraint of the separation of body and mind (Zies, 2011). When interactivity evades the cause-and-effect idea then potential for new avenues beyond cognition can lead to a complex relationship with the artworks. Fuery (2009) argues that the possibility of 'being interactive' can extend the application of interactivity beyond the event into cultural practice, bringing both physical and psychological senses together. Museum practices have predominantly viewed interactivity as a 'tool' to communicate a plethora of factual information in a different way, moving away from dominant frameworks of 'viewing' and 'looking'.

An interesting approach to bridging the differences concerning the concept of interactivity is its view as a metaphor for a range of relationships and forms (Fuery, 2009: 31). Following on from that, I view the social sense of being interactive, in the setting of museum institutions and galleries, as beyond a simple sender-receiver relationship with technology. Instead of the physical interactions, I want to examine what are the broader consequences and experiences that these forms of interacting with museum narratives and exhibitions entail. It is not only a question of escaping the deterministic relationship of digital interactivity with its technological structures but being able to extract the problematic issues surrounding the concept in relation to the audience and the individual. We carry new and old understandings of interactivity that consult the current effects, encounters and relationships with technological devices and media mainly being stuck in a linear pattern that is driven by desired, comfortable and known narratives, following the Cartesian view of a world made of discrete objects and subjects that interact and exist

prior to these exchanges. I see the museum to be built upon this divisive and problematic relationship between subject and object, as it can 'distort the nature of human experiences in the world' (Moran, 2000: 13 in Savat, 2012: 65). Humans are of the world, and phenomenology stresses exactly that dynamic relationship between the two, also indicating the importance of the human body in human perception (Savat, 2012: 66). Increasingly this dualism is being debated, also questioning the concept of causality. Can we withdraw from that positioning and embrace notions of multiplicity, fluidity and rhizome in our cultural dynamics, knowledge and thinking? In a new media culture that produces constant interactive stimulus 'teasing' notions of non-linearity, democratisation and participation while being on the borderline of exposing us as mere consumers of products of the experience economy, the process of becoming interactive and experiencing interactivity must be explored.

3.2 Definitions and Models of Interactivity in Media Environments

When researching a large body of knowledge that derives from a number of disciplines, it is possible to find some consensus about the concept of interactivity. Interactivity relates to interaction, a concept that means 'exchange', 'interplay' and 'mutual influence' (Jensen, 1999: 165). Commonly interaction is understood as human communication and activity such as pressing a button or touching a screen when one uses a system. That is its visible activity, argues Henning (2006: 311), but it is the invisible interaction that brings cognitive links between information and sensory stimuli. In this section, I engage mainly with the functional views of interactivity, and the plethora of research on the topic concentrates particularly on its human computer interaction aspects, following its very roots.

Experimentations of interactive systems with a focus on mechanics and robotics started around the 1940s, leading to a field of control and communication theory, whether in the machine or in the animal, that took the name of cybernetics (Wiener, 1948; Ross, 1956). The prefix cyber is still used, most often with the reference to human-computer systems, cyborg and the theories around it can give us a taste on the diverse work and literature around the field. Progress in computer-mediated, information and communication technologies has made it possible to consider interactivity and feedback as the primary characteristics of new technologies (Rafaeli & Sudweeks, 1997). Development of

technological innovations as well as the interest in the user of so-called interactivity has led to a constant elaboration of the concept; it seems to be constantly shifting and to contain rather ill defined meanings, often frustrating scholars, practitioners and researchers.

Lev Manovich (2001; 2003) has famously questioned its overestimated existence, stating that users are simply following 'pre-programmed, objectively existing associations', asking for emphasis on research that incorporates both the aspects of 'cultural and computing'. In the *The Language of New Media* (2001), Manovich avoids the use of interactivity as a part of new media, finding it too broad to be useful for his work. The human computer interface is by definition interactive and therefore any computing device can be called 'interactive'. Instead Manovich focuses on the structures and operations of interactivity that include simulation, image-interface, menu-based interactivity and scalability. He also defines aspects of 'closed' and 'open' interactivity (2001: 55). As he develops his argument, the author actually makes the claim that interactivity should not be attached directly to new media, as often, cultural forms such as books and cinema can be more interactive, as they allow the user to fill the gaps in visual and audio narratives and construct mental images and connections (Manovich, 2001: 55-64, Beer, 2008: 90). I will come back to these points in the next section, but I sympathise with Manovich's argument, particularly when he discusses the danger of relating interactivity exclusively with the physical actions of the user with an interface, machine or a media object (2001:57), and take up related themes in this thesis.

As I discuss briefly in Chapter One, this research speaks of two types of interactivity, the factual and the poetic. This is based on my empirical work at the Galleries of Modern London (GoML) and the High Arctic exhibition (HAe). The interactive exhibits at the GoML are spread around the galleries, between glass cases, artefacts and other environments, and are largely ones that 'unlock' their content through a tap, a push or a touch. The digital exhibits integrate touch-screen tabletops that engage senses beyond sight and offer freedom of navigation, as they allow you '*to get layers of content that you can't get otherwise, which is fantastic, it is like little treasure trove*' (Ross, interview, 6 July 2011). This branching-tree or menu-based interactivity where the user is presented with choices, and this advances along a particular branch of the tree, is an example of 'closed interactivity' according to Manovich (2001: 38). Therefore, I argue that touch single and

multi-touch exhibits principally fit in the category of closed interactivity, which is limited to defined pathways and arranged through a fixed branching structure (Manovich, 2001: 40). The team of the HAE at the National Maritime Museum took a different approach to interactivity. They self-consciously voiced an 'alternative' approach to 'conventional' interactivity.

'Museums and galleries are changing, castrated by how much you have to press and how little you get back ... castrated by other museums which they assume the only way to engage information is that way. ... I think museums and galleries should find a range of ways to communicate and not fall into a modern, a pitfall way of patting to be press a button to interact... which maybe appeal in a surface level but not in a deeper one' (Hornman & Mitchell, UVA, interview, 18 November 2011).

The team critiqued the 'push-a-button' culture of interactivity that has been prominent as a practice in museum spaces including GoML. They offer a critical perspective on the use of interactive exhibits, requesting 'artistic' interventions that engage with pressing issues such as climate change. I termed this type as poetic interactivity, which in the separation between open and closed types of interactivity would best fit into the open type as a responsive, complex and open to the broad possibilities of its environment. The interactivity of this exhibition is embedded within the artistic interpretations of climate change expressed via poetic storytelling, soundscapes, atmospheric lighting and sculptures. 'Even sculpture and architecture might be seen as interactive media as they demand 'the whole body to move and experience the spatial structure' argues Manovich, as it allows the visitor to fill the gaps, reconstructing images and stories from the bare minimum of lights and shadows (2001: 56).

These types of open and closed interactivity can be useful as a starting point, but they should not be taken as oppositions, rather as working points to engage with the notion further. First, it is important to take into account the different scales aligned on this open/closed axis (Beer, 2008: 93). For instance considering the basic structure of design, and our familiarity with the system, allows us to understand the nature of our engagement with digital interactivity. While technological attributes are important, digital interactivity is both human and technological. One should ask: 'among other things, whether

interactivity is a characteristic of the context in which messages are exchanged; is it strictly dependent upon the technology used in communication interactions; or is it a perception in the users' minds? (Kioussis, 2002 in Beer, 2008: 93) Increasingly, researchers such as Bucy and Tao (2007) and Jensen (2005:4) argue the importance of empirical research and understanding interactivity 'in the wild'.

The concept of interactivity, particularly with a focus on web applications, can be categorised into three areas: features of technology, users' perception, and the process of interaction (Kioussis, 2002: 356; McMillan & Hwang, 2002: 29). These factors can also be translated to aspects of process, function and perception. The technological elements involve structural aspects such as technological attributes and media features (Bucy & Tao, 2007: 651) that constitute important conditions for the engagement of the user with the system, including the content. Scholars, such as the ones mentioned above, have focused on interactivity dependent on the technological attributes and the media stimulus, developing a number of models (see also Ha & James, 1998; Heeter, 2000; Jensen, 1998). Interactivity is accepted as 'an episode or series of episodes of physical actions and reactions of an embodied human with the world, including the environment, objects and beings in the world' (Heeter, 2000: 7). Heeter's analysis incorporates six dimensions of interactivity: the choices available; the responsiveness of the medium; the system use monitoring; the information; the effort of the user, and the facilitation of interpersonal communication.

The emphasis often lies on how messages relate to one another, which 'stresses the notion of message contingency, that subsequent messages are contingent or dependent on previous messages' (Sundar, Kalyanaraman & Brown, 2003: 35). Sundar's (2004: 386) model of interactivity is characterised by aspects of control, choice and contingency as well as the degree to which the media allows the user to influence the content. He argues that interactivity is a characteristic of technology and not of the user; however, with a consideration of the user's significance in the process. The user has an understanding of the system that affects his interaction and therefore there is a difference between usability and users' perceived interactivity. Sundar (2004) provides a valid division across usability and user experience, introducing the perceived interactivity of the user. Usability allows the extension of our knowledge on the technical aspects of media and interactivity,

whereas the perceived interactivity of the user provides us with knowledge about people and their behaviours. Usability in my research of the GOML and HAe includes factors such as *functionality* and *efficiency* (the way an interactive exhibits/exhibition works), the *design of the interactive environments* (buttons, screens, interface, overall look, etc.), *accessibility* of information and other contextual elements, such as *orientation signs* (maps, pictures, etc.) and *aspects of the overall environment* (place, playground, imagination, especially for children).

The interactive exhibits at the GoML carry a familiar usability format. Usability is essential for engagement with the museum's interactive exhibits. Frequently, regarding the way an interactive environment is supposed to be used, the lack of instructions and faults in usage can be frustrating for visitors. Information presented through a variety of media can potentially engage diverse learning styles and allow differing levels of complexity in their encounter (Kidd, 2014: 89). Some visitors at the GoML indicate that: '*Actually it's a bit frustrating if it doesn't work immediately, because you sort of expect it to do so as it looks so futuristic; it looks like it should work immediately and you should not struggle*' (GoML visitor, interview, 4 July 2011); or they feel intimidated by the technology: '*I don't like the technology, it's too sensitive ... if you want it to move it slightly ... it jumps too far in the wrong direction*' (GoML visitor, interview, 4 July 2011). The lack of satisfaction and difficulties with usability shift the attention of the visitors and decrease interest and involvement (Allen, 2004: 20). The element of immediate apprehendability is significant here. It is a factor of engagement, and it can reduce cognitive overload, lessen distracting stimuli and help to put visitors within a comfortable and curious framework (Allen, 2004: 4 & 8). Most visitors tend to feel more competent when they apprehend the purpose and functioning of the interactive exhibits and can predict the responses to their actions (Gammon & Burch, 2008: 42). Wu (2005), a computer science scholar, presents interactivity also as a psychological state that is felt by the user during the interaction process. The relationship between human and machine is in constant flux and the audience's openness to engagement and dialogue depends on the context of these interactions.

Rafaeli (1988: 111), who contributes extensive work on interactivity from the field of information and communication studies, does not consider interactivity as an attribute of

a medium but of the actual social actions and relations transacted through observable behaviours, the exchange of messages, conceptualising and operationalising the concept in relation to the exchange of meaning (Bucy & Tao, 2007). He certainly pinpoints the importance of human existence in the phenomenon of interactivity, however, arguing that we cannot disregard the fact that media has to allow interactivity to happen. The exchange of a message cannot be equated with the exchange of meaning specifically considering the number of messages we exchange today, making human and user perception particularly significant. Interestingly, Rafaeli's division of interactivity has three levels: non-interactive, quasi-interactive, and interactive. Jensen (1998: 201) takes this approach further, arguing that interactivity is the measure of media's potentiality in allowing the user to influence the content or form of communication. This relates also to concepts such as prosumption (Ritzer & Jurgenson, 2010), blending processes of production and consumption particularly in new media culture with the users creating and consuming content. Steuer (1992: 87) agrees that interactivity is defined by the degree of participation of the user; his interpretation is most popular in the field working with mediated social networks and virtual worlds.

Bucy (2004), who largely works on the understanding of the effects, particularly investigates interactive online actions such as polls and emails with non-interactive tasks such as reading and evaluates user responses including emotional engagement. Users seem to favour interactive attributes, but the aspects of confusion and disorientation that these systems provoke cannot be ignored and lead to a phenomenon that Bucy names 'interactivity paradox'. He debates the assumption that interactivity following structural studies produces almost equal effects across users, but that interactive attributes can and do have differential effects (McMillan, 2002; Wu, 1999). For instance, the knowledge acquisition that we gain through hyperlinks also depends on our level of web experience (Tremayne & Dunwoody, 2001) as well as familiarity. Therefore, the cause-and-effect, two-way model is limiting and disregards patterns that occur, consequently being unable to predict what interactivity actually does. Increasingly, researchers centre their attention on the users and their subjective experiences, discussing perceptual approaches to interactivity (see Bucy, 2004; Levy, 1995; Wu, 1999, 2005).

Although the theorisation of interactive practices has suggested that the interactive aspect of every work is not necessarily obtained by an action–reaction relationship or a technological attribute, similarly communication and computer sciences seem to come close to the understanding that even media without interactive attributes may provide a sense of perceived interactivity. Interactivity as an independent variable involves dynamic and static information selection; adaptive content where the user can personalise the material; and interpersonal communication allowed through the attributes, from text messaging to online chats and forums. Perceived interactivity is the subjective experience of the users, indicating how they process the technological and media features. The limitation and complexity of the understanding of perceived interactivity in this statement is also shown by Bucy’s (2004) work, which indicates that a large number of interactive media attributes may not be perceived as interactivity by users. User control, time and direction of communication are most frequently acknowledged as elements of perceived interactivity (McMillan & Hwang, 2002). Factors that affect that type of interactivity are also identified in regards to control, responsiveness and interaction efficacy (Sohn & Lee, 2005). Furthermore, the individual’s differences moderate the relationship of interactivity and media effects, dividing different groups into separate patterns. Media effects include a number of different variables such as cognition, affect, emotion, behaviours and other psychophysiological responses (Bryant & Zillmann, 2002). These four variables – media stimuli (technological attributes), users’ perception as mediator, individual differences as moderator, and media effects – constitute the ‘mediated moderation’ model of interactivity (Bucy & Tao, 2007: 663), which is shown below.

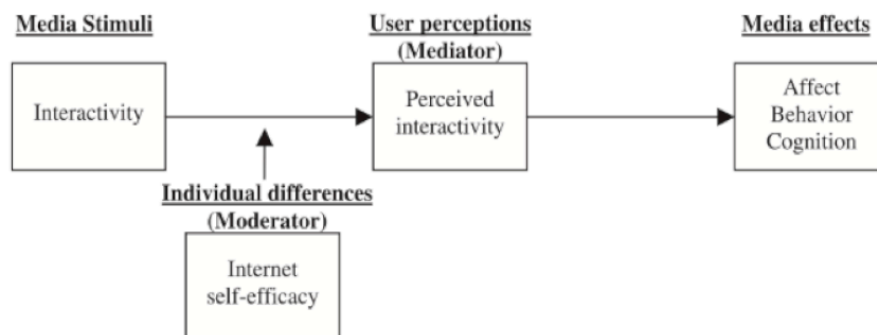


Figure 1: *The mediated moderation model of interactivity (Bucy & Tao, 2007).*

From the more traditional, causal, linear and sender–receiver models of interactivity (Shannon & Weaver, 1949), we now tend to discuss multidirectional communication and active participation by users who can input and alter the exchange, adding their personal experiences and knowledge. This corresponds to cultural-oriented theories of audience, such as Stuart Hall’s (1980) encoding/decoding model, which I elaborate in more detail in Chapter Five. The audience has been for a long period of time identified as the receiver of the message, particularly in the mass communication process. The encoding/decoding model foregrounds the social and cultural contexts that play a role in decoding meanings from media texts, arguing that audiences do not just accept these encoded messages but play an integral role in that relationship. Apart from the active role of the audience, Stuart Hall also engages with the polysemous text, which in collaboration with the different contexts opens possibilities for multiple interpretations. It is important to consider that the distinction of reception and production in the encoding and decoding model may not capture fully the forms of interactivity of digital media texts. The active audiences and the emergence of produsers and prosumers in comparison to just producers for instance complicate the scene. But Hall’s model is important as it interrogates the power dynamics, challenge and considers hegemonic norms of production in games (Shaw, 2015), interactive media and interactivity in museums and galleries.

The way that information is communicated under the umbrella of interactivity also varies considering the different meanings in the different contexts. Digital interactivity as identified or classified by scholars in art and new media art fields, which I discuss in the following parts of the chapter, embrace some processes of the definitions described above. However, emphasis has been given to the viewer, the audience and /or the spectator and his power to control and manipulate the work’s flow and form, thereby becoming a vital and inseparable part of the performance and breaking these patterns of representation. For instance, three main areas that are claimed to require scrutiny in regards to interactivity are interpretation, definition and control (see Lister, Dovey, Giddings, Grant & Kelly, 2009). The definitions described share points of convergence in order to sustain the concept in our contemporary culture.

I argue that the interest should lie in the notion of perceived interactivity, which gives more space in order to be able to locate and identify the various conditions of interaction,

allowing the user to define it. Visitors to the Galleries of Modern London and the High Arctic exhibition analysed in this thesis express interactivity with a broad selection of meanings that incorporate '*movement, control, connection, explanation, expression, information, learning, message, misleading, motion, order, relation, description, beginning, break and extend*'. The lexicological analysis pinpoints a relation to notions such as *break, push, move, see, action, ask, connect, control, cut, describe, explain, express, give, inform, interact, interaction, learn, mesh, reciprocal, relate*. The listed words give an idea of the vagueness, complexity and openness of the notion that includes physical actions (break, push, move, action, motion), senses (see) and internal and external processes (concentrate, connect, control, relate, learn). The technological and new media dimension of interactivity, according to audiences of both exhibitions, refers to the interfaces, the touch-screens, use of buttons and other external devices, input and output, and displays of a structured environment that allows people to interact with the information for the given purposes. Some visitors refer to the characteristic of responsiveness, which describes how actively (speed, reaction) the interactive medium reacts to the users. Responsiveness relates to pressing, pushing and revealing information. Interactivity is perceived through its media structure and content, personal and group engagement with the interaction defining multisensory, learning, affective, creative and social experiences. The dimensions of interactivity according to visitors of both exhibitions refer to the technological and digital media dimension, which includes the interfaces, the aesthetics of the technological system and the application, the content meaning of the information, the material, facts and objects and the process of interaction.

This section establishes that every medium has unique properties and therefore interactivity alters its ways of engaging according to the environments, system and human behaviour. Furthermore, it highlights digital interactivity informed by the technical systems and the importance of considering the human agency as part of the meaning, the process and the practice of interactivity. What seems to be lacking is empirical understanding of the effects of interactivity as a more contextual concept of its different discursive uses in a museum context. Further, while digital interactivity can feel chaotic and too broad to analyse, it cannot be taken as self-evident or left as an unexplained entity (Beer, 2008: 87). It is part of almost all new and social cultural activities and it impacts how visitors engage with them, their relationship with the exhibition narratives and the

broader sociocultural landscape. The following section introduces a story of digital interactive exhibits as a technological application and cultural expression in museum exhibitions.

3.3 An Introduction of Digital Interactive Exhibits in Museum Spaces

The phenomena described as digital ‘interactives’ and digital interactive exhibits derive from science centres and children’s museums. The primary and most well known influence is Frank Oppenheimer’s Exploratorium, which initiated what we mostly associate today with museum ‘interactives’. For Andrew Barry (2006: 164), the analysis of interactivity in the museum of science is significant for understanding the wider phenomenon of interactivity. The Exploratorium envisioned wider knowledge accessibility and educational formats. It encouraged learning through discovery; something that is a principal focal point of the more contemporary digital interactive exhibits. ‘Its radical message was one of *democratic empowerment*, where the public is emancipated through being able to interact with the object as an experimental scientist’ (Barry, 2006: 170 emphasis in original). The galleries indicated the aesthetic dimension of science, through artistic and poetic works. Art and science was understood as not divisive but integral to encourage an understanding of science as a creative activity (Barry, 2006: 170; Henning, 2006: 87). The canonical ‘*Cybernetic Serendipity*’ – *The Computer and the Arts* exhibition at the Institute of Contemporary Arts (ICA) in London accorded with the same philosophy as Oppenheimer, a mixture of art and science exploring relationships between ‘cybernetic’ technologies, creativity, between human/animal and the machine (Barry, 2006: 170; Henning, 2006: 87). With the Exploratorium as a starting point in the 1960s, interactivity spread in Europe and became particularly popular in science exhibitions and beyond by the early 1980s (Stevenson 1994: 30 in Barry, 2006: 170).

³⁰ The Science Museum in London and its Children’s Gallery has also been influential, giving emphasis to active participation by users in hands-on experiences that allow them to have a scientific experience first-hand (Danilov, 1982)

Since the 1980s, interactives and interactive technologies in museums have allegedly been 'democratising knowledge', with the potential to demonstrate processes and enable the user to see from new perspectives (Pearce, 1992). They are also associated with and promise 'adventure', 'fun' and 'play' (Witcomb, 2006: 353). Generally, the use of these types of exhibits has been accepted and considered to be successful in terms of learning and engagement (Gammon, 2003; Falk & Dierking, 2000). They have influenced the wider educational environment including how informal learning is perceived and practised within the museum. Interactive exhibits are considered successful particularly in regards to education and learning due to the active interpretation and interaction with the information, the object and the artefact, arguably in contrast to the passive visual relationship with the exhibit. Obviously, this clear-cut division between passivity and activity is problematic and requires further attention. The 'active' user allows the interactive exhibit to be active on her behalf, thereby projecting the activity into the machine; however, the machine's activity can be largely predictable (Barry, 2006: 172), as we have discussed in relation to the closed forms of interactivity for instance. I deepen the discussion on this polarisation in a later part of the chapter, where I engage with the role of visitors and audiences in relation to digital interactivity in the museum setting.

The Museum of London team accepts the shift from viewing an object to touching devices and objects as an important feature of interactivity, one they want to highlight in the particular space. This becomes apparent in the GoML in comparison to the museum's older galleries. A detailed summative evaluation of the GoML (for the period of August/early September and October 2010) was conducted by the museum, providing quantitative and qualitative assessment of the visitors' engagement with the new galleries in comparison to the older ones. The results of the museum's evaluation indicate that the new galleries are perceived as 'livelier' than the older ones.

With regard to visitors' learning, it is suggested that interactivity encourages a better understanding and recall of exhibits (Allen, 2004), with evidence showing that both

³¹ Questionably, the passive encounter with the museum material has been replaced by exciting active interaction where the individual has choice and control. Both choice and control vary in regards to their openness or limitation but can include physical interaction (normally clicking or pressing a button), cognition, and social interaction (learning through interaction with other people).

children and adults perform better when acting than when they just observe (Maxwell & Evans, 2002). Also, it has been remarked that specially designed interactive galleries hold the attention of the audience for a longer time (Richards & Menninger, 2000) and that interactive design features that allow multiple modalities and outcomes are vital components of exhibitions that prioritise family learning (Borun & Dritsas, 1997). In order to understand the nature and the extent of visitors' engagement as well as their actions in relation to the concept of interactivity in both exhibitions, data was gathered from the question: '*Can you recall any of the information you accessed or actions you "did" while interacting with the exhibit/exhibition?*' The interview data from the GoML suggests that the visitors recollect the following categories of outcomes: (a) fragments of content and information, (b) motivation for using the exhibits, (c) actions of accessibility, (d) actions of shareability, and (e) barriers to accessibility. The majority of the visitors were able to recall activities and actions when they accessed the interactive exhibits, such as touching and scrolling the screen, pressing the buttons, following the graphic items to read and answering questions. Others, especially those in groups, shared information with their peers, worked together on how to use the environments, did things collaboratively, posed questions, and engaged in conversations, frequently on aspects of usability ('*how to use the interactive spaces*' (GoML visitor, interview, 6 July 2011). Visitors from both museums' exhibitions refer to some problems with the interaction technology.

The wider museological community understands 'interactives' as exhibits with some presence of a technological medium, a physical exhibit added to the main display, and/or a device that requires some physical activity (Witcomb, 2006: 354).

McLean (1993: 93) defines interactive exhibits as 'those in which visitors can conduct activities, gather evidence, select options, form conclusions, test skills, provide input, and actually alter a situation based on input'. This highlights the importance of understanding what happens within the process of interactivity, how people behave, what they learn, how they explore digitally mediated environments, and what they feel. With the educational scope in mind, interactivity and digital interactives exhibits have become an importance resource in museum spaces as a new form of engagement with the museum collection (Meisner, vom Lehn, Heath, Burch, Gammon & Reisman, 2007). Apart from the positive potential of digital interactivity, its popularity can also be understood in terms

of its role as part of the broader leisure industry (Barry, 2006: 171), which raises concerns about the role and importance of the collections, and the levels of serious engagement with history and memory; particularly, over how and if they can be differentiated from the entertainment industry.

We are trying to find a new way of doing something in the museum.'

(Hornman & Mitchell, HAe, interview, 18 November 2011)

'I think we are probably still at this experimental stage, to be honest, which is good and I think people are trying different things and different ways of doing it. There isn't ... a sort of standard interactive thing that all the museums do.'

(Ross, GoML, interview, 6 July 2011)

These responses³², from professionals who are part of the decision-making and creative teams of both exhibitions, confirm that museums are indeed increasingly experimenting with and incorporating interactivity into their curatorial practices. My conceptualisation of the thinking behind the use of interactivity in terms of the specific exhibits at the GoML has been generated from interviews with Cathy Ross, Director of Collections and Learning; Frazer Swift, Head of Learning; and Gail Symington, the museum's Exhibition Designer. They present interactivity as a broad concept that refers to the engagement of visitors, their physical, emotional and intellectual experience. To understand the shaping of the meaning of interactivity at the HAe, I interviewed the main creators and partners of the exhibition. As well as the Digital Manager of the museum at the time, Fiona Romeo, who organised and initiated the project, I interviewed two members of the United Visual Artists (UVA) team, Judith Hornman and Rosie Mitchell, along with the poet Nick Drake and Natasha Freeman, producer/director of Cape Farewell, who has a particular interest in developing interdisciplinary arts projects.

As interactive exhibits are becoming increasingly popular and the interactive design increasingly professional and sophisticated, museums require a substantial amount of funding to develop such technologies for their exhibitions. Interactivity, in that respect,

³² As discussed in the methodology section, these interviews took place at a number of sites between the Museum of London and the National Maritime Museum.

becomes an industry and a commodity for science centres and other museums (Barry, 2006: 170). Digital interactivity in museum exhibition is implemented through various technologies that includes computer interactives, multi-touch systems, mixed interactive systems such as augmented reality (AR), mixed reality (MR), tangible user interfaces (TUI), or tangible interactives (Kidd et al., 2011). Sensor-based interactive installations feature different interaction styles to control digital content that include waving, touching, walking over an exhibit and page flipping (Hall & Bannon, 2005). Digital technologies and their applications offer the excitement of bringing content to our fingertips. According to Mika Elo (2012: 1), the finger has moved to the status of a switch, dragging the whole body along. The body has become a tool or an interaction device for interactive design work (Kortbek & Grønbaek, 2008), often with a sensor detecting the appearance of the user, tracking exact bodily movements leading to the selection of items or other actions. I discuss the aspects of sensory engagement with such environments in more detail at Chapter Four.

Interactive design activities in museum spaces have been inspired by diverse studies that include Vygotsky's (1978) sociocultural psychology; the notion of optimal experience and flow (Csikszentmihalyi & Robinson, 1990); theories of narrative by Bruner (2002); and Norman's (1998) ideas concerning invisible computing. Theories of education, such as experiential education theory (Dewey, 1938; Kolb, 1984), cybernetics and communications theory as briefly mentioned above and perception theories are also vital part of the development of interactivity in museum spaces. The theoretical frame comprises the following main themes: (1) Technology and its features (examples such as computer interactives) as an augmentation tool. In order for an exhibit to be effective and allow interaction, learning and collaboration, the technology should be unobtrusive and permit 'immediate apprehendability' (Allen, 2004). Gibson's concept of affordance (Gibson, 1977) is also relevant, as it discusses the perceptual and conceptual schemata that the audience share in such spaces (Kortbek & Grønbaek, 2008). (2) Materiality: The physical environment of an exhibition and the tactile interaction are central to meaning-making and conducive to knowledge production. The new technologies enable multidirectional communication, facilitate interaction and enable different experiences (Kioussis, 2002). (3) The sensory and perceptual aspects of interaction (4) The process of interactions that occur through collaboration between visitors, users and audience is an important factor

for subjective development. (5) Engagement is a component that makes the experience enjoyable and increases motivation towards participation. (6) Participation is also accepted as a key dimension to interactivity (Kidd et al., 2011).

The introduction of digital interactivity in the museums and their exhibitions is a delicate matter as a designer needs to consider the complex entity of the museum from the point of view of experience, interaction and exhibition design, the educational aspects, the curatorial voice and the audiences at the very least (Ciolfi & Bannon, 2002). Are they really cost effective, given the pace that interactive technologies update? Will visitors use them and if so, how? Can they be tailored to specific or new audience groups? How can they be integrated in the museum space along with the objects and the museum collection? Can it complement, or add to the museum exhibition narrative? These are only few questions that museum professionals ask when they consider developing interactive exhibits. For the team behind the GoML exhibition, interactivity involved communicating the content as a tool and a medium. Their approach also understood interactivity as an ideal instrument for delivering a large amount of factual data – a very common implementation technique and understanding of the concept. Interactivity can indeed provide technical possibilities that allow a vast amount of information to be organised, manipulated and delivered in numerous different ways, with opportunities for elaborated interpretation (Manovich, 2001: 131). According to the team, the design of a good interactive museum exhibition was considered as a complex process that consists of four categories of work: the exhibition theme (content, stories and narrative); the design of the exhibition; the participation of different professions and disciplines, and the evaluation and feedback from the visitors.

The GoML team's explanations of interactivity are rather hazy. The development of the galleries, and specifically the Capital Concerns exhibit, was a *'long process'* (Ross, interview, 6 July 2011) aiming to tell the story of London from the past (from 1950) to the present day. The team was interested in significant events that have shaped the past and present of the city. Through the use of interactive exhibits, they intended to revisit the history of London and create an interactive learning space, *[t]o put that in action, it took a long time and even the fact ... even the decision ... took a long time, so that was quite tricky ... whereas if you are working for 18th, 19th, 20th century we are less knowledgeable*

on and less capable therefore ... we might not have such strong opinions on what is going on' (Ross, interview, 6 July 2011).

The GoML team comprised members from three different departments of the museum (Learning, Collections and Exhibition Design), who worked closely together to create the exhibition in the new galleries. The way that interactivity is perceived in learning often differs from the way it is perceived in curatorial practice, and the practice-based exhibition design's perspectives can challenge both aspects. A common viewpoint expressed by both GoML and HAe professionals includes the need for collaborative and multidisciplinary work in regards to developing the exhibitions and consequently impacting on the practice of interactivity.

The creators and initiators of the HAe framed the idea of experience design as an artistic or performative medium where the participant plays a major role, hearing the soundscape and the poetry, their actions influencing and altering the immersive embodied experience. Providing information, content, stories and situations means '*connecting with the lived experiences of things and people*' (Drake, interview, 24 October 2011) that enables the understanding and analysis of these interactive experiences. Here, interactivity is framed as more than cognition and traditional learning; it '*should provoke your thinking, your knowledge so it should be some level of subconscious learning*' (Hornman & Mitchell, UVA, interview, 18 November 2011). In parallel to the HAe, the museum's Learning Department worked closely with Cape Farewell in order to create a youth engagement activity related to the exhibition and the issues it connects to. '*We thought it would be interesting as an experiment to offer an invitation to young people to provide a creative response and to do some research on environmental issues*' (Freedman, Cape Farewell, interview, 1 November 2011). Team collaboration and connection with other institutions (for example, schools) is also a very significant criterion, in order to '*make connections with the scientists, to learn a bit more about it. I think there is a lot of movement on current education for the disciplines to be more cross-discipline*' (Hornman & Mitchell, UVA, interview, 18 November 2011). The approach taken by the HAe exhibition team also blurs the boundaries of art and science, which was a significant part of the pedagogical strategy of the Exploratorium, aiming to make visitors understand and engage with science as a creative activity (see Barry, 2006: 73).

Witcomb (2006:356) identifies four types of pedagogies that can be applied to different forms of interactive museum experience. This includes the didactic expository model, which maintains an authoritative source of knowledge; the stimulus-response model that involves some sort of achievement in the act of interaction; the pedagogy of discovery, most popular in the interactives in a museum setting; and constructivism and interactivity, which she calls 'dialogic interactivity' (ibid., 2006: 356–359). This last type of interactivity moves beyond didactic trajectories that carry a clear message and ones that offer multiple outcomes but instead allows the visitor a higher level of input through open-ended narratives. Digital interactive exhibits are perceived as an alternative space for object and content interpretation, a platform that can move beyond the main narrative and incorporate a more holistic story and event. Their use is an integral part of today's museum exhibitions, with their intervention being accepted, often unquestioningly, as proving impact, worth, accountability and relevance (Kidd, 2014: 2). vom Lehn and Heath (2005) argue that although museums are aware of the importance of interactivity, the actual effects of interactivity are largely unexplored. In spite of that, more recent publications are taking a more critical stance on their impact in relation to learning and meaning-making (Dicks, 2013; Harrasser, 2015; Kidd, 2014). Nevertheless, it is noticed that the majority of interactives and interactive exhibits maintain didactic transference models (Cubitt, 1998; Manovich 2001; Reading, 2003).

3.4 Interactivity in Museum Spaces

Current understandings of the museum are widely expressed as a shift in focus away from the static object towards spaces of 'cultural interactivity' (Huhtamo 2011, 2012; Martin, McKay, Hawkins & Murthy, 2007). Interactivity today often acts as a premise to attempts to reinvent educational, political and broadcasting institutions (Barry, 2006: 177). The interactive model is embraced in electronic democracies, where the citizen's participation is valued and arguably able to affect the consensus and complex issues (Rowe & Frewer, 2005). Interactivity is something beyond the outcomes of the interactive exhibits, or a 'tool'. 'We don't just use technology ... we live with it' (McCarthy & Wright, 2004). Technological applications, already part of our everyday lives, shape certain understanding and consciousness. Andrew Barry's (2001: 129) critical analysis of

interactivity views these types of interactive technologies to support the production of 'interested, engaged and informed technological citizens'. In his work *Political Machines: Governing a Technological Society* (2001), the author engages with the relationship between the museum and the citizen, arguing that these technologies deploy a different power than the Foucaultian disciplinary technologies and stretching the relationship of a citizen and a consumer of technology. The disciplinary technologies of Foucault, he says, 'manipulate and manage the body in details, but the interactive technology is intended to channel and excite the curiosity of the body and its senses...' (Barry, 2001: 148).

Interactivity, therefore, can potentially allow some flexibility depending on the user, the content and its set-up beyond the rigid articulation of body and object relationships. It is perceived to allow a diversity of visitors and communities to access a museum's histories and collections, besides being an activator of non-linear and less dominant historiography. There are important and controversial points to be made regarding the behavioural impact of these devices and interactive exhibits on museum visitors. Apart from the need to understand further the extent to which these experiences can lead to engagement and increased meaning-making (Kidd, 2014: 89), questioning of these technologies can be raised in relation to the museum being viewed as a technology of behavioural management (Bennett, 1999). Considering Bennett's (1995) critical view of museums as disciplinary institutions that aim to alter and affect habits and manners and regulate visitors, one can view interactivity as yet another technique of disciplinary management.

In Chapter Two, I analysed societal changes and their influences on museum practices and identity. As Hooper-Greenhill (2000) has argued, the museum has become a site of social and cultural struggle trying to embrace a multiplicity of histories and narratives in multicultural societies. Unquestionably, museums are a valid source of knowledge and they must converge towards producing a social consciousness that is diverse, open and relative along with keeping their existence as a space of conservation, collection and learning. Audiences still visit a museum to be told original stories and to view real objects, so the argument on how much the museum has moved beyond its role as an object collection space and for which reasons is still at stake.

From the on-site research of this thesis, it became clear that encounters with these interactive technologies, and their ability or potential to empower the visitor, lead visitors to different forms of discovery. The encouragement of creative capacity depends largely on the familiarity, accessibility and willingness of the visitor to engage with these technologies. Beryl Graham (1999) in her research study of interactive artworks suggests that for any type of interactive experience, the level of interactivity ultimately depends on the user and his receptiveness and ability to engage with the piece. For instance, visitors to the Galleries of Modern London who were comfortable with the use of digital devices would go directly to navigate the system, mostly expecting them to work like the devices they have at home (*'This should work like my iPad or my Google Maps application'* (GoML visitor, interview, 4 July 2011)). In the case of the High Arctic exhibition, the encounter with the installation had various entry points. It seemed that the lack of touch-screen interfaces and other push-a-button systems often freed the visitors.

The relationship with the torch, which acted, as an activator of other elements within the exhibition, was 'novel' for the standards of museum interactive exhibits but was accessible to the visitors. While the engagement with the installation required some willingness from the visitors, it seemed to allow them to think and act beyond the expected interactivity and give more attention to the content rather than the technology in which it is enveloped. However, it is expected that some visitors are more 'trained' and comfortable with certain ways of thinking such as clicking to make a choice, following links, or making more abstracted connections between events, information and images. This 'training' is still linked to social privilege and cultural capital argues Harrasser (2015: 385), challenging the claims that digital interactivity in museum spaces support the social democratic idea of education for all. Her research, which focuses on paradigms of playful children learning in relation to the 'interactive mode' of exhibition design, demonstrates that this mode 'does not produce equality in learning, certainly not automatically'; instead 'the child as explorer' has become the prototype of the much desired informed citizen' (Harrasser, 2015: 383-5). The author provides some particularly interesting insights, which I will observe and discuss further, in the following chapter that relates directly to learning and interactive museum experiences. My empirical research also reveals negative reactions to the topic of interactive social experiences in museums, with some visitors indicating that it is hard to approach the interactive elements in the museum exhibition

and others becoming confused or disconcerted in their attempts to discover the nature of interactivity.

Interactive experiences need to be understood as social. Collaboration, participation and social interaction are part of interactivity. The significance of social interaction is acknowledged and discussed in relation to museums and their exhibitions as well as in the art sector. Heath and vom Lehn (2008) have extensively researched social interaction in museum spaces and its relationship to interactivity. Why is social interaction increasingly important and what are the factors that influence that significance? Social and cognitive science on education has demonstrated the importance of social interaction and how knowledge and learning can be gained through communication between children or adults (Lave, 1988). Visitors' activity in this empirical study includes four types of interaction (Jacobsson & Davidsson, 2012): (a) visitors' interaction with the exhibits, tools and signs in an exhibition (*individual interaction*); (b) visitors' interactions with other visitors or their peers (*social interaction*); (c) visitors' actions when they interact with staff members (*supervisory interaction*); and (d) distraction. The nature of interactions investigated through the interview process and observations in some respects limits the results and understanding of diverse communications while using the interactive exhibits or exploring the exhibition. Despite the methodological challenges, my data provides a fruitful platform to think about the social encounters that are occurring and to consider relationships of collective and individual experiences and engagement.

The dimension of individual interaction indicates the personal (one-to-machine) use of technology in the exhibition and the impact of these technologies on people's experience. Individual interaction is a common process in the use of interactives in museum spaces, especially the older type of such exhibits. The theme of social interaction considers a sharing experience through the visit to the museum. Interactive exhibits in the museum have been predominantly focused on individual users, not necessarily considering co- or multi-participation and collaboration (Heath & vom Lehn, 2008). The newer types of interactive exhibits, which are more open and welcoming due to the size of the interface and the fact that they may have more than one hot spot on the same interactive table (see

³³ Supervisory interaction (Hebert & Fritsch, 2013: 26) refers to engagement with others, outside of an immediate group.

Section 1.2.1.1) can be seen as more sociable and allowing visitors to share and talk more to each other. Critiques that work across disciplines such as art and technology have been largely focused on the individual rather than the group and the social aspect of participation or interaction, reflecting both in art pieces and museum exhibits.

Shareable interfaces, as discussed in this study, offer the potential for different *collaborative experiences*) among the visitors through playing, working and enjoying together, along with different *interactions*. Collaboration as a reciprocal, coordinated interaction and exploration of ideas and perspectives (Harris, Rick, et al., 2009: 335) is identified in this research as group discussions, reciprocal doing and trying, playing together, verbal conversation, parallel listening and sitting together. At the GoML, visitors in pairs would normally help each other; most often, one would touch the interface while the other would observe. One visitor said: *'He was showing to me, I wasn't trying to actually touch it. I was just pointing, however it was still picking up on my touch so ... although I was not actually making contact with it, it would jump and move'* (GoML visitor, interview, 4 July 2011) - indicating a discussion that involves both the content of the exhibit and its usability and technology. Conversation among the group occurs when a choice needs to be made. For instance, in the Capital Concerns interface, which involves a polling system towards the end of the interaction with the exhibit, the visitors *'were kind of discussing the answers'* and *'both tried to answer the questions...'* (GoML visitor, interview, 5 July 2011). According to Simon (2010), interaction and communication around the content accommodates productive participation and interaction (Kidd, 2014: 92).

Another aspect of interactive artworks and exhibits is the possibility of becoming overwhelmed by the technology itself, particularly with the novelty of the medium. It was obvious from the data that visitors to both exhibitions spent a large amount of time considering the technological applications per se rather than their content. They tried to figure out how the exhibit works, anticipating the ways they need to act with it, or its failure. Often, wrapped up by the medium, for instance, such as individual computer interactives, the majority of exhibits have been developed with that platform in mind and largely insist on working on one-to-machine relationships. Increasingly, artists, designers and curators are becoming aware of group and social interaction. The focus on the individual user reflects not only on the use of interactivity but also on the curatorial and

educational aspects of the museum in general, and interaction is often at the expense of co-participation and collaboration (Heath & vom Lehn, 2008). Heath & Vom Lehn's work has also shown that the more low-tech exhibits are actually designed to allow more co-operation and collaboration. Therefore the technological aspect of interactivity is almost not the most relevant dimension in the facilitation of social interaction.

Interactivity as a concept and practice needs to be reconceptualised beyond its mere technological status with a focus on the social relevance of today's practices.

The HAe allows all these diverse types of interaction, but it is also a lonely and solitary experience. An individual experience was more encouraged and appreciated at the HAe. The silence of the space, with its darkness and sound invasions, made the audience want to be alone, not wanting to share the experience. It also felt intrusive if other people were wandering around in the space: *'we were the only two in there and another couple came in there and I felt ... who are these strangers in the strange place? I was just happier when we're there on our own'* (HAe visitor, interview, 15 November 2011). Sculpture and architecture can be more interactive than other forms of interactive media, as they require the body to move and experience the spatial structure, argues Manovich (2001: 56). The reflective poetic narration by poet Nick Drake at the HAe, who travelled with other artists and scientists to Svalbard, an archipelago in Norway, brings tales of the Arctic from the past travelling through voices of spirits, natural phenomena, animals and humans aim to bring audiences close to that land, to feel connected to and part of it. 'Poetry is vital for our existence forming the quality of the light within, which we predicate our hopes and dreams towards survival and change, first made into language, then idea, then into more tangible action (Lorde, 1996: 96 in Golding, 2013: 90). In her paper on 'Museums, poetics and affect', Viv Golding (2013: 83) argues for the significance of poetry and imagination in opening the museum spaces to unheard voices, helping a museum that shares authority and promote reflexivity. Poetic interactivity is personal, simultaneously still and moving. It asks its voyagers to slow down, to sit and listen, to wander around the space and think. While the physical movement of the body and the hands is embedded in the process, its artistic installation also demands cognitive and emotional attention.

Manovich (2006: 60) speaks of how interactive computer media relate to virtual reality works, and particularly their ability to merge with our mental processes. He argues that these types of machines are able to externalise and objectify the mind's operations.

Mental, unobservable and internal processes such as reflection, problem solving, recalling and associations have become part of the public, standardized and mass-distributed. In contrast, the poetic interactivity of the HAe, I argue to allow visitors to fill their own gaps, tell their stories, are free to imagine through the semi-abstract landscape of the space, the blue lighting, the shadows of the sculptures and the poetic narration. *'I went into the snowstorm, and I was trying to clear the snow ... you know and trying to imagine the people drinking and celebrating and their feelings ... also, that was bringing images of our storms, you know... our winters, images of Christmas, images of people sitting in there, in the Arctic, thinking of home ... also, it felt a little bit frightening...'* (HAe visitor, interview, 13 November 2011). While 'interactive media ask us to identify with someone else's mental structure (ibid., 2001:61), its function also varies, depending on the way that digital interactivity is implemented and perceived, particularly if we consider not only the technical aspects and the design, but the specific setting and the visitors' input in establishing the experience. I argue that poetic interactivity can be discussed also through the ideas of immersion, and the cinematic apparatus that brings it closer to 'an experience machine partly technological, partly metaphysiological (de Lauretis and Heath, 1980 in Huhtamo, 2015: 272). Huhtamo (2015: 272) speaks of the audience experience in movie theatres, constituted by the theatre architecture, internal setting, lighting and signs, images and sounds. The presence of fellow audiences, the darkness, the size and shape of the projections, the temperature, the soundscape all contribute to that experience.

The patterns of becoming engaged and involved with the interactive exhibition have marked differences from and few similarities with the GoML. The audience is provided with a responsive ultraviolet light torch that needs to be pointed to a location in the space. The changing environments, the sculpture and the four different interactive floors placed at the centre of the exhibition space react to the shining lights, which reveal the names of glaciers or changes in the shapes and forms of the interfaces. Some groups would enter the space and disperse to its different corners, listen to the poems, watch the sculptures and walk slowly around the room until they face the interactive floors. Social interaction happens in the interactive pools, where the visitors concentrate and shine the torch along with others in the space. The torches overlap and different influences affect the interactive points and the graphic images created. The exhibition's simplicity liberates it to some extent from factors of usability and accessibility, as its use is straightforward. The torch,

as an extension of the body, made it easier to point and interact with the exhibition as *'once you got the idea that you can move the map to the left and the right you can try and get this in the middle so it is a different function.... It almost looks like the snow is coming down towards you and bouncing in different surfaces ... although it is a simple device your movement is different because you are moving much quicker'* (HAe visitor, interview, 13 November 2011). Some of the visitors' statements express that *'everyone was more or less individual, only in the last stage we were all collecting together'* (HAe visitor, interview, 13 November 2011). Each interactive floor has a different presentational pattern and content/message, but all of them follow basic graphic rules; they look almost like arcade games, carrying a link with the exhibition's content and abstraction in form.

Interactivity in the museum has potential that can lead to 'hydric spaces' (Yaneva, Rabesandratana & Greiner, 2009) where exhibitions and debate are accommodated. In a heavily informative knowledge economy, the understanding of narratives is fragmented, relying on temporary closures through dynamic dialogue, active involvement and participation. The experimental approach of the exhibition at the National Maritime Museum inspired the body of the visitor to interact with the 'machinic' configurations, while the torch acts as an extension of that body. The encounters can be often unrecognised, confronting feelings and emotions, personal memories and stories, their own knowledge and beliefs. Still, one of the main and unavoidable contentions around the museum at the current time is that the interactive experiences produced act mainly as a tool for the competitive market within the cultural sector meeting the demands of the experience economy environment, as I explore in more detail in Chapter Four.

Interactivity and the experiences it creates cannot escape the discourse of commodification; as McLean (1993) points out, corporations and donors sponsor most of the interactive exhibits. One way of trying to gain some ownership of interactive experiences involves questioning how a person is being interactive and what each personal interactive experience is. The individual, the audience, the user, has been a consumer within the neoliberal climate. The ideological context is critical, including the acknowledgment of the dangers that this commercialisation of culture can carry. We have the ability to choose and intervene to some extent in the information given around us, but how much interactivity as a concept or a practice can be an initiator of critical engagement with this information is another question. Additionally, the interactive exhibits carry the

connotation of enhancing learning, however the didactic approaches to these types of exhibits simplify learning as a plain communicative process (Witcomb, 2006). Museums do experiment with the power of technological innovations, the possibilities of interactivity and ideas about their audience, but their politics are less explicitly understood (Henning, 2007: 44).

3.5 Interactive Art Practices and Their Influence

In this part, I explore digital interactivity in relation to art practices, aiming to understand differences or commonalities in relation to interactivity in the museum exhibition. It is almost impossible to provide a coherent and complete image of what interactivity in art and curatorial practices entails, with its vast theoretical and cultural frames, in such a short section. I will instead pinpoint a few snippets that I regard as relevant to and interesting for the thesis and the particular examples. The inclusion of interactive technologies has impacted art practices, curatorial models and exhibition design, with the audience playing a prominent role. Curatorial practices have been re-examining their own institutional role and efforts of 'interactive curating' (Schavemaker, 2014) have been prevalent in modern and contemporary art institutions, investigating the relationship between art and its audience, as well as the artist's relationship with the curator and the audience. The connections of audiences and institutions are constantly tested, aiming towards dialogue and transparency as well as process, provoking and challenging curatorial practices and institutional strategies. Institutions incorporate a number of different models and strategies to bring in more audiences, in numbers and diversity, aiming to develop a participatory and interactive relationship through their exhibitions and programmes, as well as trying to meet their expectations. Some of the curatorial models include performing arts, public and community programmes, temporary events and interactive installations (Schavemaker, 2014: 240-245).

The High Arctic exhibition portrays exactly one of those techniques – a temporary artistic intervention that introduces the aim of the new galleries to engage a different kind of audience in this more 'traditional' museum. This type of interactive installation aims to distort traditional methods of linear interpretation and narration, but instead creates a doorway outside conventional structures and it requests from the audience to become an

interactive subject, offering personal entrypoint to its narratives. The work of Bourriaud (2009) on relational aesthetics is one of the most influential on aspects of participation and collaboration in relation to what may be called interactive or participatory art practice. The author argues that artistic practice now focuses upon the sphere of inter-human relations (Bourriaud, 2002: 28), with artworks being more open-ended, and constantly negotiating the relationship with their audience.

'The city ushered in and spread the hands-on experience: It is the tangible symbol and historical setting of the state of society: that 'state of encounter imposed to people'...this system of intensive encounters had ended up producing linked artistic practices: and art form which takes being-together as a central them, the encounter between beholder and picture, the collective elaboration of meaning' (Bourriaud, 2002: 15).

The exhibition at the National Maritime Museum discusses the complexity of the relationship between humans and nature and our impact on our planet's landscapes. The artist, the poet and the sound designer comment on their personal experience of being in the Arctic through the creation of an interactive installation, an immersive and imaginary space, which speaks directly, emotionally to the audience, avoiding didacticism. It is 'an artwork in the museum'.

'Thinking about environmental issues, thinking about the science of those environmental issues, thinking about ... human behaviour and the impact on the environment, thinking about the changes that happen in the environment and their impact on the society, the globe and then ... give a response which it isn't didactic message, isn't saying that we have a problem, turn the electronic devices off or do recycle.' (Hornman & Mitchell, UVA, interview, 18 November 2011).

Social and political significance can exist in these interactive situations in a gallery or a museum setting, with relational works of art that create life possibilities, and concrete spaces rather than fictional ones (Bourriaud, 2002: 45-6). The degree of interactivity in this experience, I argue, it is not the most important aspect, but the focus lies on the *active presence* of the audience in the installation. Poetic interactivity facilitates both distance and immediacy to the work, with the visitors encouraged to feel close (immersed) in the Arctic landscape and its human and non-human elements, but at the same time distant

from it through these blended temporalities, experiencing disorientating moments and confusion, as well as a sense of place.

For Bourriaud (2009), concepts such as interactive, user-friendly and relational have challenged art practices. His relational aesthetics and new media interactive practices make interesting distinctions. In order to escape from the interactive practices that lead towards theme parks, marketing practices and consumer satisfaction, the author differentiates his theory from the technological factors of interactivity; in contrast, he focuses on terms of encounter, dialogue or engagement. There is a certain difference when we are analysing interactive art practices and interactive practices in museum spaces. The difference lies mainly in the purpose or goal of the exhibit or exhibition. The notion of relational aesthetics can provide a very useful challenge to dimensions of interaction, not only in the field of new media art but also in interactive exhibits and installations at social and more traditional museums, as it questions the rhetoric of digital participation and examines the limits of engagement within the installations (Bunt, 2009). Whereas relational aesthetics allows us to consider the problems of technological determinism, interactive works can carry complex relationships that vary from one condition or state to another. The difference that I can extract as a starting point between artworks that carry aspects of interactivity and interactives in museum spaces is the sense of ambivalence.

In art domains, interactivity encapsulates a variety of situations. It has become one of the essential features of contemporary culture, broadly understood as a dialogue; a communication between the interactor and the work that occurs in real time, and it is mutually influential (Kluszczyński, 2007: 216). The disturbance of narratives and the move away from the passive spectatorship have been the main subject matters around interactivity since the 1960s and 70s, with new media artworks encouraging spatial and temporal disturbances and environments that envelop and immerse the participants, 'awakening' their senses. Interactive art incorporates the technical and technological aspect; therefore the shift from linear models to multilinear or spatio-temporal models, challenging one kind of representation – and one form of spectatorship to another. Kluszczyński (2007: 217-8) speaks of two tendencies in the field of digital and interactive arts; the first that considers interactive art closely related to traditional modernist aesthetic paradigms, where the artist dominates the artwork and its content and the

second that wants to 'cancel' conventional art canons, and it aims towards a radical shift on the roles of artist and viewer. As Ascott (1993 in Kluszczynski, 2007: 218) argues the artist becomes a designer of the contexts where the audience construct her own experiences. Brown (2014: 6) also considers the unique and distinct interactive encounters between artists, the artwork and the audience to create a range of experiences and spaces. She argues, however, that interactivity can, but doesn't need to, challenge the notion of a single authorship of a work of art. Interactivity in a work of art also welcomes a work in progress, an area of activity that can be manipulated, altered and also produce temporary endings. Inevitably, it takes the shape of an event (Kluszczynski, 2010: 2).

Furthermore, the museum has always been a performative space and it is becoming increasingly more performative as the representation of culture occurs through movement, interaction and participation. The partners of the High Arctic exhibition comment on the performative element of the installation:

'As soon as you walked in, the way that you were actually physically in the space ... it does hit you, it forces you to behave differently, so you walk differently in the space ... you don't know what to do with it, you can't hear it very well ... even if your torch is not working, you learn that you are in a different space and as a result, it forces you to think ... to reflect and investigate, try and be curious, and that in itself I think it is the biggest achievement. I think it is a very powerful use of the space, I think the idea of interactivity is very useful ... for me, I can relate to a theatre background' (Hornman & Mitchell, UVA, interview, 18 November 2011).

The concept of performance in a museum can take a number of dimensions. The quote points out how the space of the HAe carries performative elements that can destabilise existing ways of being in the gallery, challenging the visitors' behavioural patterns within a museum setting, removing them from the known ways of engaging with the exhibition, their surroundings, their own bodies and other visitors as well as the formation of their experience. Goffman's *The Presentation of Self in Everyday Life* (1959) describes performances as written or spoken words that make an ontological change; they do something rather than just describing an event. Performance and performativity are constantly redefined in a number of disciplines, also assuming change and modification. The performative in interactive art also implies interpretation and execution, use and

knowledge, a process and a ritual (Fuery, 2009). This entails that when it comes to the relationship between the human body and technology, for instance, complex interactions occur that are not neutral but illuminate perceptual and emotive formations, and the social and cultural underpinnings.

The artistic element of the High Arctic exhibition aimed to '*engage, provoke and challenge, to get you think differently and by thinking differently you can do something about that*' (Hornman & Mitchell, UVA, interview, 18 November 2011). Museum messages can also operate on what Butler (1993) calls a series of 'performatives' (forms of authoritative speech) that make the body both legible and manageable. Performance artists have often put the audience in positions of discomfort, for example using interactive performances as a type of 'behaviour modification' as a way of enhancing their socio-political focus and awakening political responsibility (Kalionis, 2014: 197-198). Kalionis presents the example of the Australian artist Mike Parr, who functions with 'the aesthetics of trauma through provocation and violence' (ibid., 2014: 210); what I take from this is the challenge of spectatorship and intent towards a transformative experience, a responsibility that is handed on to the audience. This vision of art that can 'educate' and 'transform' the audience encourages a space for experimentation on a social and personal level that can confront routine behaviours (Bourriaud, 2009: 8).

Museums have started to experiment with exhibitions that lie on the borders of science and art and technology³⁴, exploring a different view on the ways in which interactives and interactivity are used in these spaces. The National Maritime Museum's Head of Design and Digital Media at that time, Fiona Romeo, was committed to taking visitors on an enthralling interactive audio-visual experience. She told me she had been inspired by British artist and designer Chris O'Shea's work *Hand from Above*, a playful interactive digital screen placed in a public space where 'a huge hand tickles and interacts with people around the city in real time', as she expressed it when we discussed the exhibition development (Interview, 20 October 2011). Additionally, Romeo provided me with the initial plans of the High Arctic exhibition that show other 'examples of inspiration',

³⁴ Art and technology projects can dehumanise the effects of technology, allowing both sensorial engagement and mental reflection to trigger interactive modes with an important factor being the collaborative aspects between artists, museum institutions and sponsors (Albu, 2011).

including *Epidémik* at Cité des Sciences et de l'Industrie in Paris; *Bodymover* by Berlin-based ART + COM Studios; and *Contact* by UVA. All these works invite the body of the audience to affect the interfaces and the overall work. The aspirations of the museum director and the manager of the exhibition were to bring into the space an experience totally 'un-museum' like: an experience attraction where visitors could take off their shoes, run around and make noise (NMM Internal Exhibition Brief, 2011).

Oliver Grau (2007: 3-8) in the introduction of the book *Media Art Histories* argues for the importance of digital art, and discusses the issues that these works face in regards to their acceptance by official spaces of cultural institutions. The issues include a number of factors such as collection techniques and processes, the relation of digital and media art to traditional art history, and a lack of knowledge about audio-visual media. Nevertheless, it is important that many of the issues that Grau mentions relating to presentation and documentation, approaches to collection and preservation of digital, media and new media arts, and curatorial models are constantly being challenged (see Paul, 2008).

The HAe provides a good example of how digital interactive arts can be a contested issue for cultural institutions. In our initial discussion, Romeo acknowledged a few issues with the acceptance of the exhibition style from the other departments of the museum, who expressed that it was '*not what they did*', or who felt intimidated by the way the exhibition differed from traditional interactive exhibitions. Such a narrative highlights the importance of the role of the museum professional, and their understanding of digital interactivity and interactive works. Struggles and differences in the way that the various departments of museums understand how an exhibition 'must engage audiences' are a common and constantly changing problem within museums.

Indeed, it is a great challenge for the museum to simultaneously curate, to present interactive artworks to a traditional audience and to balance the demands of the visitors (Paul, 2008: 64). The statement '*it is not what we do*' from other departments at the National Maritime Museum portray how digital art is frequently placed in opposition to traditional objects and artefacts. Beyond that, it reflects the knowledge and the expectations not only of museums' audience, who may be more familiar with painting, photography or objects, but also the knowledge of the people working in the institution,

who perhaps need guidance and explanation in order to pass this awareness to the visitors. Paul (2008: 65) suggests that once the museums integrate or sponsor digital and interactive art works or projects, they should also guarantee their regular exposure. Invigilators of the HAc felt that the exhibition was partly separated from the rest of the museum's exhibits, and was seen by the other departments as a one-off exhibition for the museum's Sammy Ofer Wing space. Indeed, it is notable that the subsequent exhibitions mounted in that space followed much more traditional forms of narration and touch-screen-based interaction.

The curator plays a significant role in the inclusion of such work in museums and galleries, as often she mediates between the artist and the institution in order to create the format and accommodate these types of work (Paul, 2008: 65). That proves to be the case for this example as well. Romeo had a specific interest in producing 'distributed experiences' that simultaneously carry digital and physical dimensions. With her background work at Disney and an excitement for spatial and embodied non-linear storytelling, she encouraged empathetic and emotional links between the visitors and the narratives of the museum in a three-dimensional space. This connection with the world of Disney brings in mind associations of interactivity with filmic and cinematic experiences, the imaginative world of projection, immersion and physical sensations (Burnett, 2007: 309) as well as the museum exhibition as a spectacle and a commercial appeal.

Mieke Bal (2014: 17) views an interactive artwork as a combination of aesthetic and critical intervention as well as the object, the 'visible' product itself. Interactive art can touch more freely upon relationships between the human and the non-human, allowing uncertainty and non-fixity to occur. These types of interactive exhibitions engage our senses and produce affective resonances, potentially making affect a medium of the installation (Bal, 2014: 33), putting into question intellectual engagement with the exhibit. Through a specific example of a video installation inside a gallery space (Michelle Williams Gamaker's work *Psychoanalysis on Trial*, 2011), Bal (2014, 30-33) discusses architectural and structural affect and interactivity, as constituted through montage techniques, acts of storytelling, sound, and real and imaginary others. Digital and interactive installations such as the HAc borrow cinematic features and its aesthetics, for

³⁵ <http://www.foeromeo.org/conferences-etc/can-an-exhibition-be-a-story>

instance the spatial arrangement and the incorporation of a soundscape, in that case sounds of the Arctic landscape. Some factors for 'interactivity reinforcement' include spatiotemporal freedom, lateral montage and sound, and its achievement depends largely on affect, as Bal argues (2014: 19, 25, 33).

Interactive art practices can provoke to transgression or just encourage a creative activity, an interpretation for the audience (Kluszczyński, 2010: 27), as they depend on the work itself to define its limitation in regards to the control or freedom provided. Artists use digital interactivity in more and more sophisticated and integrated ways, demonstrating that perhaps there is some maturity in terms of the 'fascination with the phenomenon of digital interactivity itself' (ibid., 2010: 27). The focus and the correct context for interactivity must be its instability and uncertainty (Fuery, 2009: 34), however it is noted that the user's undertaking of interactivity often drives an inherent seeking for structure and narrative limiting interactions to conventional ways. The audience is, by definition, an important aspect of interactive works. The participant in these types of installations is argued to be a player or a performer rather than just a subject of a technological experiment (Albu, 2011). Designers and media practitioners and artists are more and more concerned with the audience's body, their actions and movements, challenging their perspectives and allowing felt and empathic experiences. McCarthy and Wright (2004) in their book *Technology as Experience* offer a new approach to user experience, introducing sensual, emotional and intellectual aspects that relate to our interaction with technology. Fragmented narratives and personalised experiences make interactivity manifest itself beyond cognition through affect, emotions and feelings.

I conclude this section by going back to the initial point and the impact of the 'fetish' of interactivity in art and curatorial practices. Interaction alone does not take art to a higher level ...it is a reality of contemporary artistic practice. David Rokeby, a pioneer in digital art has said: 'Interaction is banal.... I am looking forward to a time where interaction in art becomes as banal and unremarkable . . . merely another tool in the artistic palette, to be used when appropriate' (Rokeby, 1996 in Paul, 2008: 71). In that respect, interactive digital works have been institutionalised and the participatory and interactive character of the work, the purpose as well as their construction should be analysed with consideration to their positioning and placing in the environment where they are exhibited.

3.6 Audience, Users, Visitors

In this thesis I have deliberately used a range of names for the visitor to the museum. 'Visitors', 'audience' and 'users' are terms that are often used interchangeably. The visitor has always been a vital part of the museum, but the visitor's relationship with and status in the institution has changed. The paradigmatic shift of the museum from object- and collection-driven to visitor-centred institutions (Anderson, 2004: 1) has indicated that the visitor is central to museum practices. Current museum practices also recognise visitors as active meaning-makers (Kidd, 2009). The visitor is conceptualised as an individual or group who makes the choice to attend the museum site for recreational or educational purposes, for instance as 'free-choice learners' (Dierking & Falk, 1998). Bourdieu's work on museum visiting and the social conditions of its practice was very influential in the twentieth century, indicating that museum visitors are generally better educated, analysing the class-based power and privilege reproduced in these institutions. So, while numbers of visitors in the spaces have increased, little change has happened in regards to the diversity of visitors, who remain predominantly middle class (Bunting, Chan, Goldthorpe et al., 2008: 16–21; Davies, 2005). My empirical research does not look into the demographic data of the visitors that are part of the study, but instead focuses on observing behaviours and attitudes towards the practices of the museum. It welcomes visitors to describe and articulate their experience of the exhibitions, viewing them as visitors, audience and users as well as participants, learners, co-explorers and performers.

In a recent publication, Huhtamo (2015: 262–272) also urges an approach that he calls 'exhibition anthropology', which aims to explore momentary relations between visitors and exhibits in the museum as an experience apparatus. Apparatus, he argues, in the museum acts as a system of anticipations and regulations that visitors follow (Huhtamo, 2015: 272). Visitors predominantly perform to specific traditional narratives on how to move around a museum or stand around an exhibit, still executing the rigorous bodily discipline that was demanded by the museum of modernity (Bennett, 1995). We perform as we are supposed to, looking at and observing an artwork or an exhibit, stopping for a few minutes, maybe whispering to our companion, and then moving on, often silently, to the next exhibit. As French sociologist and anthropologist Marcel Mauss (1992) has

indicated, humans carry a 'habitus' (perceptions, expectations, practices) dependent on past socialisation about the role of the museum. He suggests that the physical, psychological and sociological assemblages of series of actions are habitual, arguing that the body and its techniques also embody aspects of a given culture.

Unlike the encounter with paintings, sculptures and artefacts, the new quest of the museum for visitors and observers to become participants, explorers, discoverers and performers bear aspects of novelty, excitement, reluctance, disorientation and questioning, such as: '*Can I use that? How exactly does it work? Is this for me or perhaps for children?*' (GoML visitor, interview, 4 July 2011). There is certainly a confusion expressed in both GoML and HAe by the audiences in what they can or cannot do and the notion of interactivity, the expectations and the familiarity with these systems contribute to this uncertainty. Audiences often expect the exhibits to work like the devices they use at home, with which they are familiar: '*This should work like my iPad or my Google Maps application*' (GoML visitor, interview, 5 July 2011). Even if familiarity and relationship with interactive mediated environments is changing rapidly, for the majority of visitors at the GoML it took a few minutes before they touched and interacted with the interfaces. Initially, they would either observe other visitors, and/or find the right time to engage with them. Fewer people, perhaps being more confident with these systems, would go directly to them and spend time working with the interactive exhibit. Huhtamo (2015: 261) argues that there is a presumption that digital interactivity becomes 'internalized by its users to varying degrees', and as users we are enveloped in the practicing of it, which also becomes part of 'identity formation'. He continues to say that 'automatization' and 'naturalisation' of interactivity may lead to empowerment, but also to confusion particularly in places like the museum where often interactivity can be limited (Huhtamo, 2015: 261).

The exhibition designer of the GoML also mentioned the pressure to create interactive exhibits that are 'attractive' and 'novel' to the audiences. '*It needs to be something that the visitor does not have at home, an experience that he can access only within the museum space*' (Symington, interview, 6 July 2011). This act of 'novelty' attracts new visitors to the exhibition and portrays a progressive image of the museum itself. The museum acknowledges that visitors of all ages own sophisticated personal devices (such as iPads,

home cinema, video games), so within their specific budget (the high cost of the interactive exhibit was mentioned several times), they must create experiences and interactions that differ and can be found only in their spaces. Further, from an exhibition design point of view, it is significant to consider ways in which their interactive exhibits can be updated and be relevant, taking into account the speed of technological 'innovations'.

It has been noted that there is often a form of technophilia and enthusiasm for the educational interactive exhibits such as touch-screen interfaces in museum spaces, which has taken the place of objects and artefacts (see Huhtamo, 2015: 260). The GoML team discussed the need to keep a balance between interactive and non-interactive exhibits within the gallery space. The museum's evaluation indicated that the majority of visitors were satisfied with their balance, apart from a small number of visitors who found interactivity in the galleries distracting and child-orientated (Summative Evaluation Findings: Volume 1, 2011). For the museum team, the technologies are not used for their own sake but because they can bring something new and different to the exhibition narratives. The Head of Learning also argues that *'the focus is indeed shifted here ... with new technologies you tell stories moving from static objects and glass cases to a moving exhibition space where things are on the move ... We do not use the technologies for its novelty, only when they are the correct medium for what we want to say'* (Swift, interview, 6 July 2011). Interactivity potentially carries a responsibility to bring the stories and events of people alive and relevant to indicate their complexity. Digital technologies have provided an opportunity to make multisensory and touch-based experiences an everyday reality for museums. This sensory relationship impacts not only the ways of interpretation and seeing objects, but envelops broader institutional and social forces that shape subjectivities and values.

Museums collect extensive data on visitors in order to evaluate their work, identify trends, and satisfy government policies, resulting in an increase in audience research on the sites. Many studies focus on the demographic profiles of visitors, aiming to reflect and increase museum visitors' diversity. The existing discipline of visitor studies works on audience evaluation, particularly with a focus on leisure and informal educational settings,

establishing best-practice strategies for how to attract, educate and serve visitors³⁶ (see Black, 2005; Hooper-Greenhill, 2006). According to Hooper-Greenhill (1996: 196), visitors are the ones who will actually come to the museum, whereas audiences have yet to be persuaded to become visitors. Museums in the UK have given priority to their audiences. Audience studies are initiated from work on mass media; the idea of the audience derives mainly from communication theories with a focus on the analysis of the effects of mass media such as radio and television. With the increase in interactive media forms, the concept of audience is becoming obsolete (Livingstone, 2004). The idea of audience and its use within the museum can be attached to the notion of audience development, a tool for achieving wider social inclusion in museum spaces (Hayes & Slater, 2002). In that respect, audiences can be attached to the broader market model of the museum, as they are visitors yet to come, potential consumers of the museum products. The visitor and audience of the museum is also a user, especially with regards to interaction with technological exhibits or online sources. The user is the one who interacts with a device and is conceived as an active agent who pursues the task-based goals of the given application.

The 'interactive museum' is concerned with visitors, active audiences and users, simultaneously. The visitors to the Galleries of Modern London exhibition are engaging in a traditional museum visit as well as using the interactive exhibits, getting involved in information-seeking and navigational processes and performing a specific task. Part of the museum evaluation includes not only the visitor experience but also the user experience (Museum of London 2011). The High Arctic exhibition design, I argue, engages the visitor predominantly as an audience instead and not as a user. The interactive processes of this exhibition do not require specific task-based actions but invite visitors to become part of the installation, to co-perform and experience the spatial arrangement through movement. The following section discusses how the experiences of the audience are 'captured' in museum exhibitions, and it provides an analysis of the data from the visitors' interviews conducted at the two museum exhibitions.

³⁶ Further, extensive information in current discussions on visitor studies, can be found on the Visitor Studies Group website (<http://visitors.org.uk/>)

3.7 Capturing Audiences' Experience in the Museum Spaces

Researchers are utilising traditional methods as well as experimenting with new multidisciplinary methods to comprehend the audience's interaction with various media and cultural practices online and on-site. One of the ways to test the validity of interactivity is to recall our personal experiences (Fuery, 2009: 26). Apart from the theoretical and ontological question on where the concept of interactivity and experience reside, the issue becomes more complex when one tries to capture these interactive experiences. There is not a single method by which researchers, academics and professional evaluate, comprehend and discuss the social, cognitive and emotional participation and engagement of audiences, users and visitors under the umbrella of the ambiguous notion of 'interactivity' in various physical and online platforms. However, as already mentioned, our relationship with technology has moved further and we no longer have the possibility to switch on and off the device as we might think (McCarthy & Wright, 2004). In that respect, while one investigates audiences' behaviours and engagement with interactive media within museum spaces, the interdependence of these encounters with the ways interactivity is experienced and internalised by people in the wider cultural, social and economic practices should not be disregarded.

While on the quest of how we discuss and research interactive experiences in a range of disciplines where the concept of interactivity prevails, such as computer science, cultural studies, design, digital humanities, museum studies and media studies, I completed an Art and Humanities Research Council funded project with a focus on providing and developing research skills. The project, titled 'New media, audiences and affective experiences' led to a multidisciplinary international conference and publication that provided interesting insights into the act of investigating interactive experiences. The ways in which interactive experiences are captured vary, depending predominantly on each discipline. Examples incorporate ethnographic research on visitors to the museums' sites; the use of video-ethnography in order to investigate interaction between museum visitors and the artefact; the use of GPS to track audience's movements in sites of cultural interest; measuring affective and cognitive keywords displayed in online text; and measuring emotions and responses through wearable technologies fitted to a user while

³⁷ <http://affectiveexperiences.com/>

he or she is interacting with an exhibit or an audio-visual content. Audience research on cultural and archaeological sites, for instance, utilises new technological devices and techniques such as GPS and mobile technologies to track the specific locations and timings of visitors to sites (Moussouri & Roussos, 2013), investigating motivation through spatial behaviour with multiple ethical and practical challenges. A large amount of data that derives from personal devices, also known as 'Bring Your Own Device', is argued to offer rich material for research to explore the relationships and interaction of the audience with specific artefacts, artworks and exhibitions.

In the museum field, extensive visitor research has been conducted. This primarily derives from the museums' learning departments and focuses on measuring the visitors' attendance and time spent on each exhibit, with a view to understanding which ones are more effective and interesting for the visitor. Increasingly, interest is shifting from the exploration of interactions between lone visitors and objects towards interactions between visitors and groups. vom Lehn, Heath and Hindmarsh (2005) have written extensively on the ways in which people interact with and around particular exhibits as well as with each other, viewing the experience of a museum visit emerging from the interactions with other events, groups and individuals that occur within the same space. Following their interest in symbolic interactionism, the object does not stand-alone but it includes material, event and activities. Therefore, in order to understand these interactions importance is given to social interaction, perception and identity. Their research methodology involves video-based field studies where the researchers explore those interactions in detail. As Manovich (2001) has expressed, it is possible to extensively explore the technical use of interactive exhibits and issues around usability, but to understand the user experience is an intricate matter.

In order to analyse the empirical research data from the interviews and observations, I use audience studies to consider the particular way in which visitors and audiences have been conceptualised and researched in museum settings; a phenomenon that has altered during the last decades, mirroring the theoretical developments in media, communication and cultural studies (Stylianou-Lambert, 2012). To begin with, we might re-cap key themes in audience studies. The analysis of the one-way transmission of the communication process of mass media was famously criticised by Stuart Hall (1980: 91) for its linearity and the

complexity of the structure of relations. For a long period of time, the audience tended to be understood as the 'receiver' of the message, particularly in the process of mass communication. The encoding/decoding model developed by Hall (1980) foregrounds the social and cultural context that plays a crucial role in 'decoding' meanings from media texts, while arguing that audiences do not necessarily simply accept these messages as encoded by the producers. Hall's model includes three indicative decoding positions of the audience of a media text: the dominant, the negotiated and the oppositional. These three flexible positionings in the interpretation and understanding of a media text are also useful in a broader sense for interpreting the audience–museum exhibition relationship. Apart from understanding the active role of the audience, Hall also engaged with the concept of the polysemous text, which in relation to the different examples discussed in this thesis provides another theoretical frame for understanding the possibilities of multiple interpretations.

While the encoding/decoding model involves 'blurring the distinction of processes of production and consumption' (Sandell, 2007: 76), the term 'dominant readings' remain part of the structure of the media and audience relationship. This model of media text and reader has become a seminal model for understanding communication processes, but its adaptation into the museum world can lead to a number of questions. First, to what extent is the question of its power dynamics relevant or directly mappable? Interestingly, mass media texts are often viewed as manipulative and dominant, whereas the current museum is often seen as 'transformative' (Soren, 2009); as a social forum that aims to question the status quo and incorporate a diversity of opinions and histories. To be sure, this is often claimed uncritically and equally the role of the museum as an instrument of governance (Bennett, 1998) might render these examples more similar. Further, interactivity as a practice in exhibition making has become a tool that arguably has sought to transform exhibitions into places of 'choice' rather than places that offer one singular message. The role of the visitors 'constructing meanings' based on their identities, and becoming 'performers' rather than just 'viewers', has in this sense been structurally foregrounded by digital interactivity in museums.

One of the prominent influences on researching behaviour, mainly in private spaces but also in a few public spaces, is Goffman's (1971) work, which analyses frames constructed

around social events that affect the ways we make sense of and draw connections with other aspects of our lives (Jackson & Kidd, 2010: 11). Jackson and Kidd in their work *Performing Heritage* (2012) discuss the institutional, inner and outer frames³⁸ of performativity within the museum space, which informs their analysis for the 'Performance, Learning and Heritage' project. The project looked at the various dynamic changes of the roles of visitor to audience, participant, performer and learner. The exhibitions in museums are performative, in the way that they stage certain events and knowledge, through the way exhibits are placed, and how interactivity is practised. Merleau-Ponty (1962 quoted in Leahy, 2010: 26), from a phenomenological perspective, views the interconnectivity of body and mind in relation to our surroundings and perception; he describes the positioning of the visitors in relation to the exhibits as achieving the optimum 'balance between the inner and outer horizon'. The visitors engage visually with the exhibitions, the artefacts and the exhibits as well as with the rest of the visitors in the museum, using the specific behavioural codes. Interactive practices in these spaces argue to challenge these codes – the walking around and looking, normally in silence or with a few comments now and then, and following the path set out by the exhibition's curatorial view. Nevertheless, the way of engaging with digital interactivity in a museum still sustain known and learnt behaviours advised by the environment in which they are enveloped.

Abercrombie and Longhurst (1998) developed the spectacle/performance paradigm that aims to complexify the interactions of the audience (p. 4) by highlighting how they are performers and audiences, cultural consumers and producers (p. 75). Such formulations chime very well, with both postmodern theories and the intentions of the museum professionals I interviewed, who frequently understood views of the interactive museum experience as more 'democratic' and 'empowering' for museum visitors as discussed below. In these terms, the museum has moved from the position of a mass communicator that wants to transmit specific messages to 'incorporating' exhibitions, where the audience

³⁸ The 'institutional' refers to the aspects of the institutions where the event is located; the 'outer' performance space is that which marks the performance event itself as theatre and signals where and how the audience will position itself and the role expected by the audience. An 'inner' frames operates once the performance is in progress (Jackson & Kidd, 2011).

acts as an active agent rather than just a consumer of the museum's messages, intended at the point of production. Exhibitions increasingly avoid didactic approaches, instead producing open-ended experiences that allow encounters that provide a range of perspectives, viewpoints and entry points. However, we need to ask: What 'choices' and frames are made available to visitors? Does this foreground one dominant strand of meaning? Similarly, the privileging of experiential and interactive 'tendency' over knowledge and interpretation should be problematised (Steyn, 2014). Considerably, 'museum studies acknowledge a museum that is not neutral but creates exhibitions, carries messages and packages culture for consumption' (Esmel-Pamies, 2009: 9). Hall's argument that messages are part of a 'complex structure of dominance' because they are 'imprinted' by institutional power relations is strongly relevant in that respect.

The initial questions to visitors to both museums sought to elicit what the groups or individuals liked or disliked in the exhibition they had just visited with semi-structured interviews, encouraging a spontaneous range of responses and thoughts in relation to their introductory encounters with the environments and reflection on their actions and experience. While the majority of responses were confirmatory and positive, the complex nature of their responses and the negative variations proved fruitful ways of understanding the complexity of museum interactivity. In Hall's encoding/decoding model, confirmatory responses can be part of the dominant-hegemonic position, where the viewer is operating 'inside' the dominant code (Hall, 1980). However, it is common to take into account that visitors often respond in ways they feel are appropriate, considering what the researcher would like to hear as well as being approving and favourable towards the museum, which is widely perceived as a 'respectable' institution. I feel it often took some time for the discussion to become 'naturalised', allowing more relaxed and revealing feelings and expressions to occur throughout the interview. In addition, we should point out that the research observes and questions visitors who have engaged to some extent with the interactive exhibits rather than the ones who bypassed the interactive tabletops at the GoML or chose not to enter the HAe.

The 'record of expressions' in regards to the visitors' initial encounters with the interactive environments incorporated three main dimensions: the affective dimension; the content related to the exhibition; and the interactive processes. The affective dimension relates to

emotional and sensory responses prompted by the exhibits/exhibition, often being communicated as enjoyment and pleasure. The complex network of desire, likelihood, interest, excitement and stimulation can act as the starting point for thought and action (Aristotle, 1941b, *De Anima*, 433a15-17). There was often a sense of being impressed and surprised by the look and the atmosphere of the galleries, expressed in terms such as: *'actually I was very impressed'* (HAe visitor, interview, 13 November 2011), or, for specific exhibits: *'That one is amazing'* (GoML visitor speaking about the Capital Concerns interactive installation, interview, 5 July 2011). There are particular elements that the audience frequently notices first, such as the aesthetics, the usability, the sensory aspects, the style and the content of the exhibits, aspects that impact their engagement with the narratives and the exhibitions.

The audience at the GoML were overwhelmingly impressed by the Capital Concerns exhibit, the large touch-screen tabletop that allows visitors to select a graphic item floating on the screen; once you press it, a question pops out regarding a challenge or problem of the city of London. Visitors can choose one of the multiple responses and, once they pick their opinion, a percentage of previous visitors' responses appear on the screen. The reactions to this interactive feature were mainly positive. *'I like the votes ... it makes you think and it is nice to see the alternatives, what other people voted'* (GoML visitor, interview, 4 July 2011). This statement, which was common in regards to this dimension of the exhibit, problematises the museum professionals' responses on the focus of personalisation, for instance, and it adds to the picture the feeling of belonging to a collective. The visitors were keen to 'compare' and see how their responses related to previous visitors'. The polling and selection system makes the interactive aspect feel *'sort of more like a game'* (GoML visitor, interview, 4 July 2011) and make the visitors feel *'involved in the process'* (GoML visitor, interview, 4 July 2011). That these game-like characteristics and characterisations are particularly revealing in regards to the culture of interactivity in museums, as well as to the broader social dynamics that are incorporated into them; and therefore I will discuss further aspects of interactivity such as play and games, in the next chapter.

Visitors to the HAe expressed compelling feelings towards the exhibition, especially during the first moments of encounter. Some were positive towards the different type of

interactivity, viewing it as a new concept of the museum, being a completion and continuation of the traditional interactive type of exhibits and the content of the museum overall. *'I think it's changed the concept of the museum to me, it became far more interactive, an interpretation of the Arctic, where you explore things in contrast to the rest of the galleries ... and it links together brilliantly as a whole new dimension to the museum ... it is a very welcome improvement'* (HAc visitor, interview, 13 November 2011). Digital interactivity in this exhibition is embedded within the artistic interpretations of climate change expressed via poetic storytelling, soundscapes, atmospheric lighting and sculptures. Visitors discussed processes of discovering and playing, listening and talking, walking and wondering around. Interactivity is a process that consists of many parts, such as experience, interaction, learning, listening and talking, moving, walking and touching. These 'less expected' types of digital media installations are frequently positioned as opposing feedback techniques that have neglected the complexity of human behaviour and agency, and the psychological aspects that influence the relationship we have with technological environments. Aspects of newer and interactive technologies can amplify the traditional methods of storytelling, allowing visitors to produce meanings about situations unknown or unfamiliar by evoking affective reactions (Papacharissi, 2014: 5).

The negative effects of digital interactivity are an issue that cannot be underestimated, despite often being overlooked. As mentioned previously, the majority of interviewees hold a sympathetic approach to the museum's choices in regards to their exhibition-making practices, as they considered them to be the specialists. However, there were loud voices that indicated that these particular examples of digital interactivity in general *'don't work properly'* and/or even if it did they would still choose to engage with the paintings and other 'still' artefacts. As the GoML hold a number of scattered interactive exhibits throughout the gallery, the problems voiced with digital interactivity were mainly with practical issues of usability and familiarity with technology as well as distraction. The 'new expectation' that the visitors will interact with the exhibits can lead to 'tensions and not always harmonious interactional forms' (Scott et al., 2013: 420). Scott et al.'s (2013: 420) work focuses on shyness, a feeling of self-conscious restraint, when one is asked to 'perform' and interact with these types of exhibits. Indeed, during the research, it was noted that a good number of visitors in the first instance would hesitate to touch the interfaces at the GoML. They would often watch and observe other museumgoers,

learning what to do, or rather how it is best to perform in that situation, and apply this knowledge in their interactions. Considering the fact that visitors are asked to 'perform a certain way' and the 'heightened visibility' (Scott et al., 2013: 420), they may feel intimidated, and in need of a familiar pattern, rules of the situation and/or a guide that they can follow. While this may not always lead to non-interaction, they are significant patterns to consider within the assumptions that contemporary digital interactivity in museum promotes inclusivity, access and democratisation of public engagement (see Scott et al., 2013; Harrasser, 2015). With regard to non-interaction, the observations of this research indicate that there is a minority of visitors that did not physically interact with the touch-screen interfaces, but instead were participating through discussion with their peers. Nevertheless, they were highly engaged with the *content*, and they expressed that they were happy to watch their partner to navigate the system, rather than doing so themselves.

Digital interactivity at the HAe also differed due to its almost 'invisible' technology; it lacked issues around usability, as the interactive components were simpler and mostly directed by movements of the body. Nevertheless, reactions from visitors in that case tended to be powerful too. Indeed, one visitor asked to be interviewed, wanting to express her letdown from the museum curators for not considering visitors like her and for being 'obsessed' with things that move, light up and make noise with very little content. Specifically, she said: '*I disliked the whole thing quite intensely. What I particularly disliked is not given any kind of guide or words, any explanation of what I suppose to be doing, seeing, and looking at*' (HAe visitor, interview, 13 November 2011). The visitor claims that the didactic nature of the museum shouldn't be scrutinised, as museums are places where you have artefacts, information, explanation and interesting things. Her response intertwines opposition to the exhibition's message, content and approach. The curator, artists and museum team intended to offer interactive pieces as a non-linear, open form, allowing multiple interpretations, personal histories, thinking and associations to take place. They intended and frequently 'assume' to awaken critical thinking and knowledge, through emotional engagement around the issues of climate change. But this confrontational response to the exhibition message is more complex and problematic than simply being evidence of resistance to the dominant hegemonic power. Stuart Hall (1990) talks of 'misunderstandings' from the contradictions and disjunctions

that arise due to the lack of equivalence between the two sides of the communicative exchange. Such misunderstandings were in evidence in several ways, for instance: *'It is very much an art installation rather than a factual display, which it wasn't what I was expecting. Once you accept it on the terms of an art installation it was very enjoyable'* (HAe visitor, interview, 15 November 2011).

These statements also indicate the visitors' awareness of their own position in the museum setting, and the way that the specific exhibition is presented. While digital interactivity is utilised as a way of democratising the museum narratives and creating styles of exhibitions that invites new visitors to the space, offering 'open' learning strategies, we should bear in mind the visitors that are not necessarily familiar with these forms of exhibitions or technologies. First, as Paul (2008: 67) argues, if a museum visitor is not familiar with the form of digital technology or/and interactivity, the technology, the medium itself becomes the focal point of attention. Museumgoers have been 'trained' to look at paintings and objects, but they have not always developed a 'vocabulary' to explore other forms of digital and interactive exhibitions, and art forms (Paul, 2008: 67). Karin Harrasser (2015) discusses similar variations of visitors' engagement with interactive and hands-on exhibition with a focus on children, and playful and 'free-choice' learning. She points out that 'free choice' learning is not universal, as it is supported by a specific 'habitus' that can appear hostile to children from other milieus, and it leads to the conclusion that 'inequality in cultural capital is still at stake' (Harrasser, 2015: 375). Cultural capital, according to Bourdieu (1997) involves specific skills and knowledge that allows the visitor to understand specific codes and symbolic meanings of an artwork in the museum space. The success of an interactive installation such as the HAe depends on the activity and the engagement of the visitors. Audience participation, in that respect, is a principal part of the work. Lacking understanding, and/or worrying about not knowing what to do, as the visitor is *'not given any kind of guide or words, any explanation of what I suppose to be doing, seeing, and looking at'*, can be frustrating and disheartening, as one feels a lack of cultural capital in a space that she knows well and feels part of it.

'I would like to say that I feel really strongly that the museum need to be really careful ... as they perceive this type of exhibitions brings in young people but ... also not to alienate

anybody else, especially some of their most loyal supporters' (HAe visitor, interview, 15 November 2011).

Here, the visitor identifies herself as a loyal supporter of the National Maritime Museum, and these new techniques of the museum make her feel excluded and particularly 'disadvantaged as she may lack technological and performative competence' (Scott et al., 2013: 421). The HAe exhibition occupies a whole gallery space, covered in darkness with blue-coloured lighting around the main exhibition space. Prior to their entrance to the actual exhibition, visitors can access a factual informational panel that includes the background story of the exhibition, few photos and a map of the expedition, as well as a video of the main artist, Matt Clark, describing his work. Once the visitors enter the gallery space, there is no further guidance, instead they are asked to discover and work things out for themselves. During the research on the site, I was interested to understand to what extent the visitors actually engaged with the information panel prior entering the space, and if that would make any difference in their overall experience. The results were interesting and indicated that very few visitors actually spent time watching the video or reading the map. The majority of the interviewees mentioned that they read the information once they actually exited the exhibition space. It is significant to note that this section was purposely minimal, as the HAe artists wanted the work to be experienced without any 'informational baggage', but as an open-ended dialogue between the work and the audience. For some of the visitors, the reading of the factual information, '*provided facts and reality*' to the abstracted landscape of the exhibition and decoded the poetic interactivity of the installation.

Harrasser (2015: 383) asks: 'How is the playful explorer envisioned by designers of the interactive displays that are part of every museum exhibition?' The interactive practices in the museum spaces assume a particular 'ideal' visitor (Scott et al., 2013: 421). One that is playful, confident and familiar with computers, interfaces, and navigational systems. Indeed, it is presupposed and expected by the museum, and its audience (as the statement from one of the visitors above indicate) that these environments are a 'catch' for younger audiences, who are seen as 'digital natives' (Prensky, 2001), familiar with virtual worlds, computers and new technologies. Even if we accept this statement as truthful, neither the interest and the knowledge in art can be taken for granted (see Paul, 2008: 66), nor can

familiarity with 'open' formats of learning with technologies (Harrasser, 2015: 383). '*What I feel and I am feeling this increasingly, is that people like me [liking traditional exhibitions and factual information], are being told 'you are old-fashioned'*' (HAE visitor, interview, 13 November 2011). Here, the visitor understands that digital interactivity is coded as 'young' and 'modern' and she is resisting it. While the move from the 'passive observer' (Bishop, 2006) to an active participant is mostly accepted as a form of liberation from old forms of spectatorship, the comment above reminds us of the complexities and resistance from the audience.

The response also demonstrates how some visitors held a strong view of what the museum is, and its newer practices for them seem to 'fail', perceived to exist '*just for the intrigue*', and therefore defeat the educational purpose of the museum. The lack of information and the failure of the exhibition to meet the visitors' expectations can make the experience passive and unfulfilling, leading to an interpretation of the museum exhibition contrary to the message that the team hoped to achieve. One can't disregard the negativity and discomfort expressed towards such types of exhibitions by the prospect of an active audience, but should analyse them in order to avoid the danger of what Stylianou-Lambert (2010: 138) calls 'romanticising museum audiences and the need to produce a solid foundation for a new conceptualization of museum audiences'. Ideally, these forms of interactive artworks want to encourage interaction, with no didactic rules as to the exact process of engagement, and in doing so move away from the traditional forms of museum exhibition practices. However, technology is part of these exhibits as the canvas and the paint are part of a painting, or the camera, part of photography. Paul (2008: 71) argues that once institutions integrate interactive media arts in their spaces, they should also work to overcome the reluctance of the public to engage with such forms of art, particularly in the context of traditional museum culture.

The HAE, placed at the National Maritime Museum, was unexpected by its 'loyal' visitors and the other departments of the museum as I discuss earlier. However, once interactive installations such as this one, are introduced in a more traditional museum space, they are open to a wider audience, who may not be experts or/and have the opportunity to access such art forms previously. And in that respect these 'art forms can be perceived as something radically new' (Paul, 2008: 66). '*I'd have a hard time dragging my dad to the*

Tate Modern, but I could definitely bring him here and he'd love this ... the context changes interpretation of it (HAc visitor, interview, 15 November 2011). As critics such as Anna Reading have pointed out, interactive environments do indeed play a role in the experiences that the museum produces, and can also play a part in contemporary democracies through politicising contemporary museum narratives (Reading, 2003). Despite that, my research indicates that such processes are not straightforward. Types and modes of interactivity, and the interactions of the visitors within these spaces, are complex, and audiences from varied generational and alternative positionalities can relate to them differently.

Progressively, the visitor is being put at the centre of the exhibition and requested to perform and be active in these cultural interactive experiences. Rancière's argument questions the negativity towards spectatorship, the fact that viewing is perceived as a passive act, but instead considers other layers in the equation of being an active or a passive audience. He problematises the active participation of the audience as a 'consumerist hyper-activism' with reliance on technologies and practices of immersion and interactivity without questioning its principles (Rancière, 2011: 21) leading to an illusion of choice and action. His work on 'active participants as opposed to passive voyeurs' (Rancière, 1991: 4) has been important in the conceptualisation of audience participation in theatre and arts as well as in this thesis' understanding and capturing of the notions of audience, visitors, users and participants in museum spaces. The pathway towards an active audience that gains and formulates knowledge and narrative via interactive exhibitions has also been understood to carry dangers in terms of its effects on meaning-making and interpretation, as it can lessen the audience's capacity to reflect or 'see' the work and to question general assumptions consensus³⁹ by being 'overwhelmed' (Rancière, 2011: 21) as the discussion demonstrates.

3.8 Conclusion

This chapter analyses the notion of digital interactivity and interactive experiences

³⁹ Rancière's arguments relate particularly to forms of theatre and performance. However, one can draw parallels with the performative and experiential modes of exhibition-making in museums and gallery spaces.

through diverse disciplines and practices. Initially, it seeks to understand how interactivity is defined, coming to the conclusion that the most concrete of its definitions derives from information and communication studies and computing. While the definitions indicate a close relationship with the technological application, it becomes clear that there is a shift away from the linear and sender–receiver models (Shannon & Weaver, 1949) and the cause-and-effect relationship with the system. Instead, researchers are concerned with users' subjective experiences, discussing perceptual approaches to interactivity (Bucy, 2004; Levy, 1995; Wu, 1999, 2005), multidirectional communication and active participation. I discuss digital interactivity as both physical and psychological, often attached to its technological attributes. There is a significant need to understand and research interactivity 'in the wild' (Jensen, 2005: 4) and in regards to the fields of new media, it needs to incorporate both aspects of 'cultural and computing' (Manovich, 2003: 19). The focus of this chapter is to contextualise and understand digital interactivity and the emergence of digital interactive exhibits/exhibitions in museum spaces. As Barry (2001: 165) argues, 'the 'invention' of interactivity is not a sudden event but involves multiple histories, political, socioeconomic and cultural, where techniques, forms and practices are expressed accordingly', as I demonstrate in this chapter through its focus on specific museum examples.

The fact that these types of exhibits derive from science and children's museums suggests some of the strong initial connotations that they carry. They are accepted to be particularly attractive for children and younger people, as they are playful and responsive to the press of a button or the touch of a screen. While regarded as democratising knowledge and allowing multiple perspectives (Pearce, 1992), the majority of interactive exhibits that we encounter in exhibition spaces use a didactic transference model, showcasing a plethora of information. I argue that these exhibits involve, on different levels according to each individual piece, technological features, aspects of materiality and multimodality, processes of interaction, engagement and participation. Research data for the ethnographic work at the GoML and HAe, have been introduced in the different sections of the chapter theorising the visitors and professionals' responses, and their encounters with such type of exhibits. Factual interactivity, more closely related to its technological attributes, is familiar and expected. Interactive exhibits and particularly touch-screens have become a 'norm' for many contemporary museums, but still the

features and their relationship with museums objects and narratives, and their visitors, can be thought as problematic or underdeveloped. The technology of poetic interactivity in this instance is not that 'visible', something that can allow visitors to engage with the environment and 'alter' their way of being in the gallery space. Its artistic commitment allows open possibilities and encounters of ambivalence that feel both direct and distant. This chapter also pursued a discussion on interactivity in relation to art practices, manifesting that the difference lies principally in the sense of ambivalence and uncertainty that artworks can generate.

The interactive experiences in both exhibitions that the thesis analyses communicate the significance of the visitor in altering, engaging, performing and exploring these experiences. However, it also indicates that the 'promise of interactivity to turn the museum visitor into a more active self' (Barry, 2006: 168) is not straightforward. While both factual and poetic interactivity provide an opportunity for an individualised or personalised level of engagement, the level of critical thinking and agency is hard to pin down. Under the scope of 'audience development', the museum welcomes and encourages new visitors in their space, active members who become part of the experiences they produce, also bringing interactivity close to the idea of business and marketing in the museum, something that I will analyse further in the next chapter. Visitors and audiences are also users, interacting with technological online applications and on-site devices. As the museum shifts its position, changing and often contradictory notions of the visitors of the institutions emerge, from consumers, citizens, audiences and users and all these together (McPherson, 2006). Understanding the effects, reactions and experiences of interactivity has become prominently important. Researchers, artists, curators, managers and educationalists of museums and heritage sites, as well as exhibition and interactive designers, are increasingly interested in understanding, informing and producing unique, interactive, immersive and affective experiences. Traditional and experimental methods are implemented in order to comprehend the interactions with various media and cultural practices. The experience of the digital era today is increasingly moving beyond forms of representation involving corporeality of perception, with artists, practitioners and designers exploring the many intersections between affect, emotion, sensation and action.

CHAPTER 4

Museum Multisensory and

Interactive Experiences

4.1 Introduction

The earlier introduction to the various roles of museums (see Chapter Two) provides a platform to apprehend the experiences that museums produce, their relation to audiences and their practices. The aim to conceptualise and analyse the notion of experience, and its connections to digital interactivity, is necessary to understand the meaning of becoming an experience-based museum, and what that involves for the visitors, the institutions, the exhibitions and their content. In Chapter Two, I discussed the postmodern museum as a space of knowledge and entertainment, a space of contradictions and fragmentations. As Harvey (1990:52-3) argues, a 'portrait of postmodernism that its validity relates directly on the way that one experiences, interprets and is in the world'. 'If personal identity is forged through a certain temporal unification of the past and future with the present before me... then there is an inability to unify the past, present and future of our own biographical experience' (Harvey, 1990: 53).

This relational dynamic is a central point of embodied experience, being individual-oriented and directed toward the self, while being simultaneously public and social, and including accumulated knowledge that is communicated from one generation to others, from one person to another. Both in an individual and in a social setting, the tension of the subject and the object, the uneasiness of that 'in-between-ness' can be perceived as the productive mode of 'experience', exposing the inadequacies of the binaries (Steyn, 2006: 609). The danger of the subjective view drawn in the extreme – and once more I draw on Steyn's thoughts on Jay's work – can allow the random aestheticisation of morally or politically fraught phenomena with disastrous consequences (Jay, 2005: 405-06, quoted in

Steyn, 2014). Experience involves what is being experienced as well as the subjective process of experiencing; therefore the word itself functions as a way to challenge the split between subject and object (Jay, 2005: 12). Considering the challenge of the dialectic of producer and consumer, the centrality of the audience in the postmodern museum, what does the 'active' museum audience want to get out from their museum experiences? In the following sections, I attempt to investigate the theoretical underpinnings of the notion of experience, which influences the contemporary ways that they are understood and practised in museums, with particular consideration given to the influence of new technologies and digital interactivity.

Experience translates as *empeiria* in Greek, which is the root for the English word *empirical*, that gives us a strong hint on the link between experience and the direct, the 'unreflected sensation or the unmediated observation' that contradicts reasoning, self-reflection and contemplation (Jay, 2005: 10). The word 'experience' comes from the Latin noun *experientia* and the verb *experiri*, which in turn derives from the Greek verb *peirao* (πειραω), meaning to attempt, to test, to get experience (Liddell & Scott, 1940: 511). Commonly, there are two aspects of the etymology of the term 'experience': experience as an immediate contact with or observation of a happening, and the event as a memory, an act where knowledge is pursued. It is an involvement, participation or engagement with exteriority resulting in interiority as an act of abstraction and judgment. 'Both a verb and a noun, experience is an action and a result of that action' (Čargonja, 2011: 295). The action relates to momentary experience, and the result of the encounter has to do with the knowledge acquired by the action. While the oldest etymological meaning of experience is that of immediacy and reflection, in Kant's philosophy experience is made by *nooúmena* (from the Greek *vofr*, meaning perception, understanding, mind) – things that are thoughts (Lash, 2014: 336). The mind never reaches objective reality – things as they are in themselves (*nooúmena*) – without the use of the senses, but only the things as they are known to and perceived by us.

Martin Jay (2005: 28) in his book *Songs of Experience*⁴⁰ discussed the difficulty of Western philosophy to comprehend what it means to have an authentic experience. Walter

⁴⁰ From the very title of his book he clarifies that his analysis provides insights on what songs are sung in regards to experience rather than providing a new definition of it. Beginning with the ancient

Benjamin saw a strong relation between memory and experience, particularly memories of childhood, as 'children do not reflect, but only see', something that indicated his desire to avoid polarisation between subject and object (Jay, 2005: 318). After the witnessing of the First World War and the rupture of cultural continuity at this period, the author concluded there was a crisis of experience (Jay, 2005: 314). He writes about the poverty of experience that 'involves more than the individual; it suggests the exhaustion of culture itself' (Jay, 2005: 330). Although his thinking is expressed in a particular historical and intellectual context as a characteristic of modernity, it is still relevant to the experience in the postmodern situation. He notes the 'replacement of narration by information, of information by sensation that reflects the increasing atrophy of experience' (Benjamin, 1939; 161 in Jay, 2005: 334). So experience is 'sense data that is translated, digested, interpreted ...and these impressions are taken up as truth, as evidence and in that manner as a means by which something is transmitted' (Pryor, 2008: 19).

For modernity, experience was a 'penchant for purification and boundary creation ... accompanied by an increasing specialisation of function and the loss of a more integrated sense of life' (Jay, 2005: 38). The postmodern experience is argued to be 'unliveable'; 'a limit-experience', an experience that 'tears us away from ourselves and leaves us no longer the same as before' (O'Leary, 2008: 6). That limit-experience can be called 'experience books' or 'experience museums' rather than books of truth or a true museum experience. As such, a limit-experience is a transcending and challenging event, which reflects the dominant historical structure and consensus. In other words, through this type of experience certain mechanisms are managed in an intelligible way; at the same time, the self can be detached from these mechanisms by perceiving them otherwise and by becoming otherwise (O'Leary, 2008: 12). Modes of perception are not the only composing elements of the structure of experience. This structure also involves both the institutional practices and forms of knowledge, which develop within and support these institutions, including the postmodern approaches to display that 'quote fragments of text and disjointed narrative, bringing out the impossibility of a completed and finished story' (Dicks, 2004: 12).

Greeks, the author reviews the vast number of notions of experience offered through Western philosophers and theorists from Michel de Montaigne to Michel Foucault.

Major museums in the twenty-first century predominantly tend to engage their audience in experiences that aim to be authentic, educational, participatory, interactive, personal and emotional. The diverse types of 'experience' also indicate the multiple roles of museums and its 'inevitably contradictory nature' (Steyn, 2006: 606). Bourdieu's (1998) cultural, economic and political fields demonstrate the different operational logics and their ever-changing roles, which affect the relationship of museums with the audience. Bourdieu views a field as a relatively autonomous space of social activity, that responds to the rule of the institution it relates to and its agents; and it is the relationality amongst this field that is key to the analysis of change (see Hilgers & Mangez, 2015: 10-14). This allows us an understanding of the museum that exists both collectively and independently in its different roles and the struggle to understand it as a coherent singular entity. More importantly, it emphasises how there is a contest over meanings of 'experience'. The framework of fields can explain some of the contradictory and overlapping processes the museums undergo; it also allows these tensions to exist in a productive way (Runnel, 2014). As an institution of culture, museums protect and preserve artefacts, objects and artworks; interpret histories and heritage, and currently engage diverse audiences in histories that are not entirely coherent or unproblematic. The political sphere affects the narratives that the museum portrays, as the museum is expected to engage with the public in a democratic and educational manner. The economic field is increasingly vital. It is stipulated that museums must raise funds, having to compete with leisure centres, shopping malls and other places of entertainment. Being also positioned in the realm of the 'experience economy', museums need to bring in audiences in large numbers, be open to diversity and interdisciplinarity, as well as act as sites for cultural tourism. Museums are politicised organisations that perform within a certain economic environment 'guided by government policies that push them further into the market in pursuit of revenue-sources' (Dicks, 2004: 149).

Its entitlement moves beyond exhibition-making and collection preservation, requesting the development of sociable, recreational and participatory experiences (Kotler, 2001). In the current climate, we are bombarded with experiences in every instance of our lives. From some advertising discourse it would seem that we have never before experienced food, movies, shopping, Christmas, the sea, friendship, even our personal lives, as intensely as we do today. Our experiences are presented as increasingly 'unique' and

‘authentic’; we get to take part, shaping our experiences by making our own choices. Culture has taken the form of experiences and interactions, argues Dicks (2004), and museums are increasingly adopting interactive strategies with technological enhancement enabling culture to be reinterpreted and reproduced in forms of intense and exciting experiences, a common expectation in tourism and visiting. Yet the tendency towards ‘experiences’ in museums raises questions in regards to their meaning, symbolism and implication for the interpretation of culture.

This social and cultural excitement relates also to the experience economy, where the unique feelings of these experiences are profitable, positioned within a corporate paradigm (see Dicks, 2004; Henning, 2006; Hein, 2000; Rifkin 2000; Steyn, 2014). In the case of museums, market pressures call for increased visitor numbers. As sites of cultural tourism, the tourist is also one of the main targets of the museum today, particularly if we consider museums based in international capital cities such as London. The research at the Museum of London indicates that, as the majority of the groups of visitors that I interviewed were international and local tourists. The modern tourist is often cast as a busy and a fast-travelling person who wants ‘meaningful’ experiences of the place she visits in a very limited time (Guilbaut, 2015). The marketised climate has altered its strategy and no longer sells products but experiences. Pine and Gilmore’s (1998) work on the experience economy describes how we no longer seek an item or an object, but we want to feel unique through multisensory and bodily cultural experiences. In their provocative book, they describe the marketplace as a theatrical stage, replete with actors, scripts and audience participation (consumers) (Bille, 2010). Their marketing model has largely been embraced by organisations that are keen to bring culture closer to branding, approaching the audience by regarding them as consumers. By placing the visitor in the position of a client and a consumer, and with the demand to increase audience attendance, the process of experiencing is neglected and the journey can become indifferent to its effect on the beholders. As culture becomes more ‘graspable’ and ordinary, Dicks (2005: 7) argues that the cultural display, as well as the museum exhibitions’ aims has shifted from fostering the model citizen to the model consumer. The desire and recognition that visitors come to

⁴¹ A report by Art and Business named ‘*Beyond experience: culture, consumer and experience: the transformation economy*’ demonstrates how consumers seek authenticity within the experience economy.

the museum expecting digital interactive experiences, complicates further the integration of such practices. The museum increasingly produces different programmes for different audiences, tailoring their exhibitions to specific interests, intended outcomes and commercial sponsorships (Barry, 2006: 172). This also correlates with the arguments that the contemporary museum often primarily serves a brand (Tate, MoMA Guggenheim), overlooking 'serious' debate and dialogue with the public (Guilbaut, 2015).

Cultural experiences are becoming a significant tool for art organisations and museums, and are also investigated with regards to their cultural value and impact on the audience (see Report by Carnwath & Brown, 2014 prepared for Art Council England). The museum is part of the consumer society and, consumerism has affected cultural industries such as museums and galleries in diverse ways, indicating operations and impacting on functions. Museum exhibitions are often the epitome of 'hyper-reality', and the museum space has become part of the competitive market (Guintcheva & Passebois, 2009: 4). As an extension to Jean Baudrillard's *Simulacra and Simulation* (1981), the Disneyfication of culture claims that the museum is replaced by 'hyper-real', image-saturated worlds, where the real is indistinguishable from the symbol, developed specifically during the excess of the digital world (Hitchcock, 2008: 75). The entertainment orientation of the museum, driven by the neoliberal climate, leads to the 'Disneyfication' of culture and an ephemerality of experience. Museums professionals frequently need to negotiate the museum's mission (knowledge, education, experience) to cope with the demands of the market through a 'dumbing down' of standards in pursuit of larger audiences (Hanquinet & Savage, 2012: 43-44). The controversial and on-going argument is partly manifested regarding the increasing commercialisation of the museum via the expansion of shops, corporate sponsorship and the influx of marketing and fundraising personnel. Biehl-Missal & vom Lehn (2015: 253) argue that the close relationship of marketing and museums goes beyond advertising, websites and social media or the museum shops and cafés, but it becomes a visible and integral aspect of contemporary exhibition-making practices. They are in a competitive relationship not only with other art institutions but also with amusement parks, mass media and online environments. Can art displays and educational exhibitions compete with a theme park? (see Steyn, 2006: 611).

The focus on the commercialisation of the institution flirts with a museum of spectacle, in which reality is a mere accumulation of different images and presentations and the visitors are mere spectators of pseudo-events. When Boorstin (1961) speaks of pseudo-events, he also includes the role of people in the creation of the events who crave simulation and 'real' experiences. The word 'experience' is central to the museum today (Dicks, 2004: 165), and the lecture and book by Nicholas Serota, director of Tate Modern, *Experience or Interpretation: The Dilemma of Modern Art*, stresses some of the concern discussed, which relate to the modern art museum but also museum exhibitions in the broader sense. He views 'interpretation as historical categorisation, and experience as an emotional investment on the part of the spectator' (Steyn, 2006: 610). Interpretation endues objects with symbols that provide recognisable references to the visitors and allows them to situate a narrative and a story, rather than providing them with snippets of information (Dicks, 2004:11). The flexibility of interpretation through interactive exhibition designs for instance, can be disorientating rather than liberating (see Henning, 2006: 150). But is interpretation outside of experience? This dilemma reinforces familiar dualities between emotion and rational reasoning, leaving us with a limited either/or question (Steyn, 2006: 610).

Understanding the museum as an interaction space of knowledge processes and experience (Hooper-Greenhill, 2000: 142; Watermeyer, 2012: 3) is in contrast to the information-based cognitive model of the modernist museum. It reflects a heterotopic space (Foucault, 1986: 25), which refers to a set of existing inversions that alters orders by combining many spaces at one site and by sharing relationships with all these spaces, although they are isolated in some way (Topinka, 2010: 56). The focus here shifts from the importance of artefacts and collections also towards the spaces or topos, which are not only representative of the culture; they suspect, neutralise or invert the set of relations that they represent, with the possibility to orient and reorienting visitors to see social reality anew (Antoniou, Ntalla & Woollard, 2013: 280). The important point is not space itself but the experience, which originates from the complex set of interactions between the audience and the museum's products, events and/or series of other activities. The investigation of heterotopias helps to enrich the perception of the museum as an interactive cultural space or as a 'rhizomatic' system (Deleuze & Guattari, 1987) that encapsulates alternative forms of the world, whether physical, symbolic, real or fictional

(Hein, 2000: 51). One cannot argue for a singular authentic experience but for experiences that allow new social spaces and realities to occur. What and how histories are told in a museum setting is significant to question and problematise, due to the museum's role in creating realities and beliefs, in educating citizens and the ability to penetrate the inner workings of society. The ways in which exhibition narratives are produced deliver experiences that are often immersive, subjective, personal, fast and intense in terms of stimulus.

Have museums evolved into a space of interactive, individualized and immersive moments of experience, snippets of cultural entertainment that can weaken the ability of the visitor to make analytical and critical inspection of the larger debates of society? That leads us to questions of the commodification of experience and, in a museum setting, of the audience being a consumer of the experiences produced. Furthermore, it raises critical awareness about manipulative and misleading narratives that do not move beyond an individualistic and hedonistic experience. In this chapter, I aim to explore the nuances of the interactive experience in the museum setting, following from the discussion in the previous chapter. How does digital interactivity contribute to and challenge the current museum experiences? How do the physical and psychological aspects of our interactions with digital exhibits impact and alter (if so) these experiences? How do the visitors perceive this approach of the museum of postmodernism that is imagined as knowledge process or experience (Hooper-Greenhill, 1992: 210, 2000), a space of dialogue, and an ongoing construction of meaning (Watermeyer, 2012: 54)?

4.2 Multiple Museum Experiences

Experience in museums is multiple rather than single. Museums differentiate themselves from shopping malls and entertainment centres through its focus on education. The growing significance of this educational role is recognised in the new definition of the museum adopted by the International Council of Museums: 'A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for education, study and enjoyment' (Boylan, 2004). Education explains the exhibits and artefacts, stimulating development

through the relationship of the public with the content and objects (Weil, 2002), resulting in active engagement and learning. Educational experiences also embody active participation and absorption, and museums had been widely acknowledged as educational institutions since the nineteenth century, when the concept of educating Plato's *oi polloi* became popular (Hein, 2006: 342).

The museum's focus on educational experience is intended to promote the 'development of specialised educational activity and specialised personnel in museums' (Hein, 2006: 344) and the provision of adequate spaces for this work (Brüninghaus-Knubel, 2004: 125). In the last two decades, there has been a shift from the notion of 'education' towards 'learning' in the museum. Free-choice or informal learning in museum spaces is different from learning in school and universities, which can be understood regarding formal systems of qualification and measurement (Hooper-Greenhill, 2006). Informal learning has been described as 'independent, voluntary, and guided by individual needs and interests', allowing active participation involving exploration, discovery, doing, acting, personal and social meaning-making experiences and constructing knowledge. That is mediated not only by the museum objects and their exhibitions but also the visitors' previous experiences, including the conditions of their visit (Hein, 2006: 347). In this context, the museum represents a fertile space for public knowledge-making and argumentation, or 'civic epistemologies' (Jasanoff, 2010: 239), through involvement in matters of scientific and technological complexity (Watermeyer, 2012: 4).

Falk and Storksdieck's (2005: 747) model of visitors' experience is influential on the understanding of the museum experience, particularly concerning its learning aspects. The authors describe the 'interactive experience' as a process, that captures the before, during and after an event, and it is influenced by three main contexts: the personal, the social and the physical. The personal context draws on the individual's interests and motivations, prior knowledge, experiences and personal memory. The social context recognises the validity of the museum and culture within society. The physical context refers to the interactions with the tactile and visual environments of the museum space, the orientation around the physical space, the architecture and design of the actual place. These three contexts are framed by the dimension of time, which is required for learning to be acquired, tested and refined. Proponents of this model of museum learning refer to

it as providing an accumulation of positive learning experiences and outcomes (Rickinson, Dillon, Teamey et al., 2004).

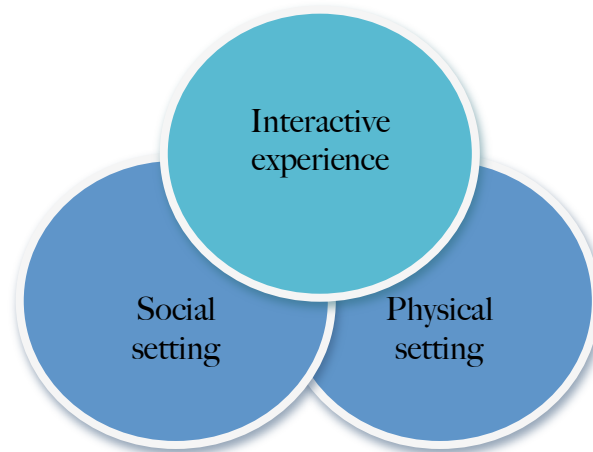


Figure 2: *The interactive model according to Falk and Storksdieck, 2005.*

While Falk and Storksdieck's contextual model of learning refers to the cultural space of interactive experience, Packer (2008: 33) argues that researchers are beginning to investigate the visitors' experience beyond the undeniable educational value. For instance, Doering (1999:10-11), a social scientist at the Smithsonian Institution have provided four categories of experience based on empirical research. She introduces object, cognitive, introspective and social experience and her research indicates that visitors are able to recognise their most 'satisfying museum experience' from this list. This demonstrates that visitors arrive in the museum with specific points of reference and expectations.

Other models, such as Pine and Gilmore's (1998: 102), divide the process of experience into four main categories according to people's involvement and engagement: entertainment, educational, escapist and aesthetic. Pine and Gilmore's work on the experience economy derives from a business philosophy perspective; a model that is increasingly being introduced to museum and gallery settings. This model (shown in Figure 3) argues for a focus on active participation versus a purely aesthetic experience. An experience can be entertaining, educating, escapist and aesthetic.

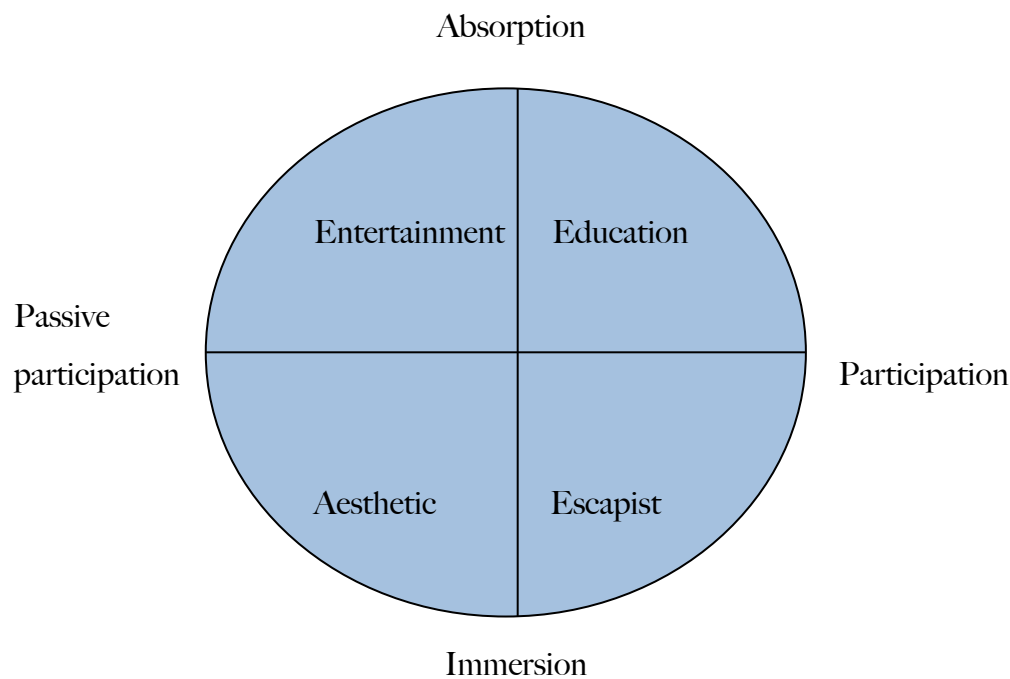


Figure 3: *Experience domains according to Pine and Gilmore (1998: 102).*

Entertainment as part of education is also particularly significant to the shape of the exhibition and meaning-making in the museum. The experience of being entertained in a museum has come to be strongly associated with amusement, with one common understanding of the idea being ‘fun entertainment’; ‘entertainment museums’ focus purely on profitability (Packer & Ballantyne, 2004: 55). This mode of experience is often conceptualised as passive participation and absorption, which means that the person does not take an active part but rather engages superficially with the experience. According to Packer (2006: 333), the concept of ‘entertainment’ includes two dimensions. The first is ‘passive enjoyment’ and feeling happy and satisfied; being pleasantly occupied; being entertained, and enjoying oneself. The second dimension represents an active search for experiences that are new, interesting and exciting. Different studies found that while many factors trigger the decision to visit a museum, a large percentage of visitors are there to be entertained (Packer & Ballantyne, 2002: 184). For instance, for people who rarely visit museums, important aspects of doing so are relaxation and low participation (Sheng & Chen, 2012: 54-55). Within the Euro-American museum community, there are many perspectives on the museum experience and why people use museums (Coffee, 2008: 262). A postmodern museum of the last half-century is in part driven by policy concerns to expand the audience as part of increasing commercialism, the expansion of museum shops

and the rise of blockbuster exhibitions (Hanquinet & Savage, 2012: 42). In the UK, DCMS played its role in relating these experiences directly with marketing purposes through the first mapping of creative industries (DCMS, 1998 & 2001), as attention is centred on the economic size of the industries and the measurement of the value of these cultural experiences. The influence and impact of the experience economy for defining and constituting museum experience is major, particularly considering the current trend of experiences used within art and culture.

According to Jay (2005: 406–407), experiences that are manipulated with the aim of producing pleasure without allowing time for reflection and discovery of meaning can lead to the domination of a 'less version of experience' or 'a reduction of experience to momentary excitation'; the experience as 'a commodity for sale' in the marketplace of sensations. Museums must develop a critical stance towards these forms of exhibition-making to avoid the active/passive, affective/cognitive, immersion/absorption binaries of experience and to find a '*middle voice*' (Jay, 2005: 404). Developing 'effective' participatory experiences means not only creating an environment suitable for learning and entertainment but considering and reflecting on emotional and sensory encounters. Museums try to resolve this tension through marrying education and entertainment into 'edutainment' as their *raison d'être* (Dicks, 2004: 160). Further, employing notions such as embodiment in museum exhibitions requires comprehending that the visitor (or, better in that sense, the audience) brings not only cognitive processes with them but their knowledge of existing, sensing, feeling and touching. Digital interactivity, if put in the right context and relate the exhibition narratives, it can offer a range of opportunities for museum stories to be accessible to body and mind, allowing the bodies to remember, feel and think about the past, present and the future. Technologies, argues Savat (2012: 68), can 'both enable and disable, as they involve both the limits and the possibilities of thought and action'.

In the Jewish Museum Berlin, in the exhibit titled 'Shalekhet' ('Fallen Leaves', 1997–2001) the visitor walks over 10,000 iron plates cut roughly into round open-mouthed faces that cover the whole floor. The basic habitual function of walking becomes part of an act of experiencing the loss of the Jews murdered in Europe, the death of humans. Stepping on these faces while wandering around the exhibition space allows visitors to relate to the

exhibit and perceive its content with their bodies. Apart from the sensations revealed from the visual effect and the feelings of instability while walking on a rough and uneven surface, depending on the speed of walking and the number of people inside the exhibits, the soundscape alters, adding to the sensory experience. Our bodily movements, the ways we orientate within spatial and temporal environments, form the reality we perceive. It is human embodiment that shapes how we comprehend and reason the experiences and actions we take (Johnson, 1987: xix). Embodiment is constituted by phenomenological and cognitive levels; according to Lakoff and Johnson, the latter is a conscious awareness of the body, whereas the former involves unconscious activities (Lakoff & Johnson, 1999).

The exhibition at the National Maritime Museum and poetic interactivity emphasises sensual perception through an interactive and immersive atmosphere that extends feelings rather than cognitive associations. Coming back to the main question of this work, in an interactive museum experience, one cannot disregard the *aisthesis* (Greek word and the origin of the Latin word *aesthetica*) that ‘implies gratifying corporeal sensation, the subjective response to objects’ (Jay, 2005: 138). Aesthetic experience is distinctive and triggers an emotional state of mind, perhaps one less involved in knowledge and more attuned to experiential mode (Lyotard, 1989: 191). The interactive installation at the NMM, a visual and immersive environment reflects that opposition of action and contemplation that is so troubling in the aesthetic experience. The unreliable subjective ‘character’ of such experience is grounded on the corruptible body and the irrationalism of emotion (Jay, 2015: 131). But, both body and emotion are ‘celebrated’ and problematised, in fact are inseparable conditions, of the interactive experience. The aesthetic power of art reflects within it an ‘excess’, a ‘rapture’ over and above its existence as a cultural object through the notion of affect (Lyotard, 1993, referenced by O’Sullivan, 2001: 125). Historically it is associated with art and aesthetics (Freeman, 2010: 56; Jay, 2005: 405). According to sociocultural approaches, the aesthetic experience of an artwork provides a sensual experience of feelings and evidence of other senses rather than of the mind, transmitting meanings that signify social and cultural values (López-Sintas, García-Álvarez & Pérez-Rubiales, 2012: 339). Art-centred experience is different from other experiences due to the aesthetic moments within it, paired with imagination and openness to new experiences (Vallance, 2007: 702). Despite this, socioeconomic and cultural settings influence aesthetic experiences. The value they produce is seductive and stages an

atmosphere to consume and intensify life (Bohme 2003: 73 quoted in Biehl-Missal & vom Lehn, 2015: 237)

Following the Aristotelian notion of affect (*Rhet II.1 1378a 21-2*), the aesthetic experience is not only a pleasurable experience; some aesthetic experiences involve unpleasant aspects in addition to pleasure. The poetic interactivity of the HAe often left visitors with gloomy and negative feelings, connotations of guilt and inability to change the inevitable future of our planet. The approach of this exhibition on climate change differs from the examples that Cameron discusses in her work on climate change in museum exhibitions. The Atmosphere exhibition at the Science Museum London, which I discuss in Chapter Two, contributes to the narrative that humans can ‘control’ nature and its processes, articulating clearly the authority of modern science and informational data. The museum should focus on the actual relations, the ways that climate change ‘touches’ people, personal and ‘tactile’ in mind, rather than an overload of information argues Cameron (2015: 53). The HAe is primarily a space of encounters rather than one of representation. With an aim of commenting on the occurrence of climate change – an issue often perceived as intangible and incommunicable (Potter, 2009) – the exhibition aimed to engage the body and the senses. Through the development of the exhibition, the professionals were *‘thinking about environmental issues, the science of those issues, the human behaviour and the impact on the environment, the changes and their impact on the society, the globe. We wanted to give a response which it isn’t a didactic message that says we have a problem, so turn the electronic devices off or recycle...’* (Hornman & Mitchell, UVA, interview, 18 November 2011). Producing affects, the aesthetic experience offers the opportunity for transformation and growth regarding *katharsis* (κάθαρσις) (Freeman, 2010: 60). It takes the participant out of mundane consciousness; it reconnects her with the world, opening up the non-human universe of which we are part (O’Sullivan, 2001: 128).

By the psychological theory of optimal experience (Csikszentmihalyi & Robinson, 1990), the aesthetic experience includes perceptual (p. 29), emotional (p. 33), cognitive (p. 41) and communicative (p. 62) aspects. The perceptual dimension of the aesthetic experience reflects the structure, form and look of the work, including elements of harmony, colour, texture and balance, whereas the emotional experience included positive or negative

emotions elicited by the artwork and expressed as spontaneous responses such as horror or joy. The reflective response evaluates the work as being good, exciting, bad, or any other evaluation. The emotional, aesthetic experience is of great importance; it is often remembered as an exceptional experience (Funch, 2007: 6–7) as it draws us into a deeper level, being absorbed or losing self-awareness (Csikszentmihalyi & Robinson, 1990: 122), representing immersion into an aesthetic object. .

The art historian Juliet Steyn (2014) analyses the experience of art and captures the viewing subject becoming a receptacle of sensation, following Susan Greenfield's line of thought on sensation replacing cognition, process replacing content and movement replacing thought. Discussion on sensations, affect and emotions about our experiences are proliferating, and fields such as social sciences and humanities come closer to neurosciences in understanding the science of emotion. Emotions and affect have been fascinating scholars in the last decades. It seems that the interest lies in investigating how rationality operates, as Leys (2011: 436) argues in her paper on the turn to affect. For instance, the content received is often less valuable and necessary for the receiver than the unconscious affective relationship with the source of the message (Shouse, 2005). The example indicates the influence and importance of affect when interacting with our surroundings and interpreting meanings. In the museum context, experience cannot be exclusive, but can be combined to form an all-inclusive experience or a multitude of experiences. The association of experience with the events of the museum, with personal participation and contact, highlights a stream of experiencing feelings and emotions, allowing visitors to be touched and emotionally moved, giving them a willingness to acquire and accumulate knowledge about the world. Interactive experiences incorporate multisensory engagement and opportunities to understand events, objects and artefacts through seeing, listening, touching, playing and feeling immersed. How may the acts of touching and playing produce new meanings and connections in an interactive museum environment? The following section explores some of these components, raising questions in regards to the nature of engagement.

4.3 Touching Interactive Exhibits

With the rise of the public museum, touch in the vision-based institutions was demonised as a 'lower' sense along with smell and taste. Before that, in the seventeenth and eighteenth centuries, evidence shows that objects were handled and 'experienced through a range of sensory avenues' (Classen & Howes, 2006: 205). The museum of modernity intended to civilise the public through disciplined behaviour: sight was considered the appropriate and 'civilised'⁴² sense of cultural appreciation. The use of new media has facilitated a shift from a museum of sight towards a multisensory one, and touch has become a sense worth reconsidering. While efforts have been made to tackle the 'Do not touch' discourse through various exhibitions and educational projects, especially when considering collections for the visually impaired (Candlin, 2004), the problem of conservation has been an inevitable barrier.

Touch as encountered through mediated environments and social technologies opens up further questions, due to the technical and technological modes, components of distance and proximity, and the familiar and affective factors of technics in relation to the construction of experience. We use touch in our everyday actions, and we have a certain 'comfort' and understanding in apprehending, interpreting and experiencing ways of touching a hot cup of coffee, a stranger in the street, a pet, etc. We have the capacity to understand when a pet enjoys being touched or feel a touch as a nervous tap on a desk. The connection when we touch a machine can be envisioned through a similar plot, provoking the dominant human/machine binary of Western thinking. Touching a digital image or an icon becomes an act related to processing information, raising questions about our relationship with media. Touch is certainly more demanding than exploring just through the lens of physical contact between the skins of bodies, or the skin and other materials and objects. Just considering the ways we use the word 'touch' in our everyday verbal and written encounters allows us to apprehend its complexity. We touch, grasp,

⁴² 'Lower' senses were related to non-Western communities that engaged mainly through their bodies rather than minds (Classen & Howes, 2006: 206).

tap, press, contact, pat, strike, handle, feel not only physical objects but also immaterial existences related to space, concepts and ideas (e.g. '*She seems to have lost her touch!*'; '*this issue touches us all*'; '*I was really touched by his move*'; '*keep in touch*'). The complexity of touch is noted by a long list of thinkers, bringing it close to various aspects of the human experience with an evident influence on the way we move through space and interact with our surroundings.

According to Aristotle, touch is acknowledged as primary to the other sensory modalities; without it, no other sense is possible. Flesh is the medium of the touch. 'If we place the object on the organ it is not perceived, if we place it on the flesh it is perceived; therefore flesh is not the organ but the medium of touch' (Paterson, 2007, 15). Other thinkers, including St Aquinas⁴³ and Descartes, have explored the sense of touch as a tool for our body; without it we may have no consciousness and know nothing. In the field of physiology, in relation to the senses and consequently to touch, David Katz (1925), a pioneer in this area, declines the classification of lower and upper senses. The sense of touch has largely been explored by phenomenological thinkers such as Merleau-Ponty, Heidegger and Husserl (Elo, 2012), as it ensures immediacy for the sensorial experiences. Heidegger (1962) defines phenomenology as the 'science of phenomena', with the purpose to investigate and describe individual lived experiences. To touch and be touched, to affect and be affected 'is to bring aspects and forces of the world nearer to us' (Paterson, 2007).

The interactive exhibits and interactivity in the museum have brought the conception of touch to a different level, where with a slight tap the user is able to access information, discover past and future worlds, and come close to the distance histories and the history of others. According to the visitors at the Galleries of Modern London, the interactive touch-screen interfaces, the factual interactivity '*gives you a break from just looking and reading, it's something different*' (GoML visitor, interview, 6 July 2011). The modern museum environments enthusiastically embrace interfaces with finger-friendly touch points. The idea of touch aspires the activation of sensory engagement, and it points out a shift on the audience-exhibit relationship, away from the purely visual one. Touch is

⁴³ For St Aquinas it is actually presented as a first sense, 'the first sense, the root and ground, as it were, of the other senses' (Aquinas, in Jutte, 2008).

mediated through technologies such as digital and interactive media, with the medium acting as an enabler, that connects things on the one side but also as something that palpably stands between proximity (Zimmer & Jefferies, 2007).

The common argument regarding the differentiation of touch from the other senses is the proximity of the two entities, touched and being touched, at a distance where no space, apart from the air that floats around, remains between them. Active and dynamic types of touch do not oppose eyes with hands but declare a common sensory existence and interdependence where, when the hands come into contact with a surface, the vision engages equally with the movement of the body, the image, the colours, and the graphics with which the surface is enveloped. Frequently, notions such as 'tactile', 'tactual' or 'haptic' are apprehended as being synonymous with touch. However, the notion of tactile relates purely to the literal translation, whereas the idea of haptic opposes the contrast between vision and touch; as Deleuze and Guattari (1987: 479) argue, the haptic can be as much visual or auditory as tactile. Haptic related to movement, activeness and perception of stimuli leads towards the phenomenological understanding of embodied experiences.

4.3.1 Learning with our fingerprints

Touch, argued to be essential to the museum experience by a number of thinkers and professionals (Classen & Howes, 2006) in the field, is widely explored through aspects of learning. The idea of learning by doing and by being actively involved in the process is widely accepted and reinforces the importance of those exhibits. Different studies suggest that multisensory experiences of interacting with objects promote engagement, understanding and learning (Falk & Storksdieck, 2005). Hein (1998) proposes that learning experiences and knowledge acquisition require active participation with both hands and mind. Factual interactivity in the approach of the GoML professionals is about *'touching and doing as opposed to just looking ... and I don't think I ever really tried to define interactivity in any more detail than that ... so it is about the visitor actually doing*

⁴⁴ The area of technology known as haptics develops environments and devices that involve the sense of touch or tactile sensations (Paterson, 2007) as well as vision and sound, viewed as multisensory. The term 'haptic' comes from the Greek work *haptikos* (ἅπτω, able to come into contact), a concept of defining the science of human touch (Jutte, 2008).

something' (Symington, interview, 6 July 2011). The interactive exhibits spread around the galleries involve the use of single-touch and multi-touch interfaces. The exhibition designer also expressed to me her preference to use alternative practices to touch-screen computer screens such as projections (the Capital Concerns exhibit is a projection), because the technology is not that visible and it is aesthetically easier to integrate. However, touch-screen interfaces carry advantages, for instance in terms of their software capacity, image resolution and what you can do with them, particularly if used to integrate a plethora of information. This replicates much discourse around the acceleration in the use of touch-sensitive technologies in everyday life. Michael Heim (1993: 83), for example, argues that people love the simple, clean surfaces that computers generate: the way that the complexity and ambiguity of them is reduced, clothed, undercoloured and geometrically shaped, suggesting that our affair with them is deeper than just an aesthetic fascination and a play with the senses. As mentioned, traditionally, touch in the vision-based institutions was demonized, but the use of new media has facilitated a shift from a museum of sight towards a multisensory one, and therefore touch has become a sense worth reconsidering.

The fact that the visitors' experience of the exhibition incorporated touch made it more playful for them. Activity embedded in the meaning of play can be understood most often through touch. It *'makes it sort of more like a game'* (GoML visitor, interview, 5 July 2011); and *'we had to walk away from it because we would have sit there all day and play with it'* (GoML visitor, interview, 4 July 2011) were some of the comments made by visitors at the Museum of London. Also, learning history, its facts and figures, is frequently believed to be successful by the use of interactive exhibits due to the ways that content is represented beyond just static reading. As visitors mention, *'I felt that you learning more because you're touching and you're doing stuff...'* and *'learning history in that way could be helpful'* (GoML visitor, interview, 4 July 2011). How much that is a status quo definition and apprehension of interactivity is clearly debatable. These beliefs derive largely from the primary use of similarly functioning technologies – for example, at exhibitions held in science museums. In many museums, predominantly science ones, 'hands-on' exhibits have a learning role; even if they lack technological innovation (they might be mechanical), they can be perceived as more interactive within the broader idea of interaction (vom Lehn & Heath, 2005), as the selection lies beyond pressing a button or

selecting from a number of choices. However, the data confirms the statement that interactive exhibits are perceived as promising 'fun', 'adventure' and 'play' (Witcomb, 2006: 353).

Historically, learning also has close links with the conception of play. Numerous education theorists have expressed the interrelations of construction of knowledge, learning, action and social interaction. According to Vygotsky (1978), social interaction and play are crucial for cognitive development, particularly for children, as they become active participants when they engage in problem-solving activities with their guides or peers. Social interaction is essential for learning to take place. Playfulness can exist in many interactions within museum spaces and it should be integrated throughout the overall experience instead of being approached and practised as an individual aspect. Hornecker (2008) argued that the idea of tangible interaction should focus on human control, creativity and social action rather than on the representation and transmission of data – a shift that would have significant implications for the role and status of interactives in museum spaces.

Nevertheless, the majority of research in relation to the conception of touch within galleries and museum environments explores touch in relationship to real objects (Wood & Latham, 2013; Macdonald, 2006; Chatterjee, 2008), with a later expansion and interest in virtual artefacts and virtual touch (Carrozzino & Bergamasco, 2010; McLaughlin et al., 2000, 2002; Thomas & Mintz, 1998). Virtual artefacts perform as substitutes for the real objects, allowing audiences to touch and manipulate them. A number of studies have been conducted in virtual environments and the characteristics of successful haptic systems for museum exhibits and objects or the 'feelable details' that are required (Carrozzino & Bergamasco, 2010; McLaughlin et al., 2000, 2002). Additionally, looking into the learning benefits of the use of virtual objects is another attractive and extensive area of research. Touch and haptic have been explored extensively in relation to artworks, bringing in notions such as haptic aesthetics. My research foreshadows the significance of the sense of touch in the perception of digital interactivity in the museum space by the visitors and the museum professionals. Touch, most directly presented in the case of factual interactivity, matters, and it is key to how we experience, communicate and apprehend the world around us. As visual technologies have challenged and altered 'ways

of seeing', similarly technologies and machines that require touch, which are part of our everyday life as they participate and intervene in the way we experience our environment, challenge ways of feeling and communicating. Analysing touch in museum environments, but also in the fields of cultural and political economy and communication is a fruitful direction for further research.

4.3.2 Body, a field of actions

Digital technologies and their applications offer the excitement of bringing content to our fingertips. According to Mika Elo (2012: 1), the finger has moved to the status of a switch, dragging the whole body along. The body is a site of perception, a field of actions, a sensorimotor apparatus that facilitates our movements, impressions and feelings. The human body allows a range of interactions; perceptions and noesis deriving from or engaging in touch travel beyond their literal meaning and enhance its complex process. Technology has helped to overcome the limitations of the body to various extents. Katherine Hayles (1999), in her book *How We Become Posthuman*, makes a distinction between body and embodiment, where body is the image, an abstract concept, and embodiment is our experience of the body, both of which are culturally constructed to some degree. The experience, she argues, emerges from complex interactions between conscious and psychological structures and, in order to avoid dualistic approaches, the focus should lie on the conjunction as a dynamic flux where both body and embodiment emerge (Hayles, 2002: 297–298). Therefore, embodiment incorporates not only the conscious state but also an infinite number of sensory interactions. The body, therefore, previously positioned in an antagonistic relation to 'authentic' and valuable experience, is a primary source of engagement for the contemporary exhibition space.

The Digital Revolution exhibition (3 July–14 September 2014) at London's Barbican Centre is a good example of works of the body relation to digital machines and artworks. The engagement of the exhibition with the complexity of the digital's relationship to social history, particularly in providing any historical context, was minimal; instead the exhibition acted as an archive of the entertainment industries, a visual narration of different types of digital machines, games and artworks indicating the development of the uses of the computer. It acted as a sensorial experience that required the body to

participate. The first part of the exhibition, Digital Archaeology, was a room in which touch and vision were the primary senses of engagement as it exhibited early computers, consoles, synthesisers in glass cases and interactive displays. The latter part of this chronological exhibition introduced digital design and artworks, in which the body should move, dance, draw or wave, and expect something to happen in front of you as a response to these moving bodies. In a work from Lozano-Hemmer's (famous artist for his public and interactive artworks) *The Year's Midnight*, the visitor viewed herself as St Lucy, patron saint of the blind, and smoke was pouring from the eyes of a mirrored self. Wandering around the exhibition, it was easy to see the success of such exhibits among both children and adults. Other works were more meditative such as *Assemblance* from Umbrellium, a dark space filled with computer-controlled lasers that could be manipulated by the visitors with the movement of their bodies, hands and feet. In the quiet and darkened room, people did interact with one another and affect each others' formations of light.

At the High Arctic exhibition, the body moves and feels. The Galleries of Modern London also aim to actively involve the bodies of the visitors by inviting them to become part of the exhibition, and altering their movements and routes. The High Arctic exhibition attempts to turn visitors into explorers and discoverers of humanity and nature, implying a relationship of motion. Experimenting with multiple ways of communicating about climate change – specifically the artists' breath-taking experiences in the actual Arctic landscape – the installation employs a theatrical and performative attitude. Contemporary exhibition practices such as the one discussed in the study have welcomed experimentation, often described through terms such as 'performative turn' (Weibel & Latour, 2007), moving beyond representation but towards 'enactment', and generating knowledge and experience (Basu & McDonald, 2007).

This exhibition can be argued to be a space of encounter rather than one of representation. With an aim to comment on the occurrence of climate change – an intangible and often incommunicable issue – the exhibition engages the body and the senses, provoking a felt experience. The communication of environmental and climate change issues to the public through mass media is unable to access the real and more pressing controversies and matters, specifically related to human and non-human

environment interaction (Potter, 2009). Encounters with the individual's knowledge, emotions and bodily movements can provoke thoughts and ways of knowing about climate change. Simon O'Sullivan (2006) defines encounter as 'something in the world that forces us to think'. He argues that, unlike representation, which reinforces comfortable habits of thought and confirms our existing beliefs, encounter stimulates a need to comprehend that can contribute to the disruption of habits towards action by means of its affective force and through emotional engagement.

The exhibition raises questions for the audience. One of the visitors notes: *'you feel something, you don't learn, I know that the ice is melting and so on but you feel it, and when you break the little cubes with the light is really an experience because you understand that you do something ... you have a footprint on the Arctic...'* (HAe visitor, interview, 14 November 2011). The visitor refers to one of the interactive floors that provoked the breaking down of a white space into smaller and smaller pieces with the use of the torch. The body becomes the key element of the installation, being part of the surroundings, intriguing intimate senses (the haptic, the kinaesthetic, the visceral, the proprioceptive). Embracing the body as a non-static object, but as a container of the mind, they allow new forms of interactions and communications with and within the environment.

'I went into the snowstorm and I was trying to clear the snow ... to imagine the people drinking and celebrating and their feelings ... it brought to me images of our own storms ... our own winters, images of Christmas, images of people sitting in there, in the Arctic, thinking of home ... also it felt a little bit frightening...' (HAe visitor, interview, 14 November 2011).

The body is a site of perception in that respect, sensorimotor apparatus that facilitates our movements, a range of interactions, noesis, impressions and feelings. However, still the question of lack of serious engagement with history' is present. Is there a possibility of transformative action or is it just a momentary excitement? I considered the need of digital interactivity, both poetic and factual, to provide a context and relevance to the broader exhibitions of the museum. For the majority of the visitors, connections between the exhibition and the rest of the museum were vague, linked to notions of sea and water,

as one visitor expressed: *'I suppose maritime ... the sea ... yes there was a bit of sea in there'* (HAe visitor, interview, 13 November 2011). The exhibition is perceived as a rather unique and unexpected input into the National Maritime Museum, as a visitor articulates: *'I thought that was much more artistic in comparison to what I've seen in the rest of the museum, which is mainly historical and factual. This is more emotional and artistic, which is quite nice as a complement to that ... I don't think it should be the same anyway, I think it should be different'* (HAe visitor, interview, 14 November 2011).

Mauss (1992: 459) talks about 'techniques of the body' as developed bodily actions that embody aspects of our culture. This provides a simple but solid reference of the body being humanity's first and most natural technical object with techniques that affect the lived body and produce our embodied experiences. In this sense, technological aspects become an extension of our bodies, objects of experience and part of embodiment.

Massumi (2002a: 103) argues the body to be in 'a state of invention', in motion, coinciding with its own transition and variation. A body is in an immediate, unfolding relation to its own potential to vary (Massumi, 2002a: 4-5).

'To have a body is to learn to be affected ... put into motion by other entities, humans or nonhumans. If you are not engaged in this learning you become insensitive, dumb, you drop dead' (Latour, 2004: 205). In interactive art and immersive environments where the body is invited to act and enact, the technically triggered experience should act as an invitation to the body schema over the body image to increase human agency as an embodied being. According to Deleuze (1990: 260), 'the conditions of experience in general must become conditions of real experience; in this case the work of art [or a museum piece] would really appear as experimentation'.

4.4 Communicating climate change through interactivity and immersion

'We are destroying the world, we are destroying the North pole and the South pole slowly with all our chemicals and we need to do something about it before they all gone ... possibly' (HAe visitor, interview, 14 November 2011).

The classical idea of the citizen that holds political and social rights but also a set of responsibilities and duties calls for revival. There is a 'moral charge, to be active, in and informed, about public life' (Barry, 2001: 127). As I have mentioned in previous passages of this work, for Barry (2001: 127), new technology plays a crucial role in producing active citizens, and interactivity is viewed potentially as a useful resource for science centre and museums. But, for the ideal citizen to make 'correct' and their own judgements, societal structures that inform, value education, and provide equal 'tools' to promote critical and analytical readings of information are required.

'The active, responsible and informed citizen has to be made' (Barry, 2001: 127).

The High Arctic exhibition introduces a history of the present, a current human issue which can also feel intangible, and is continually present and pressing (just consider the recent events and the interesting if limited results of the United Nations Conference on Climate Change in Paris in 2016). The science of climate change could not be more convincing. While the subject is polarising, the role of the museum, particularly in illustrating the emotional and communicative gap, cannot be one of a neutral evaluator or a mere translator of scientific positionings (Cameron & Neilson, 2015: 2). Salazar (2011: 124), in his writing on museums as citizens' media, argues that the museum can fill the gap left by mass media, with the aim to go beyond informing audiences and engaging them in a valid process of participation. In that case, participation involves the process of social and behavioural change via comprehension of and involvement in on-going issues of climate change rather than just fulfilling awareness. The exhibition was framed as a response to *'what is happening with climate change ... which remains figures, intangible, incommunicable'* (Hornman & Mitchell, UVA, interview, 18 November 2011). The form of the exhibition and the discussions around threads and nuances of interactivity and experience articulate complexities in regards to museums as potential agents of change; that can communicate controversy and a 'sense of the now' that climate change establishes.

Digital interactivity has been used to attempt to resolve the failures of the traditional science museum, the concern with the public understanding of science, and to attract more museum visitors, as scientific writing is not a sufficient instrument to produce the

informed citizen (Barry, 2006: 129). Scientists have predicted that humans will see the consequences of climate change in the next fifty years. Evidence shows that the atmosphere is getting progressively warmer, landmasses are becoming dryer in some places and wetter in others, the ocean surface is warming, glaciers are melting and species distributions are changing on land and in the oceans (Mapstone, 2007). Climate change is a significant and urgent issue and a 'radical challenge to consumer capitalism' (Lewis & Boyce, 2009: 8). A large proportion of mass media focuses on disseminating information to passive audiences, rather than communicating relevant complexities in order to encourage and stimulate climate change action (Salazar, 2011). Lewis and Boyce (2009: 12) discuss the 'quick-fix' approach of the news media in regards to climate change, the techno-solution frameworks that celebrate the creation of more products to consume in order to fix problems. This 'downplaying' approach to climate change overrides the need to question consumerism as a vital issue.

Bruno Latour (2004) also argues that knowledge about climate change should allow people to make informed judgments, especially as climate change is moving from a 'matter of concern' to a 'matter of fact'. The 'matter of concern' derives from the 'matter of fact' as a range of material and immaterial events and entities including historical and scientific facts. The indicative difference lies in the uncertainty that the 'matter of concern' exposes, unable to exist in a singular and definite direction. The growing acceptance of anthropogenic climate change is vital to move towards action, but its communication to the public holds a number of constraints (Lewis & Boyce, 2009: 9).

I revisit Cameron's example of the Atmosphere exhibition here, as it offers an interesting response to the discussion. Her paper, that engages with thoughts of postmodernism, argues that the exhibition is a 'normative modernising project' (Cameron, 2015: 58), with a plethora of examples of factual interactivity, interfaces and touch-screens, that provide the visitor with scientific calculations and statements (for details on the specific information and data see Cameron, 2015) that actually give unrealistic expectations of what can be achieved in terms of the human capacity to 'reverse' and 'pause' climate change. Presenting nature as an 'empty signifier' prevents us, according to the author, from ecologising and actually dealing with the conditional dynamics and processes of the social and the natural (Cameron, 2015: 54). While the Atmosphere exhibition may have provided the visitors

with the 'pleasure' of information and data (which as I have mentioned in the previous Chapter Three, is clearly linked to satisfaction of learning in the mind of the visitors), the visitors at the HAe experienced an abstract and poetic form of interactivity.

'I expected to have some information about the life in the High Arctic, how people live there ... basically "Frozen Planet" spurred my interest ... and my husband worked in the Antarctic so it would have been quite nice to know a little bit more about the other end, you know...' (HAe visitor, interview, 13 November 2011).

The BBC TV series *Frozen Planet* was mentioned several times as a reason why the audience had visited the exhibition, indicating the tendency of an audience to create intertextual associations through familiarity and allusions. One problem in terms of the communication exchange was the set-up of the exhibition. Placed in a traditional museum and not clearly stated as an art installation with an aim to challenge and provoke, the exhibition setting and its interactive but also abstract character confused some of the visitors. *The exhibition gives you an idea that it is not only about the past of seafarers... also the future as well... especially the Arctic... The "Frozen Planet" certainly got more people down here'* (HAe visitor, interview, 14 November 2011).

Another visitor expressed her disappointment by saying: *'I got more from the television show [Frozen Planet] than their exhibition'* (HAe visitor, interview, 13 November 2011). Here, it becomes apparent that museum exhibitions compete directly in this respect with forms of mass media, as indicated by the expectations of the visitors that the exhibition should act in the form of television media, a documentary in this instance, providing content that has a coherent and informative character. Museums are media, and similarly to media, they have responsibility in communicating to the public the 'happenings' as well as being part of the production and sorting of historical records (Henning, 2015: xxxvi). That is true, and the example indicates the complexities and individualities of both the museum and media in regards to their processes of communication and politics. This exhibition approach aims to challenge the dominant narrative of the Arctic landscape, as well as perhaps acting as a question mark to the comfort and distractions that television

⁴⁵ This is a British documentary produced by the BBC and Open University. Part 7 of the series shows life in the Arctic and Antarctic, indicating how glaciers, ice shelves and sea ice are being affected by climate change.

and its approaches can offer. Still, audiences seem to crave that feeling of comfort that familiar mass media may provide.

The level of personal insight was facilitated in the story of the place: the acceptance of the influence every one of us has on the landscape and its modifications depend on individual knowledge, biases, misconceptions and imagination. The notion of 'audience' in that case is that of an active one (Heath & vom Lehn, 2004; Macdonald, 2002) that follows Abercrombie & Longhurst's (1998) paradigm, which views the interaction of the visitors with the museum content, the messages of the exhibition as a contemplative and critical one based both on emotion and cognition. The paradigm blurs the division between reader and text and it reminds us of the importance of the audience's being in the encounter with any given material. This approach overlooks the notion of resistance and hegemony that other models, such as Hall's encoding/decoding one, value as utterly unavoidable. When it comes to the communication of climate change to the wider public in the HAE, the dominant framework and its influence on the communication process are more prominent in audience's reactions.

We are trying to embody information ... and communicate the relationship between people and nature (Drake, interview, 24 October 2011).

The interdisciplinary team wanted to awaken the potential of the visitors and speak to and with them about the importance of the changes in our climate, highlighting that we are all part of it. The voyage to the Arctic to witness the changes in that extraordinary landscape stimulated the collaboration and *'provoked creativity as well. The idea was to take them together on a voyage and by being on a boat ... they had to get along with one another'* (Hornman & Mitchell, UVA, interview, 18 November 2011). According to the representatives of United Visual Artists, the exchange offered *'a platform to the greater process, the intersections, the need for imagination and creativity in both art and science ... to explore thousands of ideas, to end up a lot of different ideas... I also think that there is a need for science to be more creative'* (Hornman & Mitchell, UVA, interview, 18 November 2011).

In order to render the issues visible to the public, not only the resources of social and natural sciences but also those of art are demanded (Latour, 2010). An interesting example is the experiment from CRED (Centre of Research on Environmental Decisions) researchers on two different communicational approaches to climate change and their effects on memory and decision-making. Their participants were presented with an analytical processing system style including scientific facts, analysis and graphs, and a more experiential approach, where they viewed graphic pictures and imagery on the effects of climate change. The test indicated that the people who followed the 'experiential' approach had an increased level of awareness, and retained more information, but the willingness for action was hard to be upheld (Shome & Marx, 2009). As a multisensory experience, learning includes the ability of knowing, mental efforts (understanding, finding, using, getting), acting (walking and moving), interest, concepts and stories, educational values and ideas and messages. Knowledge and learning in this respect comes as a process of becoming, an alternation that is not derived from factual events and dates but is felt rather than rationally understood.

The exhibition did not want to act as a spectacle but help to bring visitors into the protagonist role, to empower their presence, to allow them to watch but also feel that they are being watched. While interactive experiences are expected to promote collective and social engagement, the immersive dimension of this exhibition made the majority of the audience want to be alone, individuals in experiencing the space. This leads to a number of questions. One consideration regards the nature of immersive interactivity and its tendency to support individual rather than collective experiences. Perhaps one feels more informed, seeing a documentary on climate change, images of floods, icebergs melting and lonely polar bears. These types of exhibitions can offer new opportunities and challenges for museum exhibition strategies. The Imperial War Museum North, for their exhibition Big Picture Show that focused on conflicts from World War I until the present day, enclosed 'the visitors into darkness every hour, hostage to their sights and sounds of the films' (Hoskins & Holdsworth, 2015: 33). The immersive exhibition strategy interrupted action and movement, organising the attention and stillness of the visitor drew on the performative characteristic of commemorative practices (Hoskins & Holdsworth, 2015: 35). The HAE uses similar exhibition techniques asking the visitor to

slow down, listen, remember and reflect. In doing so, it still tends to make the experience one of the individual.

A prominent characteristic of the exhibition involves listening to the sounds of the Arctic and the reflective poetic narration by poet Nick Drake, who travelled with other artists and scientists to Svalbard, an archipelago in Norway. This journey was his inspiration for the collection of poems, *The Farewell Glacier* (Drake, 2012). Extracts from this collection are broadcast inside the exhibition. Tales of the Arctic from the past travelling through voices of spirits, natural phenomena, animals and humans aim to bring audiences close to that land, to feel connected to and part of it. 'The exhibition's approach is an 'affective-experiential' type (van der Linden, 2014), which for some visitors appeals to negative feelings such as guilt. For some, there is '*an underlined message, it is quite a dark one...*', with the exhibition positioning itself, even without overt narrative, as being opinionated and critical. *I liked to be carried along by the poetry and it made the surroundings more relevant and the experience more painful...*' (HAe visitor, interview, 13 November 2011). The poems were a landmark to understand the surroundings; they gave the visitors a direction to discover the atmosphere and the meaning of the exhibition. Some visitors marked the level of concentration to the listening part as essential to understand what was going on, trying to extract a coherent narrative that made sense for them. The soundscape of Svalbard, along with the fragile and moving voices, was a vital part of the meaning-making. The theatrical and non-directional use of sound in the exhibition is unique to the style of the installation. Typically, sounds and voice in the museums are associated with a structured narration, perhaps a spoken voice that performs an informative monologue that one gets through the audio guides or as an extra option for more details next to an artefact.

However, what are the limits of the experiential and affective way of communicating the catastrophic extent of climate change? Public polls have shown that while the public is aware of the situation, there is reluctance to take action (van der Linden, 2014). Was the HAe empowering action, or just feeling? The difficulty and controversy in dealing with such issues can be benefited by reaching out to the senses away from an exclusively didactic intent on transforming visitors' minds. The HAe, an artwork and an experiment across art and science, reflects Barry's (2006: 178) argument that digital interactivity can

channel and excite the curiosity of the body and the senses. Sensory and affective responses in this setting are argued to open a wider range of possibilities and potentially shake existing cultural narratives and divisions. The poetic interactivity of the HAc intends to transform the visitor, citizen and consumer into a creative, and active subject, largely (as there always the control and expertise of the institution, curator and artist at the very least) without direct and authoritative control (Barry, 2001: 151).

4.6 Play and Paideia in the Museum Experience

'You can discover more about a person in an hour of play than in a year of conversation'
(Plato, 347 BCE–427 BCE, referred by D'Angour, 2013)

In this section, the discussion will introduce and explore the rather ambiguous notion of play as comprehended and theorised from ancient Greece to contemporary thinkers. Play has been a significant aspect of life in all cultures across time (Huizinga, 1955). In ancient Greece (800–500 BCE), musician-poets like Homer, sages like Pythagoras and philosophers like Heraclitus seemed to offer their wisdom (*phronesis*) as a form of intellectual play (D'Angour, 2013). Homer described athletic and sporting activities, as well as music, dancing and singing as *paizein*⁴⁶, which in contemporary Greek means 'playing'. It is argued that the Greeks did not particularly associate play with children. Play is much more than play; it is a multiplicity. First of all, it is the flow of dynamic relations. 'Players: the poet, the chorus, and the audience; time: the mythic past, the present and the future; senses: speaking, hearing, seeing and feeling; and inter-subjectivities: gods, goddesses, heroes, and mortals' (Trueit, 2006: 99). Second, the multiplicity and the centrality of play in sacred space in Greek culture seems to offer a clue as to its enduring intellectual and artistic accomplishments, leading to the stage of *paideia*. *Paideia* gives men the desire and enthusiasm to become perfect citizens as well as incorporating *poiesis* (from the ancient Greek term ποιέω, meaning 'to make') as a creation in the classical period (500–300 BCE) (D'Angour, 2013). The Greek sophists as

⁴⁶ A verb etymologically connected to the Greek *pais* (παῖς), meaning 'child'.

⁴⁷ Referring to education, culture.

teachers of *areté* (from the ancient Greek term ἀρετή, which means a 'moral virtue') presented their instruction as a form of intellectual play.

Contemporary findings indicate that play infuses the creative and imaginative space of being, of growing through experience (Sutton-Smith, 1997: 7). Biologists, psychologists, educators and sociologists tend to focus on how play contributes to the growth and socialisation of children, to their intellectual, cognitive and creative development (Piaget, 1962: 62). Interestingly, it has been conceptualised as related to socialisation and growth, perceived primarily as part of development rather than enjoyment. When it comes to discussing play for adults, there are other ambiguities in Western society; such play is seen largely as what children do but not what adults do. When it comes to adult life, the meaning of play shifts towards silliness (Sutton-Smith, 1997), although the concept of play is clearly extended, albeit schematically, to all of life and different social contexts. Furthermore, play's most common understanding lies in its division from work, as we associate play with free time, pleasure and fun. It is worth mentioning that this division has certainly been blurred in the era of modernism and postmodernism, with leisure being subject to commodification. As some post-Fordist theorists argue, the lines between play, work and consumption are being blurred (see Bourdieu, 1991; Bauman, 2000, 2005; Ross, 2003).

According to Winnicott (1971: 53), 'it is in playing and only in playing that the individual child or adult can be creative'. The experience of play is not limited to children. Creative play provides an opportunity for the exploration and examination of alternatives and different meanings. It is a state of mind, a process that takes place 'in between' (Gadamer, 1988). People experience play as a reality that surpasses them. It is a cultural experience located in the meditative space between the individual and the environment. The area of playing is not an inner psychic reality; it is outside the individual, but it is not the external world. It is symbolic of a third reality, a resting place that exists 'in between' subject and object, between the inner and the external reality of individuals, between the self and others (Winnicott, 1967). Another feature of play carries the promise of change, as a way of restructuring the existing way of thinking, leisure, *jouissance*, rupture and subversion, as well as being simultaneously inextricably related to codes, boundaries, norms, often in a mobile continuum (De Bono, 1970: 11). Play can often provoke possibilities of shifting

realities and transformation. What it shows over and over again is the opportunity to change goals and, therefore, restructuring reality intending to promote some *telos* or purpose.

A distinction to be made is that between play and playing games. A game needs to be played under a specific set of rules, whereas play involves a radical freedom with and within boundaries (Csikszentmihalyi & Bennett, 1971: 45-47). The dynamic flow of play as poiesis is complicated, but the energy might be thought of as deriving from the active participation of mind, emotions and body. The experience is generated when actions are evoked with the environment, when 'feedback' provides sufficient possibilities for an uninterrupted flow of action (ibid., 1971: 45-47). As such, play lets people develop their physical, mental and social skills, which lead directly or indirectly to ordinary life adjustments. To experience play and emotions is to be moved. The movements involve ideas and concepts as well as the body. Emotions can lead to affects as powerful transitions (Massumi, 2002a: 25).

4.4.1 Interactivity and play in the museum space

The practice of play in museums and broader exhibitions has been recognised and explored by art theorists and artists (Fels, 2000) as well as by interactive and game designers. According to some studies, playfulness in interactive spaces emerges from the relationship between participants and system outcomes; it relies heavily on physical actions, movements and gestures. Furthermore, historically, play and learning have been very closely connected. Constructivist theorists such as Vygotsky (1978) and Piaget (1962), major contributors to the field of education especially in relation to children's cognitive learning styles, argue that knowledge and learning are enhanced when action and discovery occurs, perhaps closer to playing a game with specific rules, particularly when engaging in social interaction and cultural influence. John Dewey (1961: 342) also sees the construction of knowledge as directly linked with activity, but he provides a more open view of the way in which we learn being generated through experiences. His philosophy on education and experiential learning views the learner as an active participant in the process: interacting with the world, engaging with their minds but also their hands. Dewey, identified with pragmatism, has also written about art as experience, arguing for

a more active and holistic aesthetic experience; he wanted to overcome the producer and consumer duality in modern life, the split between the artistic creation and aesthetic appreciation (Jay, 2005: 163). In defence of emotions, Dewey foregrounded how even vision (understood as distant and contemplative forms of engagement) ‘arouses emotion in the form of interest’ (Dewey, 1934: 237 in Jay, 2005: 163)

Sutton-Smith (1997) perceived the link between play and children’s cognitive development far too limiting. The benefits of actions and spontaneous play for the children’s cognitive development are certainly valid, but restrictions in the notion and perception of play, can lead to limited practices and applications in the museum setting. *Paideia*, participation, learning and cognition are some aspects of play. Philosophers and diverse play scholars, argue that the importance and meaning of play also appear in its affective and imaginary functions. Play incorporates amusement by imagining, discovering, creating, pretending, competing, socialising, reading, writing, running, understanding nature, collecting, and a whole lot more (D’Angour, 2013: 143).

Play in the museum, expressed through new media and interactive exhibits, can take on a play function not only for children but also for adults. Different exhibits can operate as a kind of play, which takes visitors out of mundane consciousness.

Within the modern museum and galleries, digital interactive exhibits and exhibitions can make the play function into museum spaces in a variety of ways. For example, in early 2011, London’s Hayward Gallery hosted ‘Move: Choreographing You’, an exhibition that invited people to take part, move, relax and play. The artworks were installations or performances that were placed there for the visitors to interact with, to bring an embodied presence of the visitor. Entering the space, a big playground was revealed, colourful, moving and noisy, but notably also producing nervousness or timidity. Each and individual piece certainly offered a distinct experience to the audience-participant, and some were rather challenging, breaking boundaries by asking visitors to move their bodies, encounter and interact with other people. The exhibition involved the audience directly in the experience of choreographic objects by playing on a set, moving around and touching materials. Play is characterised by liberty, improvisation and movement, and pleasure triggers one’s actions to touch, to taste, to discover and to answer different questions (Pais, 2012).

Interactive elements of exhibitions, touch-screen interfaces and immersive digital environments create an experience of complex interactions between the mind and the body, perception, reaction and emotions, encouraging the users' participation and engagement (Falk & Dierking, 2004). They shift our attention to play with the emotional cognitive and somatic sense (Paterson, 2007), aspects commonly explored by interactive and game designers, who argue that playfulness should not be perceived as separate from the museum environment.

4.5 Affective and Emotional Relations

The interactive, sensory and potentially playful museum experience is part of the cognitive process of informal learning and a construction of knowledge through interaction with the artefacts and objects. It is also an affective and emotional process that frequently only reflects the non-cognitive dimensions of a museum visit by focusing on visitors' personal responses to emotions such as joy, happiness or boredom. Previous studies (Csikszentmihalyi & Hermanson, 1995; Falk & Storksdieck, 2005) have not fully documented the presence and the importance of affect in the museum setting, although visitors have affective responses to their encounters in museums. More recently, areas of study in critical heritage and museums engage increasingly with emotions and affect (see Crouch, 2002; Gibson, 2009; Wetherell, 2012; Witcomb, 2015), which have traditionally been seen as an obstacle to understanding and learning. Most recently, Andrea Witcomb (2015, 322-3) coined the term 'pedagogy of feeling', that described 'exhibition practices that stage affective encounters, challenging the relationship of subject and object, through a range of techniques that encourage reflection through sensorial experiences'. The dualism between the rational and the affective is questioned and the curatorial belief that 'seeing' and vision allows rational thinking and contemplation is re-examined (Witcomb, 2015: 323). The Sophists argued that sense-experience has to be taken seriously as a vehicle for knowledge (Jay, 2005: 16). As I mentioned in Chapter Three, senses are an important part of experience and it is in the era of Enlightenment that the impulsion of the senses was demonised, and perceived as an act of the 'uneducated' and the 'other' particularly in museums and galleries of that time. In the twentieth century, some thinkers from

phenomenological, postmodern and poststructuralist accounts have embraced affect as conceived as encompassing love, emotions, desire and sensation. Affect has been conceptualised as an integral part of human cognition and behaviour and thus concerning the relationship that humans have with technology and media, which alters continually.

The 'affective turn' is profoundly discussed in the area of cultural studies that envelops non-Cartesian traditions⁴⁸ of thought such as feminist, queer and subaltern studies, the history of emotions, neurosciences and accounts of cybernetics. It turns away from the reason-based and fully cognitive understanding of the world and turns attention to the body. Patricia Clough (2007) is one of the main scholars who speak of the 'affective turn', challenging dualities such as emotion and reason and aiming to explore the meanings and appropriations of emotions and its complex relations to subjectivity, speaking of cognition seen as social and cultural practices rather than just individual states. Nevertheless, we can argue that the turn is something that existed before the so-called 'affective turn', from ancient times (La Caze & Lloyd, 2011). Bergson (referenced by Hansen, 2003b: 207) has insisted that 'there is no perception without affection', meaning that every act of perceiving an object (or image) at a distance from one's body (or literally, as the potential for the body to act on that object) is necessarily accompanied by an action of the body on itself, a self-affection of the body.

The two most important connotations of affect are first *emotion*, as derived from the psychological point of view, and second, its element of a *forceful encounter that comes before consciousness* – a more general view embraced by the social sciences (Massumi, 1987). Affect as an experience of feeling and emotion represents one of the three aspects of human life: affective, cognitive, and behavioural (Oatley & Jenkins, 1996: 29–30). There are theories about affect and emotion that come from a wide range of disciplines including philosophy, biology, psychology, anthropology and musicology. However, according to research, affect and emotion have their roots in philosophy (Solomon, 2008: 4), with one of the first traditions being the influence of affect on the mind. Emotions are part of the

⁴⁸ There are two different approaches to the non-Cartesian traditions: one that totally diminishes the duality, and one that accepts the ontological duality but shifts attention from the mind to the body. Leys argues that the 'affective turn' still acts under dualistic terms by privileging the body over the mind (Leys, 2011).

change in the relationship between affect and cognition, a necessary part of the interpretation, expression and evaluation of circumstances that provides information about relations to other objects and events, including cultural institutions and implicit political power structures. Affect seems vital as modes of thought and action that are part of our everyday engagement with any cultural, political or social activity.

Deleuze and Guattari's work built on Spinoza's *affectio* (corresponding to the state of body as it affects or it is affected) and *affectus* (the continuous variation in the body's capacity for acting) that allow them to formulate affect as a dimension of subjectivity that is open, with an intensity that cannot be demarcated by representation, images or thought (Seigworth, 2005). 'A principal figure' according to Melissa Gregg (2006: 105) in cultural studies that 'recognised affect as the new frontier for politics' is Lawrence Grossberg. With a particular interest in music, Grossberg sees *affectio* (as expressed by Deleuze and Massumi) as the ontological nature of affect and *affectus* (following Freud) interested in the psychoanalytical space of affectivity (Grossberg, 2010: 310-311). He seeks to understand affect in its specifying modalities and apparatus rather than its broader sense, which he argues cover too much ground and is used to describe anything that it is not representational (Grossberg, 2010: 314-315). Thinkers such as Deleuze and Guattari view affect as independent from emotion or feeling; it involves the constant changes of being in the world and it brings up the question of intensity (Murphie, 2010). Gregg and Seigworth (2010: 2) engage with affect as a force of encounter, transpiring within and across the subtlest of shuttling intensities.

The philosophy of affect is wide and goes back to the times of ancient Greece. The initial account of affect relates to its influence on the mind, the basis of *pathos*, which transforms the judgment. According to Aristotle (1941b), *pathê* in the form of sensation are principles involving matter (τὰ πάθη λόγοι ἔνυλοι εἰσιν· ἰσινίε form of, 403a 17-26), which 'cause men to change their opinion in regard to their judgments' (ἐστὶ δὲ τὰ πάθη, δι' ὅσα μεταβάλλοντες διαφέρουσι πρὸς τὰς κρίσεις, *Rhetoric* II.1 1378a 21-2), so the judgment is

⁴⁹ *Affectus* was used as a philosophical term for the Latin translation of the Greek term *pathê* (πάθη), which encompassed passive as well active affectivity (Zaborowski, 2010: 7).

transformed, affected and accompanied by different emotions (such as pleasure or pain). Aristotelian emotions are not static expressions resulting from impersonal stimuli, but include a 'distinctive cognitive component, a specified social context, a behavioral tendency, and a recognition of physical excitement' (Solomon, 2008: 5).

In Book II of the *Rhetoric*, Aristotle investigates the relationship between *pathé* and the human psyche to help orators use effective rhetoric in public forums (Smith & Hyde, 1991: 450). Emotional appeal or *pathos* focuses on the audiences' needs and emotional sensibilities. Audiences bring particular histories and interests with them, and *pathos* with *ethos* (credibility and authority) are essential modes of persuasion for making practical and aesthetic judgments (Kastely, 2004: 224). Through emotional appeal, the audiences not only respond emotionally to the orator, but they identify with his point of view, they connect emotionally with the orator and suffer what he feels. This notion has translated to theorists nowadays relating the way affect is produced through *mimesis*, imitating human actions that produce certain feelings. The movement of extremities is a measure of the intensity of emotions. The intensity is a function of proximity, of the nearness or remoteness of the object that stimulates emotions; it is a measure of the pleasure or pain that is present in each emotion.

Intensification of emotions is a function not only of temporal and spatial proximity but also of *imagination*; this plays a significant role in the interaction between the speaker and the listener, leading to various states of mind (Smith & Hyde, 1991: 453). *Phantasia*, according to Aristotle (1941a), is affection and 'this affection is in our own power whenever we wish' (Τούτο μὲν γὰρ τὸ πάθος ἐφ' ἡμῖν ἐστίν, ὅταν βουλώμεθα, *De Anima* III, 427b 17–18). It is a motion and change brought about by the functioning of sensation through

⁵⁰. Explaining different emotions (for example, anger), Aristotle refers to their three main components: (a) the psychological state the person is in; (b), the object towards which the emotion is directed; and (c) the circumstances in which a person comes to have a particular emotion.

⁵¹ They function in the management of goals and are gained no less from reading or hearing a fictional narrative than from seeing a play performed within the context of personal character (*De Anima*) (*Nicomachean Ethics*), rhetoric (*Rhetoric*), drama (*Poetics*), and, ultimately, the polis (*Politics*) (Marjolein, 2012: 1).

which ‘images occur to us’ (Εἰδή ἐστὶν ἡ φαντασία καθ’ ἣν λεγόμεν φάντασμα τι ἡμῖν γίνεσθαι, *De Anima* III, 427b 27–29). Although phantasia is translated as both ‘imagination’ and ‘mental image’, it has a richer connotation than the contemporary concept of imagination. *De Anima* approaches phantasia as the capacity, the activity and the product or result (Frede, 1995: 279). As such, phantasia is in between sense perception and the mind, essential to human thought, including deliberation, contemplation and creativity (O’Gorman, 2005: 22). In the art of antiquity, particularly in the visual arts, theatre and painting, phantasia played a distinctive role in cognitive representations and mental transformation, expanding on that reality employing the powers of the mind.

Affect, according to Aristotle (1941b), denotes potential since it is related to ‘movement’ (κίνησις) and ‘actuality’ (ἐνεργεία, ἐντελεχεία) of potentiality (δυνάμει) as the process of change and the capacity to become⁵². Potentiality and purpose are not sufficient for bringing about action. Aristotle does concede that not only the thought, but also the *desire*, the phantasy, the wanting and affection are potentialities that produce movement (*De Anima* III, 433a31–433b4). These kinds of potentialities are complexly interrelated soul-parts that have the power to affect and be affected. For Aristotle, being moved or being affected and becoming active are the same thing (*De Anima* II, 417a14–16). The final characteristic of *pathê*, which is related to movement and actuality, is their role in *motivating action*. According to Aristotle, the range of *pathê* is wider than emotions; they are attended by pleasure and pain and several other emotions including desire⁵³ (*epithumia*) as one of desiring elements of the spirit with them. Two other elements are the wish (*boulêsis*) and the spirit (*thumos*) (*De Anima* II, 3, 414 b 1–2). *Epithumia* as a kind of desire is a starting point of the movement. It is a source of flow and motivation; ‘nothing which is not desiring or avoiding something moves’ (*De Anima*, 432b15–17), leading to engagement in an action or activity for the pleasure and satisfaction of desire.

⁵² ‘First then let us speak as if being affected, being moved, (του πάσχειν και του κινείσθαι) and acting (του ενεργείν) are the same thing; for indeed movement is a kind of activity, although an incomplete one, as has been said elsewhere’ (*De Anima* II5, 417a14–6).

⁵³ Examples of common kinds of desire according to Aristotle are: desire for recreation, desire to exercise artistic and physical capacities, desire to learn and understand, desire to achieve and have one’s achievement recognised, and desire for aesthetic response and reflection (Chew, 2009: 29).

Desire is an important concept in the work of Deleuze and Guattari. 'It is always constitutive of a social field and it is in production just as production is in desire as desiring-production' (Deleuze & Guattari, 1987: 348). They conceptualise affect as forces of desire and process of becoming – 'affects are becomings' – (Deleuze & Guattari, 1987: 256) and transformation through movement and over duration (Parr, 2010: 12). Duration, according to Deleuze, is 'a way of being in time' and the 'totality and multiplicity' of 'differences in kind' as opposed to differences in degree (Parr, 2010: 32). According to this concept, affect includes the forces and the power behind all forms of social production in the contemporary world. These forces can be reactive or active, while the power of affect can be utilised to enable ability, creativity and control. Affect arises in 'the capacities to act and be acted upon, it is in the midst of in-between-ness and leads to becoming, becoming something different, something other, something new' (Seigworth & Gregg, 2010: 1). Affect does not have an original pure state; it exists in the middle of things, it is a transitional moment, a state of relations as well as the passage and establishment of new ties.

What role can the 'affective turn' express in relation to the politics of interactivity in cultural experiences in museums? Jameson (1991) views postmodernism as a 'waning of affect' or a split between technical being and vital behaviour that persists in contemporary culture (Stiegler, 1998: 16). He argues for the affectlessness of postmodern culture, where the subject is unable to have a coherent experience due to the loss of cultural authority rather than just the lack of emotion or feeling (Gibbs, 2010). However, thinkers like Massumi (2002a: 27), whose text *The Autonomy of Affect* played a vital role in the discussion of the 'affective turn', see affect as in excess and as a necessary part of this period, as a force in contemporary media, literary and art theory.

The changes in the operation and ontology of media has affected the way they operate, which, according to Mark Hansen (2003a), media theorist, are predominantly out of the consciousness of the body and personal perception. "Media diminish and supplement expressive capacities of humans", and technologies have social and sensorial impact, the author argues, relating affect with atoms of sensation and sensibility (Hansen, 2015: 271). Massumi's (2002a: 25) work discusses the conscious perception as the narration of affection; for example, when we are talking about emotions, the human body opens to its

indeterminacy. Anna Gibbs argues that what is appropriated by media is primarily affect; moreover, this media functions as amplifiers and modulators of affect, orchestrating affective sequences (Gibbs, 2010). The relationship of individuals with institutions, their applications and content, are no longer a matter of feedback but a complex relation of a larger process. The digitally mediated environments, part of our social lives, not only engage our senses, but also act as a space of complex relations, structures and functions; being naturalised offers, encounters prior to any consciousness, and communication is expressed directly through movements, bodies and intensities. Emotions have limitations, activating specific memories or tendencies. Thoughts are restricting, but affect is a whole, a series of forces that exist in between (Massumi, 2002a).

Interactivity urges audiences to affect and be affected (Deleuze & Guattari, 1987) through various rhythms and modalities of encounter, and channels of sensation and sensibility that lead to becoming. The visitors' encounters at the exhibition at the Galleries of Modern London materialise amongst other modes through touch, bringing to the fore its interrelations with learning and play. The act of the fingers, and, therefore, the hands, brings the idea of poiesis, of doing, of influencing, of interactivity as any exchange of a subject with an object. It is up to the individual's or group's willingness, and capacity to stimulate mental activity through this communication. Madaline Diacon asks what it would be, apart from the aspects of preservation, which makes the museum so keen on using restrictions such as 'Do Not Touch'. She suggests a type of knowledge that is waiting to be awakened by our fingerprints (Zimmer & Jefferies, 2007). Nevertheless, elements such as touch and play have a long tradition of being viewed as add-ons to the exhibition experience, lacking contextualisation with the exhibits, and commonly acting as a diversion.

The High Arctic exhibition comments on the issue of climate change, provoking a felt experience and serving as a space of encounter. In order to communicate climate change, its relationship with our heritage requires a need for new strategies and narratives of engagement beyond preservation and representation. Communicating these issues through art is one way of allowing people to relate to immeasurable concepts by engaging

⁵⁴ In her work she follows Tomkins' account of affect, which views cognition as involving sensory and affective experience (Gibbs, 2010).

emotions and senses and breaking big and complex problems into small, personal pieces. The encounter with culture and art urges thought and initiates conversations and questioning, following O'Sullivan's (2006) definition of encounter as something that forces us to think. An encounter is an affect that allows points of view to communicate, forcing thought and putting them in relation to other forces with becoming, concerning composing rather than composed forces (Zourabichvili, 2012).

The media has been part of our lives, orchestrating affective sequences (Gibbs, 2010). Distinguishing between human and machine is rather problematic, leading to difficulty in understanding the human experience and interactivity between the body and mediated environments. Techno artefacts and digitally mediated applications, according to Latour (2002: 247), are a mode of existence and a particular form of exploration of being. In conclusion, the experiences provided by the Museum of London and the National Maritime Museum engage individuals in a larger process that employs senses, emotions and affect as the world in motion, as temporary worlds in all its constant change. The digitally mediated environments can create possibilities for affective intensities to be experienced, as well as acting as a basis for thought and active engagement.

4.5.1 Relations between physical and felt engagement, learning and meaning-making

This section aims to understand the physical and felt engagement of learning and meaning-making processes and that the audience related to their visits to the museums and to these specific exhibitions. I did not ask the interviewees to list learning outcomes directly or use the word 'learning' directly, but rather requested them to recall any information and actions that they could remember from their interaction with the exhibitions as well as with other visitors in the space. My approach intended to allow participants to define for themselves what are the new elements that they gained and discovered through time spent at the exhibition. Digital interactivity in the museum is argued to enhance 'self-discovery' in learning as the visitor has the privileged position to actively engage with the exhibits and museum narratives (see Hein, 1998; Scott et al., 2013; Witcomb, 2015). The informal interactive space of learning at the GoML and the exhibition at the National Maritime Museum, like most museum experiences, focus on

voluntary and active participation, on the personal and social meaning-making that occurs through the objects and stories of the exhibitions but also through the visitors' previous experience and conditions of their visit (Hein, 2006: 347). Increasingly and as we saw in Chapter Two, the educational aspect is what differentiates the museum from other places of entertainment. My analysis aimed to consider how these forms of digital interactivity, both factual and poetic, affect the museum practices and this role in detail.

The learning process according to the audience responses is classified into the following categories: (a) the cognitive aspect, (b) the affective aspect, and (c) the interactive space of learning and information. Learning and recollection are part of the cognitive process and are also affected by the emotions aroused (Carlson, 1997: 123). The cognitive process is constituted by diverse components of the audience's thinking and actions in order to receive, understand and analyse the information provided within the museum exhibitions. Cognitive responses as part of a learning experience are frequently understood in involving experiencing, reflecting, thinking and acting (Kolb, Boyatzis & Mainemelis, 2001: 240). The affective domains related to learning enable the visitors to receive information in a way that their feelings and emotions could be attached to the exhibition's content in different ways, with learning becoming part of their experience. This discourse shows that learning is influenced not only by the emotional and personal engagement with the exhibits and information, but also by the values and general beliefs of the participants. Human interaction is social (Dewey, 1938: 38) and, even in the case of the interaction being with a machine or a piece of information, the relationship still carries social rules. The connection of cognitive and affective dimensions is not an opposing one, as both influence the means by which we process information (Norman, 2002: 38) and experience formal and informal learning. So, there is potential in these learning experiences, where cognitive and affective meet, 'making available pathways where thoughts, knowledge and feelings can be articulated without the need of words' (Watermeyer, 2012: 3). Furthermore, disciplines such as psychology, cultural studies and neuroscience see cognition and affect as interconnected (Gregg & Seigworth, 2010). One can also suggest that these ideas have started to be integrated in forms of dominant discourse.

Learning and engagement at the GoML is enhanced through objects and artefacts as well as the interactive exhibits that incorporate pictures, maps and information through questions and polling systems. The immersive and theatrical environments of both galleries are characteristic of museum 'sensespaces' as an alternative to the museum of sight, providing an opportunity for dynamic interaction (Howes, 2005: 209). An insightful aspect of the Museum of London's report on their new galleries is the distinction of four types of engagement: emotional, intellectual, spiritual and immersive. The levels of emotional, intellectual and immersive engagement were similar both in the older and newer galleries, according to the evaluation. But the spiritual engagement, which expresses how connected the visitors felt to London and Londoners, was significantly higher in the GoML (Summative Evaluation Findings: Volume I, 2011). Sensory involvement can challenge the culture of gazing at distant objects, gazing at the 'other' with forms of storytelling and narration that awaken connections through the personal; this can lead to heightened 'spiritual' engagement, according to the museum's evaluation. This classification of types of engagement is part of the Hierarchy of Visitor Engagements, concerned with motivation for the museum visit (as presented in a report by the Museums and Heritage Show in 2005).

Earlier research has shown that interactivity promotes understanding and recall of exhibits and their content as well as increasing the time spent in the exhibition (Hein, 1998; Schneider & Cheslock, 2003). In my research study, the visitors could recall information that they had just accessed rather vaguely except if it was an event or a fact that impressed them or related to their personal and cultural interests. As part of the observation, I noted how long the visitors had spent in the exhibition. In some ways it seems only natural that they spent more time on an interactive exhibit than looking at an artefact, as one question here is whether this is because it is a new technology. This, however, does not equate to more 'gaining of knowledge' as it depends on how that time is spent. For example, school groups seemed fascinated by the interactive exhibits and they spent a large amount of their visit tapping and banging the interfaces, but it is unjustifiable to argue that they 'learned more' from that than from another exhibit. My research also suggests that other visitors spent a fair amount of time figuring out the interfaces and getting confused rather than engaging with the content. This simple example indicates the significance of intentionality when engaging with factual

interactivity in particular. Visitors' readings are central to the production of meaning (Harrasser, 2015: 374). Harrasser's (2015: 380) research on children's engagement with interactive and hands-on exhibits shows that many of the children wanted an explanation from an expert in the use of the interactive exhibits; an issue that indicates the importance of some guidance in order for them to engage in more meaningful interactions. The statement that pedagogical examples viewed as an alternative create enthusiasm, discovery amongst diverse learners, has to be examined carefully, as these type of exhibits can often trigger a sense of wonder but it is questionable how much that leads to sustained learning.

The visitors of the GoML make sense of the factual interactivity through personalisation and as they interacted with the different exhibits, they frequently searched and related to information close to their own personal experiences and lives. In the Charles Booth interactive poverty map (see details in Section 1.2.1.2.2), which aims to showcase changes in social classes and poverty lines around London through the use of an interactive map, a visitor mentions, '*Well, I found where I was born, as I was born in the East End of London and where I was, it was bombed out in the war ... I moved it, it was in the map there*' (GoML visitor, interview, 4 July 2011). For another interactive exhibit that includes old and new pictures of London neighbourhoods, a visitor notes: '*we passed this church this morning and then there it was, a picture of it ... we didn't realise that was from the 1500s so, yes, we definitely found out about that*' (GoML visitor, interview, 6 July 2011). Responses from the Capital Concerns interface (see Section 1.4.1.2.1) showed that the audience was impressed by some of the facts and the complexity of the situations described as well as the fact that the information was up-to-date; for example, the problems of homelessness or drug use in London. The situations, most often, were compared to one with which the audience was familiar; due to the fact that many of them were tourists, the comparison was often with problems in the cities they came from. The diverse range of visitors of the museum, find their own ways to connect to these interactive exhibits, and the overwhelming amount of data information can be a good reason for that. Increasingly, interactive designers are filtering content to the individual's preferences and visitors' profiles by designing experiences (through mobile technologies and augmented reality for instance) that are highly personalised and social (see Ardissono et al., 2012). In this line, it can also be argued that the museum narrative is 'obscured and

atomised', and these interfaces lead to a tendency of confused and careless 'impulsive behaviours, which cause stasis of ...experience and inefficacy as a catalyst inspiring knowledge and learning' (see Watermeyer, 2012: 37).

The 'postmodernisation' of the museum can be argued to have abandoned historical continuity while absorbing from history whatever it finds that may be relevant to aspects of the present (see Harvey, 1990: 55). Postmodernism can lead to the 'depthlessness' of contemporary cultural products that are fixated with impressions, appearances and instant impacts (Harvey, 1990: 56). A couple told me in regards to the Capital Concerns interface: *'we were looking at the Thames earlier and we've been discussing about global warming. And I liked the one on telephone boxes because I've been worrying about them, them disappearing out of town and the question about legalising drugs or not. Then of course it stops when the discussion should start but that's ok, you can have the discussion with people'* (GoML visitor, interview, 6 July 2011). The visitor concludes by saying that the discussion finishes where it should start but it sparks enough curiosity and wonder to take the discussion further with other people. This revealing point demonstrates the limitations of factual interactivity as well as its potential. According to the research material, engagement with the interactive environments takes the form of users' perception, communication/information context and usability of technology, although the information content is presented differently in the two exhibition spaces. The analysis of the interview question: *'Did you find the interactive exhibits/exhibition helpful in understanding the rest of exhibition?'* also indicated four main determinants related to the exploration of the whole exhibition: (a) information sharing; (b) the sensory and interactive environment complexity; (c) use of the interfaces and (d) connectedness with the rest of the exhibition.

These exhibits often seemed to arouse curiosity and the possibility of stimulating people towards a larger story, one greater than the sum of events. Interactive exhibits are often seen as flexible alternatives to traditional forms of interpretation due to the technologies that allow texts but also images, films and other media (Kidd, 2014: 89). A visitor pointed out: *'It's quite interesting because it is the Modern London area so you have more "interactives" and you can think about it more. You have the past, you have the future, you have the opportunity to think about each question'* (GoML visitor, interview, 6 July 2011).

Some members of the public appear to have a pronounced trust and positive attitude towards the 'machines' as a tool for engagement and learning. Often, there was the understanding that as the exhibition becomes more about current events and the modern city, the gallery spaces also utilise more modern techniques to visualise the information. The interactive interfaces can potentially inspire audiences, if they were willing to engage with controversial subjects such as immigration, social benefits and global warming. By engaging with an interactive tool and exposed to other types of engagement beyond vision, the visitor 'could be exposed to difference and learn to appreciate its value' argued Witcomb (2015: 326). Factual-type interactivity can potentially act as a platform to move away from the one natural, acceptable truth and provide the audience with ways of complex knowledge production and abstract reasoning (Chakrabarty, 2002).

The HAe embraces the subject of the exhibition in a different way, as discussed above; information is presented through sculptures as visual presentations of icebergs and glaciers, the Arctic soundscape, poetry, abstraction and interactive floors. Learning is also perceived in a different manner here. The lack of text and factual information made the experience an abstract one – something that for some visitors meant that the exhibition's aim was not overtly educational. As one participant notes: *'Well, I suppose it doesn't want to be educational in that sense. I think it is very much about how you feel'* (HAe visitor, interview, 14 November 2011). The educational and felt aspects are considered rather to be opposites: *'I can't say that I learned, it was a nice experience overall'* (HAe visitor, interview, 14 November 2011), and it is *'more of a reinforcement of things that you already know, an interpretation of information'* (HAe visitor, interview, 14 November 2011). It is viewed as an installation that can be felt as an impression, rather than something that affects you deeply: *'you haven't learned very much from there, you have looked, children have looked, they are impressed but you have not learned'* (HAe visitor, interview, 14 November 2011). Such points reflect the fact that emotions and affect have, as we discussed earlier, for a long time been underestimated in the knowledge process, which has valued rational thinking and cognitive understanding. Experiences illustrated through both examples are becoming the norm for museum practices and curating as an effect of 'post-modernisation' compromising understanding and constructive moments of stimulation (Steyn, 2014: 147).

Traditionally, the museum, as a place of Mnemosyne, mother of the muses and of the memory itself (Gordon, 2010) is a force field (Kirshenblatt-Gimblett, 2004: 2) of interaction between the subject and the object, with memory being a mediating force of this relationship. Memory allows us to slow down from high-speed information, claiming space for contemplation and counteracting the overload of information. Paradoxically, the experience of the HAe fostered a space to slow down, asking the visitor to sit down, listen, think and remember. This aspect is seen in other works by UVA, such as *Momentum*, a spatial atmospheric composition of light and sound, commissioned by and presented at the Barbican Centre in 2014. Visitors entered the Curve Gallery, where a sequence of pendulums was installed in a dark, smoky corridor. The pendulums moved hypnotically and slowly, creating shadows and lights. The visitor naturally slowed down, looked around, breathed and explored a work that carries meditative aspects, forces that are invisible, and a playful game with time, rhythm and movement. Scholars such as Witcomb, Hoskins and Holdsworth analyse exhibitions on indigenous cultures and histories, histories and memories of war, both arguing that immersive exhibition strategies can allow visitors to construct narratives in a non-ordered way, encouraging intimacy and a 'pedagogy of feeling' (Witcomb, 2015). At the HAe, the visitors are asked to move around a space and sit back to sense and to feel. The physical space can activate instant feelings and alter the audience's attitude to the exhibition when they enter the room, with the tasks to navigate and get lost in the space, to explore and wander around. Audiences note the exhibition as a reminder of their pre-existing knowledge. They engage with the content in a sensory and physical way; they float in a dark space enveloped in an impression of the Arctic environment, of its future and of the relationship of humans with nature. Poetic interactivity prioritises looking, moving, listening and feeling simultaneously, based on a sensorial experience that encourages what Andrew Barry (2001) argues, an 'active and responsible citizen', but also following Chakrabarty's (2002) argument that 'concerns a shift from traditional ideas of citizenship toward what he calls a performative understanding of citizenship' (Witcomb, 2015: 325) that benefits from the

⁵⁵ The Barbican commissioned United Visual Artists to create a new work for the Curve. The work was presented from 13 February to 1 June 2014. Coinciding with their tenth anniversary, UVA presented *Momentum*, an immersive installation combining light, sound and movement: <http://uva.co.uk/work/momentum>.

sensory and affective appeal.

4.7 Conclusion

The museum is a multiple platform, a process that alters according to the tendencies it follows, to socioeconomic and political agendas. Interactive technologies are perceived as a democratic medium whereby the audience can construct their knowledge base; however, they often use familiar structures, established information and educational inequalities (Carter, 1997; Cubitt, 1998). Often, interactive systems have been identified as rhizomatic, using structures that allow the user to experience their own agency, for example in developing narratives (Reading, 2003). They have always produced experiences for their audiences, aesthetic and multisensory. However, in the quest to engage larger audiences, be competitive in the market, gain funding and go along with the use of digital technologies and interactivity, museums have become subject to the experience economy (Pine & Gilmore, 1998).

To conclude this chapter, I bring together theoretical understandings of the notion of experience, its current existence within the museum today, and its relationship to interactive practices, aiming to apprehend the implications of the process of becoming an experience-based museum instead of an institution of demonstration of truth. For instance, shifting attention to increasing audience attendance numbers without thoughtfully engaging with the reasons for doing so can lead to superficial and limited engagement. Perhaps by embracing the trends of the information age, there is a danger of simplistic and populist storytelling or even unintentional creation of realities. Museum visitors continue to differentiate museums from commercial forms of leisure and associate sociable, recreational and participatory experiences with schooling and educational processes (Hanquinet & Savage, 2012: 42). Apart from its traditional tasks of collecting and research, the input of the museum to informal learning is widely acknowledged. The educational side of the museum has been extensively discussed and analysed in disciplines such as museum and educational studies and visitor research.

In general, experience points out connections, links between the self and the intended object, and between the self and others (knowledge communicated to others) (Čargonja, 2011: 294- 295). Experiment, uncertainty and knowledge are notions deriving from the etymological analysis of the word 'experience'. These etymological meanings indicate an adventurous undergoing, to go a distance, to travel, to drive (Lash, 2014: 338), where engagement with the outcome is unclear, often hiding unknown obstacles or dangers. The experience is experimental in the sense that it can allow people to test their own boundaries, 'trying to reach a certain point in life that is as close as possible to the "unlivable", to that which can't be lived through' (Foucault, 2000: 214, referenced by Šliužaitė, 2013: 31). As such the concept of experience at the beginning of the twentieth century turns towards the embodied experience, the experience of the body in the world, through sensory and affective domains in opposition to views of it through rationalism and empiricism. Interactive exhibitions and experiences are driven by emotions, sensations and affect, as evidenced in the previous chapters. The empirical research of the thesis explores interactive experiences that are described by museum visitors as linked to notions of play, touch, learning and immersion that occur through the embodiment in these experiences leading towards affect. The mobility of the museum also shows a shift towards experiences influenced by a similar overall movement of art and culture. The human experience through digitally mediated environments has been altered, making the understanding of the relationship between humankind and its environments much more complex, rhizomatic and affective.

In the current cultural experience-driven climate, with the spotlight being on the sensation and emotional aspects of experience, one questions its relation to contemplation, with experience being just a momentary excitation (Jay, 2005: 406) and its constructive moment being cut short, suppressing the role of memory and experience on the present (Steyn, 2006: 609). On the other hand, art experiences carry autonomy; a symbolic and metaphysical status forces people to look for deeper meanings between being and not being (Alexander, 2008: 1-2). To put the body into museums and their exhibits involves more complexities than the positioning of the objects and the movements of one's body around the exhibition's settings. It is about the body, the individual, the collective, the 'other', every body represented through the exhibition's narratives, texts and images.

I argue that the multiplicity of museum worlds provide clues for thinking about the changes in museums and the ways in which the focus is on the museum as a process, with the possibility of opening and creating new models of experience, related to continuous becoming rather than simply being. Museum objects and experiences have 'multiple lives' (Hein, 2000: 51); they are embedded in social relations and function as sources of information about organised human behaviour. Experience, a partly objective milieu, allows the capacity to affect and be affected that can lead to affective knowledge that assigns meaning to that experience as well as being a condition for effective learning (Semetsky, 2006: 445). Experience has changed its structure and the historical determination of it, is as old as modernity (Benjamin, 1980: 408 in de Cauter, 1993: 17). What separates modernity from postmodernity is a 'profound shift in the structure of feeling' writes Harvey (1990: 65), which is facilitated also by new and nuanced approaches to historical descriptions, developing experiences in different ways (Sharma & Tygstrup, 2015: 2). The relationship of the subject and the object in the museum is altering, with experiences articulating close and complex bodily and sensory interactions, an affective layer which has become essential part of the social and material infrastructure (ibid, 2015: 2). Therefore, poetic interactivity and its affective spaces can encourage critical reflection and a questioning of the perceived collective knowledge and memories for instance, a 'crushing of historical distance' (Hoskins & Holdsworth, 2015: 28), and new relationships between past and present (Witcomb, 2015: 323). Part of the novelty of interactive experiences is the allowance to act or react, to use other senses beyond vision, to be bodily immersed in an environment, therefore, to feel and to move. The connection between the body, especially the movement of the body and feeling, is constitutional; 'it moves, it feels' (Massumi, 2002a: 1).

CHAPTER 5

Conclusion

5.1 Introduction

The results of my research support the idea that museums are in a constant process of transformation, altering according to social and cultural changes. They are heterogenic and dialogic, including diverse subject positions and unstable and fragile histories, institutions of knowledge process and experience (Hooper-Greenhill, 1992: 210, 2000). The museum has become a space of digital interactivity, and to understand the conditions by which the museum shapes and influences its relationship with the public, to comprehend its role in relation to social, economic and cultural surroundings, and to trace historical engagements between museums and interactivity, I analyse relevant genealogies of the museum in Chapter Two. The museum as both concept and an institution has carried multiple dimensions: bringing memories, information and experiences together in a microcosm which still in the present moment holds an authoritative position of power and knowledge. From the cabinet of curiosities to the museum as a space of representation (Lord, 2006: 6) to the space of experience, museums have intervened in the production of subjective domains. This genealogical analysis of the museum's entity and identity analysed the museum's ever-changing nature from traditional to affective, from anthropological narrative to aesthetic affective space (Message, 2009: 127), arguing that how the digital interactivity in museum spaces has complex histories and needs to be interpreted in relation to the cultural specificities of the moment.

The approach undertaken in this study has brought philosophical and theoretical perspectives on physical, emotional and technological interactivity and its multiple threads into discussion with ethnographic research in two museum exhibitions. It has

theorised the diversity of digital interactivity as technique and form. The motivation behind this approach was not to present a divisive view of theory and practice but instead to consider the potential of each whilst identifying and producing interconnections, commonalities and discrepancies between them. My thesis has provided an approach that views interactivity beyond the responsiveness of the visitors to the interactive exhibits: embracing concepts such as touch, play, immersion and experience as some of its primary characteristics, and arguing that different modes of digital interactivity are significant. This chapter concludes the thesis by revisiting its initial aims, summing up the analysis of its research findings and considering potential further research that could derive from this work.

5.2 Reviewing the Aim of the Thesis

The study questioned, 'What constitutes an interactive museum experience?' The question itself prompted theoretical discussion and empirical research into the perception, practices and forms of digital interactivity in the Galleries of Modern London and the High Arctic exhibition. The main aim of this thesis has been to theorise interactivity and its relevance to the museum's experiential tendency in exhibition-making, through both theoretical analysis and by examining the specificity and context of these two exhibitions. I have argued that the practices in both museums valued and fetishised digital interactivity (Huhtamo, 1999), viewing it as a pedagogical, aesthetic and empowering tool that also offers commercial value. The manifestation, design and planning of interactivity within exhibitions portrays the tension between curatorial and institutional control, audience freedom and engagement, which continues to be a challenge for the realisation of interactivity in museums and galleries.

Both the literature analysis and ethnographic research confirmed a favourable institutional reception for digital interactivity that as chapter Three and Four proved is today widely accepted as being a necessary part of the visitor-friendly museum, a museum that moves across the arenas of education and entertainment, viewed and perceived as a liberating technique from object-based and text-oriented didactic narratives. The varied expressions of interactivity, such as the two types I term as factual and poetic, recognised in the two examples offered insights into negotiations between practical value, contextual

structures of technological uses, public understanding and cognitive, aesthetic and emotional engagement. As chapter Three demonstrated, here is a lot of 'buzz' about the role of interactivity and interactive technologies in museum spaces, and a widespread longing to disturb dominant narratives and 'cozy' consensus that encourages the museum to move away from its traditionally static and monumental character. Museums in the UK and beyond are producing an increasing number of exhibitions that use interactivity as a way of challenging the dynamics of recognition and unsettling narratives to produce new forms of subjectivity (Witcomb, 2013).

The move from the modern to the postmodern indicates a need to accept the plural, the unfixed and undefined, and a movement away from the grand narrative of the Enlightenment. As I discussed in Chapter Two, the embrace of unfixed and multiple histories and perspectives is celebrated as an opportunity for the museum to allow its visitors, especially the unheard and the untold to participate in the process, interacting and engaging with the institution. The High Arctic exhibition is an arch example of bringing such discourses into play with the discussion of interactivity, as I analysed in Chapter Four; and indeed we can delineate this process by considering it in further specified terms: in terms of outreach and expanding audience numbers (as I analysed in Chapter Four and in terms of the category of 'poetic interactivity' that I proposed in the thesis.

The postmodern museum is also arguably for critics such as Pollock (2007) in the process of continual modernisation that lacks specific goals but features transient interventions. The 'complex and contradictory' contemporary museum scene (Bennett, 1995: 104) can as we saw in chapter Four also be critiqued as 'selling' exhibitions with the aim of bringing in more and more paying visitors, offering personalised, unique, collective and neoliberal interactive experiences that can compete with the delivery techniques of the entertainment marketplace. Is the museum using digital interactivity as a way of challenging comfortable modes of experience or is it being mobilised as a tool for market success? This question is an important one, and in the case studies I examined it was being used for both. The forms and practices of digital interactivity need to be examined and perceived with a critical view, closely related to the particular context, the institutional positioning and curatorial practice.

The thesis provided a theoretical analysis that drew from a number of disciplines, including museum studies, media and communication, information sciences, cultural studies and contemporary cultural theories. The combination of philosophical perspectives with the empirical ethnographic research in this thesis has contributed to understanding the complexity of interactivity in a museum exhibition setting. There is evidently an existing and increased interest in interrogating digital interactivity into the exhibition analysis (see Barry, 1998; Dicks, 2003; Heath & vom Lehn, 2004; Huhtamo, 2015; Reading, 2003). As discussed in the main body of the thesis, research and literature in relation to museum exhibitions has been particularly focused on the effectiveness of interactive exhibits in regards to informal learning (Adams & Moussouri, 2002; Caulton, 2002; Falk & Dierking, 2000; Hein & Alexander, 1998); on structuring visitors' engagement and participation (McLean, 1993; Russell, 1994; Walker, 2008); and the social interaction and interactional organisation of a museum visit (Heath & vom Lehn, 2004; vom Lehn, 2013). As discussed in Chapters Three and Four, research on the interactive 'mode' of museum exhibitions is gradually becoming more complex and inclusive of the diverse and multiple aspects that it involves, via work focusing on themes such as interpretative and learning approaches (Dicks, 2013; Kidd, 2014; Witcomb, 2006; 2015); content creation and design (Ciolfi & Bannon, 2002; Ciolfi, 2015; Hornecker, 2008); and the affective and emotional links and responses of visitors through that content and their responses (see Harrasser, 2015; Huhtamo, 2015; Reading, 2003; Witcomb, 2015).

Contributions from Dicks (2003, 2004), Henning (2007, 2015), Huhtamo (2010; 2015) and Witcomb (2014; 2015) have been particularly inspiring for the analysis and discussions of the thesis. Henning's work (2006: 2) on the museum and new media has been concerned not only with the museum's communicative capacity but also engaging with cultural and media studies to think through the material and sensuous character, 'considering museums as a means of thinking about our experiential world'. The centrality of 'experience' in the museum setting has become a common expectation, particularly in tourism and other cultural settings, argues Dicks (2004). As demonstrated throughout the thesis, specifically in Chapter Four, both analyses have advised and informed this work; but my thesis has taken these concerns in a different direction by focusing on the specificity and diversity of digital interactivity in particular. By considering the complexity

of the meanings of interactivity in museums and galleries, art practices, and the digital sphere, this thesis scrutinises its relationship to contemporary museum experience. A significant contribution of the thesis has been the incorporation of empirical research, which has interrogated and emphasised the visitors' role in the formation of that experience. While taking into account the developments, debates and configurations around discourses of museum exhibitions, digital interactivity and experience, the purpose has also been to examine the perceptions, expressions and beliefs of the museum audience as observers and participants of interactivity, thus extending existing study on museum audiences in relation to digital interactivity and 'experience'.

Apart from extending understanding of visitors 'meaning-making', and what they do, discover and feel with these types of exhibitions, there has been, I have argued, a gap in the conceptualisation of the processes that museums and visitors embrace when encountering interactivity. There is also insufficient analysis concerning the complex connections of these types of practices and exhibitions with the wider culture, indicating tensions between audience, technology and context, as I have discussed and demonstrated with specific examples in Chapter Four. I argue that while the meanings of interactivity and technology are intimately attached (see Chapter Four), this focus often ignores the social and psychological aspects of interaction, drawing standardised behavioural patterns and their relations to the wider narratives and histories and the space of the museum. The thesis therefore examined ways in which both factual and poetic interactivity as a practice and concept intervened in the production of museum experiences and interrogated how the audience perceived and engaged with exhibits. Cultural institutions such as museums produce knowledge for a broad audience and intend to educate. I suggest they should develop a more critical view of the impact and complexity of the interactive experiences that they produce.

In terms of understanding the phenomenon of digital interactivity as a concept, a cultural form in museum space, my work was therefore concerned with the study of current activity by (a) exploring multiple threads highlighting the relationships between sociocultural change and museum transformation; (b) bringing into focus an empirical study, which engaged with the museum audience in particular; (c) focusing on digital

interactivity, according to visitors and staff, and (d) indicating the social role and cultural values of interactive museum spaces.

The research conducted at the permanent Galleries of Modern London and the temporary High Arctic exhibition analysed visitors' and professionals' responses to the on-site exhibitions and the observations made on the sites. The key points that were extracted from the on-site research, interviewing and observation interrogated the experiences of the visitors within the interactive digital environments, their relationship to learning, play and sensory responses, the role of accessibility, usability, digital technologies, and the perception of interactivity of the museum profession. The empirical analysis investigated the complexity of the main thesis question, presenting the research with beliefs, responses, expressions and popular conceptions that were more necessarily foregrounded by the theory.

It is important to emphasise the limitations of the work of this thesis, like any, for there are a vast range of variants regarding digital interactivity and interactive museum experiences. Such notions are multiple and complex, and the data and relationships that occur are often particular to the specific exhibitions and situations. From this perspective, the discoveries are not in themselves generalisable or to be understood as ways of evaluating all interactive exhibitions. The results are indicative and not conclusive. Importantly, the thesis provides a particular investigation into the breadth of interactivity in particular cultural settings, the relevance of museum exhibitions' histories and futures, and audiences' experiences and perceptions.

5.3 Synthesis of Findings

The empirical research foregrounded the role of digital technology and sensory aspects of experiences such as touch and play, which relate closely to emotions and affective responses. It analysed the significance of learning, engagement, social interaction, usability and 'shareability'. The answers to the interviews of the exhibition-making teams revealed how they engaged with interactivity in relation to exhibition-making and experimentation. Cultural trends and markets, and the associated desire to bring in new audiences, add a 'wow' factor and thereby to be 'progressive' often drives their practices.

They also signified the sheer range of different ways of sharing knowledge and producing and disseminating narratives, content and information.

My analysis of the data from museum staff and artistic teams' interviews, which I will include in the next section, regards digital interactivity indicated by the relationship to the concepts of experience, narrative, storytelling and spatial components are used in the construction of interactive spaces. The team behind the High Arctic exhibition uses the term 'journey' to describe the interactive path of the exhibition and the smaller, personal narratives that help visitors relate to the theme of climate change. They referred to the museum as a powerful narrative, an emotional space that, through exhibitions and artefacts, enables visitors to 'discover meanings' (Lake-Hammond & Waite, 2010: 79), an affective encounter. Interactive spaces are often framed as effective learning spaces for social issues, encouraging visitors to develop their own understanding. Both exhibitions aimed to contribute to the feeling of belonging to a community and to transmit social and cultural values. The teams intend to tell stories evoking emotions and subconscious knowledge through non-linear and multiple narrations. Attention was given to the design of the experience.

The difference between the two exhibitions and the use of the concept of digital interactivity varies in the forms and methods of the technology used. Therefore, I define them as *factual* and *poetic interactivity*, which it offers a distinction that can be useful in apprehending and reflecting on their differences and similarities. The staff of the Museum of London used dramatisation to communicate information and recreate old London's paths and areas, also telling the history of the city through touch-screens and digital interactive exhibitions. The museum professionals talked about the shift from objects and collections to exhibitions and galleries, social issues and cultural values. The use of interactive technologies acted as a new form of communication through non-linear and open-ended narration, dramatisation and personalisation, emotional involvement and immersive techniques. The conception of digital interactivity was related closely to the audience, the multimedia structure, and the ways in which vast collections and vast amounts of fact-based information are made available to an audience via digital exhibits. The empirical research showed that interactive exhibits and exhibitions were perceived as a core part of the current museum, providing curators, designers and artists with new and

diverse ways of communicating the exhibitions and displaying collections. The interactive exhibits at the GoML are embedded in the exhibition next to glass cases displaying objects, paintings, artefacts and theatrical environments, taking on a life of their own as well as being part of the broader museum narrative. The storytelling and narratives of these exhibits follow a time-linear structure of information, accessed through the use of touch-screen interfaces, which engages certain senses and new modes of learning or play, being the more familiar form of interactivity. Touching a screen, and the sense of touch in general, can arguably diminish the distance between the object and the subject (Zimmer & Jefferies, 2007), but immersion also challenges notions of distance by bringing an environment into our bodies, surrounding us.

The audience at the GoML engages with a number of interactive exhibits, all involving touch interfaces, selection panels and feedback systems encapsulating and communicating a large amount of data. It is focused on factual information that can be accessed through processes similar to personal computers, tablets and ATM machines. The interactive exhibits at GoML are perceived as a source of knowledge, as they involve a plethora of information relevant to the collection and their concerns largely focus on the transmission of this data. In that respect, informal museum learning through these exhibits carries a simple communicative process. These exhibits also employ discovery techniques with integrated immersive and atmospheric elements, particularly examples such as the Capital Concerns exhibit or the Charles Booth interactive map. Discovery approaches reflect the argument in regards to the development of interactive exhibits that highlights their intention to promote meaning-making, also awareness that the production of knowledge is a two-way process (Witcomb, 2015: 357).

In relation to this study, I term this *factual interactivity*, not with an aim to strip it from its sensory, emotional and atmospheric dimension, but to highlight that its informative, fact-based content acts a catalyst for the way interactivity is practised by the museum and perceived by the visitors. Interactivity at the GoML, in the particular examples, has a clear focus on learning, to provide information on multiple levels and to capture the different learning types of the museum visitors. The content, information, pictures, graphics and game-like features are prominent in the responses of the visitors to the GoML when engaging with this factual interactivity in comparison to aspects such as

poetic storytelling, soundscapes, immersion, art structures, atmospheric environment and installation that are used more to depict the HAe. This exhibition brings a different type of interactivity that I argue is best described as *poetic interactivity*.

The silence of space, with its darkness and sound invasion, in the High Arctic exhibition evoked feelings of loneliness, not wishing to share this experience, also feeling intruded upon if other people were wondering in the space. The content of the exhibition, the poems, the things in flow, the loneliness of the Arctic itself inspired a need to be quiet and contemplate, a chance to slow down, which brings interactivity to a state beyond action. The dark corners, where the visitor could sit and listen, provoke thinking about humans' role in climate change, realising how we affect it. When a glacier speaks to the audience it was as though 'there is communication from the other side'. Listening was also an active part; they heard sounds and spoken narration, and focused on the creation of an immersive embodied experience that bridged the past, the present and the future of climate change. The *poetic interactivity*, it relates to an artistic medium where the visitor should play a vital role.

The HAe is more open-ended and flexible. The situation in the Arctic is presented through an immersive and open-to-interpretation artwork that creates a space of shifting and changing states. The *poetic interactivity* of the HAe is perceived and presented as more intense and emotional, driven by feelings, stimulating the imagination of a direct relationship with the Arctic landscape, bringing distant places closer and making them tangible and affective. I will borrow a quote from Kirshenblatt-Gimblett's (2004) text 'The Museum--A Refuge for Utopian Thought', which adds a utopian dimension to the High Arctic exhibition's poetic interactivity through her argument that 'utopia and the museum are an art practice' (p. 2).

'The experience is conducted in silence, and its level is poetic; and like anything so—it works best on those who are endowed, willing and able to meet it halfway' (Sever, 2002, quoted in Kirshenblatt-Gimblett, 2004).

The affective domain, as explained from the data, shows that visitors to both exhibitions, but mostly to the HAe, learn and receive information through emotions and feelings,

becoming attached to the exhibition and exhibits through seeking their personal stories and memories, their movements in space, and their interests as well as educational values and ideas. While it is argued that interactive learning experiences can turn visitors from passive consumers to active producers of personal and social meaning (Porter, 2004: 109) as well as extending experiential forms of democracy that orients through the senses, privileging the experienced rather than the cognitive and analytical (Chakrabarty, 2002), the implications of the interviews' results on 'increased learning' and 'potential action-taking' does not prove this thesis. Certainly, both types of interactivity can remind visitors of important social issues, but it depends largely on the particular context of knowledge, and the willingness to move things forward.

The practice of digital interactivity in these spaces was part of a wider development in museums to attract new visitors and audiences, to offer complex histories, linear breakages and short narratives. The naturalisation of the use of interactivity and acceptance of the idea that it allows a more active museum involvement, enabling visitors to engage with complex histories, was clearly in evidence. Yet interactivity, as we have seen, is a dubious concept, one positioned as a tool of democratic societies, with an ability to enhance citizens' participation and challenge consensus, to act as a 'tool' that can liberate the museum from its authoritative character, activate memory, entice visitors into action and movement, and encourage personal, sensory and emotional engagement. The embrace of digital interactivity and the shift towards these types of experiences are prominent in large UK museums, like many other global museums and cultural institutions, including these two London museums. Yet, through my thesis, I have argued that they are used for different purposes and with different effects.

5.3.1 How do museum professionals and visitors interactivity in the museum?

The approaches of both museums affirm their desire to enhance visitors' own experiences and values through an emphasis on appealing to emotional and sensory responses (Hein, 2000: 67). According to their responses, the purpose of the exhibition was to create a highly '*interactive space, an imaginary journey through different times, past, recent past,*

present and the future' (Hornman & Mitchell, HAe, interview, 18 November 2011), which turns visitors into explorers and discoverers of the relationship between humans and nature, specifically the nature of the Arctic. The Galleries of Modern London '*focus on bringing emotions, which may be placed in comparison to intellectual knowledge. The personal element throughout the exhibition is intended, for example through the exhibition narratives with a focus on an emotional level ... that's why the galleries offer a dramatic, rather theatrical visualisation that is reinforced and easier to add through the use of new technologies*' (Swift, interview, 6 July 2011).

The definition of interactivity, according to the High Arctic exhibition team, relates to a multisensory immersive experience that '*brings all these senses in one ... interactivity allows in some respect to embrace elements that brings different forms together and creating ... this immersive environment*' (Drake, interview, 24 October 2011). For the United Visual Artists' team, commissioned to develop the exhibition, it is '*the interaction of people in the museum or in the gallery space*'; '*interaction between the individual and the artwork*' (Hornman & Mitchell, UVA, interview, 18 November 2011). There was an emphasis on the individual but also to the collective, a dimension that I engage later in regards to the responses of the audience. To summarise, the conceptualisation of the HAe is made of multiple 'plateaus' as the effect of collaboration and co-existence of various diverse elements that can make people '*see an image in a way that isn't telling them what to do, but it seeps into their thinking somehow, even in their subconscious perhaps... they become aware and they remember something to relate to*' (Hornman & Mitchell, UVA, interview, 18 November 2011).

It is interactive because the machine reacts to you but it is also interactive because something happens between the people standing in front of it' (GoML visitor, interview, 4 July 2011). This quote expresses the basic definition of digital interactivity, which reflects on the reactive characteristic of the system as well as the expectation of social interaction. Furthermore, the audience notices that being part of the interactive environment is about controlling and directing things: '*feeling like you are controlling it*' (HAe visitor, interview, 13 November 2011), or '*being able to produce rather just seeing things*' (HAe visitor, interview, 14 November 2011). Finally, others perceived the process of interaction as a flow of information across multiple channels. The process of interaction provides the

link between the subjects and interactivity; it has an *intermediary function* (Stalder, 1997: 25) that helps them to communicate with the interactive exhibits and content and in this way to translate their intentions into actions, behaviour and affect. Content, the second dimension of interactivity includes the information, the material, facts and objects that are implied in the interactive exhibitions.

The HAE, a temporary 'experiment', tackles the communication of climate change with an interactive art experience that '*is more than touching. It is a combination of doing, of listening, of moving, of touching as well as of hearing ... the interaction with other people that walk around you*' (Freedman, Cape Farewell, interview, 1 November 2011). Poetic narration is also a primary characteristic of the exhibition, indicating the usefulness of listening as part of the visitor's perception and acknowledgement of the spoken narratives. Listening's nature is reciprocal and embodied, argues Nick Couldry (2006: 6), offering many advantages in the ways we think of the social world. In the exhibition, the poet Nick Drake voice the 'unheard', the natural elements, the animals that want to capture our attention, also through listening. In these terms, the team was keen to move beyond reading the exhibition as a singular text to a three-dimensional space that the visitors could explore with all their senses, including their 'muscular consciousnesses' (Ingold, 2000: 203) as well as their intellects.

The definition of interactivity by visitors was *integrative*, arising from multifaceted elements and processes. As a first step, visitors tended to focus on the applications of the interactive environment, the technological and new media aspect of it. It follows the content, which is meaningful to them, such as information, objects and events. Interactive processes take place as prerequisites and facilitators of multiple experiences and human engagement in the museum space. As visitors mention, interactions are of a different nature or character, such as physical actions or reactions (pointing, focusing, hearing, listening), playing or acting as in a performance leading to different kinds of experiences: lonely, social, multisensory, affective, frustrating, learning, to name a few. The important associations to take into account are expressed through 'interact' and 'connect' across a range of systems. The third dimension, the process of interaction, consists of different aspects within the museum's interactive spaces, acts between the interactive medium and the subject, affecting the audience and leading to new phenomena (cognition, behaviour,

consciousness and affect). Physical actions and reactions are transacted through observable behaviours such as play or playful activities that create experiences, where visitors engage in a '*place to play hide and seek*' (HAe visitor, interview, 14 November 2011), enabling them to learn more about the artefacts, objects and information in the exhibition.

Other dimensions of interactivity include its effects on human experience, which was described by audiences as '*change, feelings, happening, intimate, reality, receiving, reminder, shine, sign, suffer, test, time, trial, trip, vision*'. This refers to the multisensory modalities that describe the way people use sensory information to learn or to process the content and information of the exhibitions into memory. The exhibitions combine information from three main sensory modalities to maximise visitors' experience: visual (seeing, looking, watching and viewing); auditory (hearing); and kinesthetic (touching, moving). In the HAe, more importance is given to the visual and auditory modalities in comparison to the GoML. Regarding kinesthetic modality, bodily movement is more important for the HAe, whereas touching is a significant aspect of multisensory perception at the GoML. Interestingly, vision is still the predominant sense in our experiences, similar to the 'old' museum paradigm. But interactivity via other senses is viewed as a gateway to accessing stories and information. Some visitors refer to the creative aspects of digital interactivity, which allow new ways of thinking and bursts of imagination through discovering and exploring that can be used in other situations. Making relationships and connections between things is key to learning processes and also indicates the importance of sharing these experience and skills with others. Interactivity, as described by the museum visitors, is therefore a multiple concept, one that integrates media structure and content, the process of interaction and different kinds of experience.

5.3.1 Perceived interactivity: *multiple, integrative and situated*

My data analysis presented an integrative approach to studying digital interactivity. In interviews, the visitors discussed interactivity as a multiple concept and experience with three main dimensions – the technological aspect, the content, and the processes of interaction–, which I saw, led to diverse individual, personal and collective experiences.

Many variables affected the engagement with such environments; individuals reacted and interacted differently in the same exhibitions, carrying their individual agency, meanings and previous experiences. My research also showed how interaction generates different levels of experience, including multisensory, learning, affective, creative and social interaction. At the same time, the theoretical analysis and the empirical research indicated that interactivity is closely tied to its technological attributes, which include the structure of the system and modes of mediation (see also Bucy & Tao, 2007: 651). The data indicated the closeness of digital interactivity, as a concept, to information and communication systems, with the expectation of a feedback and a response.

The deployment of interactivity in museums still carries understandings of the first hands-on exhibitions appearing at science museums that relied on didactic transmission processes confirming existing literature (see Cubitt, 1998; Manovich, 2001) but also a craving for 'empowerment', creativity activity through blurring of art and science (Barry, 2006: 170) as discussed in Chapter Three. The exhibits at the Galleries of Modern London have certainly integrated newer techniques and understanding such as personalisation, discovery, atmospheric environment, projections and larger interfaces in their design and implementation. However, the core process and pedagogy of interactivity lies in transmission models of interactive exhibits where the control of the visitor is very limited, and her/his interaction lies in getting a response. As interactive exhibitions and exhibits are part of visitors' involvement in the spaces, their learning, and part of the production of desired cultural forms that are intended to enhance popularity, then the social and political dimensions of these technologies in the museum are significant – as I describe in Chapter Four. The relationship between digital technologies, interfaces and applications needs to be understood as being located within culture, developed with certain purposes and practices (Williams, 1990: 13). The role of technology as part of our 'being' of interactive practices and the potential for the visitor to 'talk back' and affect his or her experience are central. This is not about reinforcing a technological determinist approach, but a relationship that views technology as one that is activated from within culture and as an integral part of this process of development.

At the Galleries of Modern London, where digital interactivity was largely implemented through computer interactive exhibits and touch-screen interfaces, the technological

system amply affects the ways in which visitors did or did not interact with them. In that case, the technology itself became vital for the overall interactive element in the exhibition and consequently for the engagement of users. Still, the interfaces and their design are 'aesthetised in a way that appeal to and stimulate the senses rather than only the user's cognitive processes', as Manovich argued (2006: 4-6), following Lauren's work on *Computers as Theatre* (1993). In the second example, the High Arctic exhibition's technological system and features became almost secondary for the visitors. The control, responsiveness and interaction efficacy of the technology were critical, but the atmosphere of the environment diminished the division of the technology, interface and the experience itself. At both exhibitions the interactive processes showed a sense of control of information. Particularly at the High Arctic exhibition, visitors expressed 'control' of climate change, feeling in a 'position of power' when encountering the installation. However, I argued that there is a sense of superficiality to this 'empowerment', limited to the moment of interaction and to the 'illusion' of choice. Interactive exhibits are widely associated with the 'empowerment' of museum visitors by providing them choice and allowing space for multiple voices, and yet this choice is always to some extent circumscribed.

The High Arctic exhibition and its approach to interactivity turned to debates about media and new media art that distort traditional methods of interpretation and narration. Interactivity, according to this logic, creates a doorway outside conventional structures to stimulate personal journeys into the work. The visitor in these types of installations becomes, it can be argued, a participant, a co-traveller and/or traveller, a player or a performer. Art practices, questioning by nature one believes the notion of form and tool, as discussed in Chapter Three, similarly critically engage with the ascendance of vision beyond the structural and technological elements of interactivity to a more theoretical and ideological understanding of its role in sociocultural environments. This ephemeral interactive artwork at the National Maritime Museum can be viewed both as part of the 'Disneyfication' of museums as well as an initiator of a potential of a 'museum as a temporal project that act as key in making climate change intelligible, actionable and feasible to a more inclusive public debate' (Salavar, 2015, quoted in Cameron & Neilson, 2015: 5).

My on-site ethnographic research provided a platform to consider whether there is an increased 'agency' of the visitor through the use of interactive forms and techniques in relation to the challenging events presented. Chapter Four showed how physical activity in museums is not just an alternative form of interpretation but is also able to create new forms of consciousness. Henning (2007: 40) in 'Legibility and Affect: museums as new media' argues that beyond the questions of technologies as a form of social control, they are 'encouraging acceptance of a new set of machine-body relationships'. Interactive exhibits at the Galleries of Modern London and the interactive High Arctic exhibition potentially train visitors to apprehend, explore and engage with the content through a relationship with the 'machinic' elements. The interaction between humans and technology allows new temporary techno-human relationships and possibilities to occur.

5.3.2 Sensory and other interactions: *touch and play, affective encounters and immersion*

Interactivity, as we saw in Chapters Three and Four, can be understood as a multiple, integrative and situated notion, being a multidisciplinary concept or a 'multiplicity', instead of a 'being-one' (Deleuze & Guattari, 1987: 21). I argue this conceptualisation expands the museum's interactive experiences beyond that of causal logical reflection and interpretation. For instance, the initial encounters of the visitors with the museum interactive exhibits/exhibitions as discussed in Chapter Four, indicated that the engagement with such environments does not rely on purely rational decisions; emotional and affective dimensions drive it. Excitement, desire, curiosity, pleasure and enjoyment were what prompted the visitors to interact with such systems.

Comparing the two research examples indicated that there were two spaces: the space of touch, game-like activity and information in the Galleries of Modern London, and the space of affective encounters, play and immersion at the High Arctic exhibition. Physical movement at the High Arctic, as dynamically embodied action, offered the visitors a greater sense of presence, and active engagement with the content and information than in the case of touch-screen interfaces. The research and the comparison of the two forms of interactivity also indicated the 'domestication' of the sense of touch in the context of the

touch-screen interfaces at the Museum of London. The types of exhibits investigated in the research through the two exhibitions reveal both the importance of playing with an affective and somatic sense and the importance of specifying the different modes of such play being encoded in the exhibition space.

Historian of art and technology, Frank Popper (2007), argues that immersion diminishes critical distance from what is shown and increases emotional investment in the surroundings. Such perceived dangers of immersion and its relation to strong emotional engagement are similar arguments to those made in regard to interactivity's relation to distraction and disorientation, leading to forms of spectatorship. The relationship of digital interactivity with immersion is, I believe, a dubious one; once one tries to draw parallels, questions arise such as whether immersion is a characteristic or an effect of interactivity. For Frazer Swift, an interactive exhibition is synonymous with an immersive one: they both make things come alive; interactivity promotes involvement, it produces and allows changes in the environment. It is defined as '*active, something that you can have sound, reactive, as you can do something and it reacts when, for example, you push a button*' (Swift, interview, 6 July 2011). It offers a possibility for bodily and emotional engagement and responses that challenge the conception of the exhibition itself as well as the relationship of visitors with the museum collection. '*Full interactive exhibits are the ones that you can fully contribute to it, when you can do something to the system and it changes in some way*' (Swift, interview, 6 July 2011). It is interesting to note that the Head of Learning at the Museum of London has been part of the professional staff at the Science Museum London for almost a decade as he declared in our interview. I note that the background and perception of interactive exhibits and digital interactivity as practiced in these two museum spaces, carry a personal understanding of the professional who initiate and implement them (see Chapter Four).

Moreover, these interactive processes reinforce playfulness and reveal game-like characteristics. It is assumed that interactive experiences create an opportunity to engage the audience in a more active way, to move them beyond being an 'audience', by experiment and play (Watermeyer, 2012). The audience's encounter calls for their bodies to move, their hands to touch, their eyes to look and their ears to hear, often attaching the notion of play to the interactive encounter. A number of visitors argue that '*it would*

engage younger people because that's what they used to ... they don't want to stand and read any more ... that's all about playing and engaging them like that' (GoML visitor, interview, 4 July 2011). Play is most commonly directed at younger audiences and is at times seen as lacking seriousness, as I explore in more detail in Chapter Four. Some visitors described the structure of the poetic interactivity at the High Arctic exhibition as a playground. Physical actions and reactions are transacted through observable behaviours such as play or playful activities that created experiences, where visitors engaged in a 'place to play hide and seek', enabling them to learn more about the artefacts, objects and information in the exhibition. Play is concerned with the sense of doing something, a happening and an on-going process; playful interactions allow exploration, and digital media are becoming a platform for play experience. The interactions are treated as an event and invite the visitor into a kind of game, a designed game that delivers sensory and immersive experiences (Manovich, 2007). At the Galleries of Modern London, the factual interactivity engaged the visitors in a game-like feeling was expressed by the interaction with the touch-screen interfaces, leading to an understanding that interfaces, being part of our everyday life, are no longer just a 'gate' for the information devices but 'a carefully orchestrated experience' (Manovich, 2006: 3) in itself. Play and bodily involvement were positioned as crucial for this type of experience, with visitors being enveloped in an open-ended interpretative space (as I discussed in more detail in Chapter Four). Allowing more freedom to actions, play can provoke possibilities of shifting realities and transformation. What play shows over and over again is the possibility of changing goals and therefore restructuring reality with a view to promote some purpose. The attention to play and to emotional cognitive and somatic senses (Paterson, 2007) is commonly explored by interactive and game designers, and in similar terms in this reading, 'playfulness' should not be perceived as separate from the museum environment.

The poetic interactivity of the High Arctic exhibition was perceived and presented as more emotional, driven by feelings, stimulating the imagination of a direct relationship with the Arctic landscape, bringing distant places closer and making them tangible and affective. However, this work opens up another question: what are the limits of the experiential and affective way of communicating the catastrophic extent of climate change? While the focus on sensation and emotion can be argued not to encourage

critical thinking but to offer instead something akin to momentary excitement (Steyn, 2011: 609; Popper, 2007), I believe that this example has indicated the capacity of in-between-ness, of poetic interactivity in the museum to generate a space between momentary excitement and contemplation.

Visitors are asked to dedicate emotional, perceptual and cognitive resources through touch, feel, learn, play, movement and sound when they interact with the environments. The multisensory stimulations of such environments produce 'intensities' (Deleuze, 1993: 19) – experiences that are not another form of interpretation but can create new becoming, for instance, for the visitors to the High Arctic exhibition. Interactivity encourages acceptance of the familiar and inspires engagement with unrecognised encounters, confronting feelings and emotions, personal memories and stories, and existing knowledge and beliefs. Besides new ways of thinking and sets of relationships between the exhibits and people, there is also the potential for an interactive experience 'becoming uncontrollable or entropic' (Henning, 2007: 44).

Museum sites are places where people go to feel (Smith, 2014), and interactive media intensify such responses, acting as amplifiers and modulators of affect and orchestrating affective sequences (Gibbs, 2010) through multisensory realms and interactions. The concept of affect describes a process of becoming – 'affects are becomings' (Deleuze & Guattari, 1987: 256) – and transformation through movement and over duration (Parr, 2010: 12). This conception of affect is vitalist, open and non-representational; it lives in between and tackles the problem of binary thinking. Even if affect is used in a range of different disciplines from computing, psychology, media and design, it is rarely seen to mean the same thing, or lie on the same foundations. While accepting its validity and the importance that it plays in the sociocultural sphere and our encounters with it, affective practice is always situated, material, embodied and contextual, linked to meaning-making, the semiotic and the discursive (Wetherell, 2012). This brings affect closer to emotion, via a pragmatic view with an aim to measure it. While museums as institutions work on ways of measuring and managing emotions and the way they are articulated and felt through the exhibitions they produce, affect is immeasurable and unexpected. However, I am in agreement with Grossberg's (2010: 314–315) thinking that 'affect covers indeed too much ground and often equates with anything that is non-representational or as the direct

response of body's encounters'. I view affect as a concept that seems to navigate across encounters prior to cognition or emotion and is a process not mediated by representation, culture or discourse, requiring further 'analysis between the ontological and the empirical' (ibid., 2010: 315). Therefore, my empirical work was used to investigate the specificity and cultural context of such interactivity with a focus on how it is perceived by the museum visitors.

5.3.3 Experiencing Interactivity: *multiple, rhizomatic and affective*

My theoretical and empirical research confirmed a clear shift of focus from objects and artefacts towards a museum of process and people, and towards an experiential mode of the museum. As I discuss in earlier section, many museum professionals view interactive exhibits as a way of moving beyond static objects towards an unfixed and emotive exhibition, a space that captures personal stories and narratives where visitors move around and engage with the content in multiple sensory ways. The High Arctic exhibition introduced a new wing of the National Maritime Museum to the public through an 'innovative' interactive and immersive art installation commenting on issues of climate change.

I considered the empirical work as clues to consider in relation to the broader tendencies impacting the museum as an institution and a stage of knowledge, its relationship with the visitor and the audience. Through the philosophical perspectives and contemporary theories (particularly Deleuze & Guattari, 1987; Lyotard, 1989) the thesis reflected on social and cultural processes of multiplicity, fluidity and rhizome, challenging dualities of mind-body, social-natural, human-non-human and cognitive-affective. The body, the physical and its motion state claimed attention and consideration as part of the encounters that define the cultural dynamics, knowledge and thinking. Here one thesis insights relates to how 'common understandings' of interactivity in museum settings -- while wanting to challenge traditional dominant interaction such as seeing -- actually creates another binary between seeing and knowing, passive and active: where passing and seeing are perceived as 'doomed'. The High Arctic exhibition challenges this binary as it uses forms such as seeing and listening in an immersive atmosphere to make the audience think and contemplate.

The interactive museum experience is not a singular one; it is multiple, complex, rhizomatic and affective. Museum institutions produce experiences that provide new opportunities for visitors to invent personal knowledge and explore concepts and broader issues rather than demonstrating a fixed narrative of truth. My thesis has perceived the museum as an interactive cultural space 'that encapsulates alternative forms of the world, whether physical, symbolic, real or fictional (Hein, 2000: 51). One cannot argue for a singular authentic experience but experiences that allow new social spaces and realities to occur. The openness of such spaces in the museum is often claimed and foregrounded through notions such as interactivity, participation and engagement. The study analysed the current ways in which museums and cultural institutions are practising and creating different forms of social experience.

As argued in chapter Four, the museum's significant role as an educator provides its primary differentiation from other entertainment industries. The museum is an educator that aims to create experiences that expand the possibilities of thinking, to facilitate a space that challenges the museum as producers of knowledge, its practices and its ideologies. There is a fine line between the museum constructing narratives and modes of displays between the known and the unknown and incorporating the marketing paradigm, following the paths of the visitor's desire, providing accessible and 'sexy' content to sell their experiences (Mastai, 2007). The communal experience economy has a significant influence and impact on defining and constituting museum experience, particularly considering the current trend for experiences used within art and culture. In that respect, experiences are in danger of being practised as 'a commodity for sale' in the marketplace of sensations, producing pleasure without allowing time for reflection (Jay, 2005: 406-407). While the museum can be a laboratory for experimentation (Mastai, 2007), employing a shapeable identity that is influenced and alters according to governments and social development (Marstine, 2005), we should not take for granted the neutrality of the institutions, the explicitness of the content and/or the character of the visitor (Hooper-Greenhill, 1995), but champion a museum that requires critical thinking in its practices.

This thesis has analysed the existing ways in which museum and cultural institutions are practising and continuing the legacy of digital interactivity. The theoretical underpinning of the research, prompted by audience responses, highlight the fluidity of the application of interactivity and reinforces the need to interpret interactivity as situated. The possibility of interactivity making a difference or liberating us from existing forms depends on its implementation; it calls for a critical engagement with interactive practices by both audiences and institutions. That does not underestimate the practice altogether; conversely, it accepts and acknowledges its limitations.

The human experience through digitally mediated environments has been altered, making the understanding of the relationship between humankind and its environments much more multiple, rhizomatic and affective. Museum interactive practices should embrace the conceptual force of rhizome and rhizomatic thinking that devitalises and disrupts dominant historiography and interpretations of human subjectivity by encouraging assemblages and heterogeneous relationships (Hitchcock, 2008). Interactive experiences in their most open form can immerse the individual in moving moments that invite a multiplicity of sources, smells, memories, tastes, personal knowledge, stories and constructed imaginaries. They move beyond objects and situations of recognition but involve exaltation and encounters that can only be sensed. The presence as an affect invites becoming through thoughts – what Deleuze (1994: 139) calls a ‘fundamental encounter’ – a force that makes us think. Interactive media and processes can generate extended participation, a movement of the groups and individuals that alters the system and the performance, disrupting narrative and forms.

5.4 Contributions of This Thesis

The overall aim of the thesis has been to contribute to the understanding of what constitutes an interactive museum experience and expand the analysis across the discussions in museum practices and fields, with the empirical research providing a more holistic and critical view on the topic of enquiry. By pursuing an interdisciplinary perspective, I have not considered museums, digital interactivity, experience and visitors as isolated phenomena, but regarded them as physical, metaphorical and intangible,

intertwined and influencing each other. The findings and discussion of the thesis have added to knowledge regarding the role of digital interactivity as practised in these museum spaces and the perceptions of their visitors by offering an extended analysis of what the notion and its practice entailed in two sites. A contribution has been made to the fields of museum studies, cultural studies and disciplines of digital cultures, offering an interdisciplinary analysis of what an interactive museum experience is and can be.

The thesis can offer insights important to be considered from museum studies and practices in regards to interactivity as a cultural form and practice. The results of the empirical research have generated rich data and bring together various elements that are often discussed and explored individually. Further, the work contributes to museum studies through extensive research on digital interactivity in museum spaces beyond the dualism of cognitive and emotional, human and technology.

This thesis' objective was also to engage with the intricacy emerging in the relationships between museums as institutions and cultural entities, sociocultural agendas and tendencies in regards to digital media and experiences, perceptions and expectations to interactive practices in exhibition-making and audience engagement. The thesis describes the adaptable nature of the museum as an institution and its identity as being influenced by government policies and socioeconomic developments. In all the different periods of time, it has been versatile and adapted to social and cultural settings, and altered and sustained over time. I also discussed discrepancies and conflicting agendas, which require attention in order to extend our understanding of such processes.

Another contribution this thesis makes is to the body of research on museum and technologies, as the study specifically engages with the notion of interactivity in computing, information and communication studies as well as in art and interaction design. New technologies and digital media are part of the everyday practices of the museum, and critical media disciplines have to become part of the analysis of exhibitions. The relationship with interactive media has to be seen beyond a means for the modernisation of the museum, boosting popularity or a turn towards commercial avenues, but should be embraced as part of the practice and theorisation of such experiences. This thesis also considers the potential for museum studies to engage with

affect beyond cognition and emotion. The experiential mode of interactive experiences in two museums allowed space to consider affective encounters that arise from emotion, memory, personal knowledge and bodily engagement with a potential to challenge didactic modes of presenting social issues and history.

5.5 Concluding Remarks and Suggested Future Research

Coming to the end of the thesis, I consider if, after this exploratory journey through the museum of ancient Greece and its Muses to contemporary technology and interactivity, through experience as a connection between inner and outer worlds, play, touch, cognitive and affective encounters, the work feels close to reaching a multi-coloured portrait of digital interactivity?

The journey has concluded with an discussion of interactivity which indicated the specificities of each case including the differences between factual and immersive interactivity, engaging with the 'visible' actions but also arguing for the complex processes that involve invisible sensory stimuli leading to cognitive and affective encounters (Henning, 2007: 311). This multiple, integrative and situated concept is a 'multiplicity' (Deleuze & Guattari, 1987: 21); its multisensory stimulations produce 'intensities' and create new becoming (Deleuze, 1993: 19). One of the main and unavoidable contentions around the museum in the current period is that interactive experiences are designed to provoke senses, emotions and affect. Yet they act as a tool for the competitive market within the cultural sector, meeting the demands of the experience economy environment, and leading to restricted forms of non-contemplation, manipulation of emotion, and commodification of experience. However, these new forms of experiences and the relationship between visitors and exhibitions can open up new possibilities and dimensions, providing an impetus for critical thought and action.

Many themes and issues are also emerging that are worth considering as part of future research. For instance, the recent edited volume *Climate Change and Museum Futures* by Cameron and Neilson (2015:3) provides a range of approaches and questions regarding museums' reactions to climate change debates. Numerous interactive exhibitions (e.g., the Climate Museum in New York, the Science Museum's Climate Changing exhibition)

and artistic and activist practices working with the concept of the Anthropocene respond not only to the scientific but also the social and cultural issues of climate change. These provide an engaging platform to unpick further connections between emotion and reason, beliefs and feelings, affect and ideology.

Being interactive is part of our transient states. It influences social and collective forms; it represents and influences an individual interpretation of our interactions and community. As museums embrace experiential forms with a fast pace, so too do other art and cultural forms and institutions. Beyond the research on the experiential lens of arts and culture, and its affective resonances and audiences, my research indicates some fruitful areas for further research such as notions of touch -- particularly digital touch communication -- and play in cultural experiences and beyond. Touch, a sense that is becoming increasingly significant for our everyday life, and particularly as encountered through mediated environments and social technologies, opens up further questions about distance and proximity, the familiar and affective in the construction of cultural and social experiences in relation to learning, work, personal relations as well as well-being. An area of research long standing in the margins, there is potential for developing further new theoretical insights and tools for understanding touch through domains of sensory anthropology and the experiential-realm of the cultural and the social.

Furthermore, play, which I introduced in the thesis in relation my analysis of digital interactivity, is a complex and productively equivocal idea. As I mentioned in Chapter Four, play, far from being merely 'other', is in fact always-already embedded into the materiality of the world, as it is arguably a process taking place in-between, between the inner and the external reality, between the self and other. In museum and cultural institutions play is becoming a form of curatorial practice, a form of engaging visitors and introducing complex narratives. Play reminds us of children; it is an inseparable part of their world and it is in the children's eye that Walter Benjamin posits the possibility of 'true' experience. 'Because children see with pure eyes, without allowing themselves to be emotionally disconcerted, it is something spiritual: the rainbow refers not to chaste abstraction but to a life in art' (Benjamin, 1914-5: 51 in Jay, 2005: 318). Cultural experiences and their element of play are directed not only to children but also increasingly to adults.

But what are the politics of play, its social role of cultural practice? How is play practiced and policed in contemporary life?

As Massumi (2008:11) has argued, it is urgent that we find ways of evaluating these types of experiences and capture regimes of power that might develop with these new modes of being (Massumi, 2008: 11). Experiencing digital interactivity is complex, individual and collective; and I would urge allowing its indeterminacy and ambiguity be part of its formation. Theorising, like existing 'in-between', means seeing its encounters and temporary determinations beyond binaries: beyond moving-versus-static, seeing-versus-knowing, passive versus active.

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APPENDIX

The process of recruiting participants followed the steps below in order to address any ethical issues and minimise any misunderstandings before the participants took part.

- The researcher invited groups and individual visitors to take part in the research.
- An explanation of the researcher's identity was provided.
- A brief on the nature, the duration and the purpose of the research project was given.
- Participation was voluntary.
- What the data would be used for including the intention to be used in presentations and publications was conveyed.
- The arrangement concerning confidentiality, anonymity and access of the results if wanted by the participants was made clear.
- How they could obtain further information if they wanted to and who they could contact about any concerns (University department, and/or school research ethics committee) was conveyed.

The ethical implications of the study, and any ramifications for intellectual property, were located and dealt with well in advance of the data collection exercise. The academic ethics committee had agreed to the stated positioning on ethics, and suitable forms were made available for agreement of consent:

- Signed permission of interpreters.
- Signed permission of those interviewed (site staff and audiences).
- Posted information about the research process going on in the gallery space.

In addition, the research was conducted under the umbrella of the codes of ethics of each museum site. Through the agreement to work in the museum site, certain expectations from the site were stated in the research design documentation. The museums provided access to the space of research and placed appropriate information and signs for the research conducted throughout the galleries. Below were the requirements from the museum.

- Access to gallery space where the exhibits/exhibition was placed.
- Access to observation, sketching and audio recording.
- Appropriate information was placed around the gallery informing the public about the research work going on in the space.
- Space to carry out interviews (when necessary).
- General assistance with the set-up and delivery of the research (when necessary)

Table 1: *The process of recruiting participants and ethical considerations.*



Interviews- MOL (GoML)

The interviews will last 10-15 minutes depending on the discussion and will be held in groups (2 person plus).

Questions

1. Is there any element that you particularly liked or disliked in the computer interactives that you used today? (*with visual prompt- images to show*)
2. At this particular screen (*show image*) was there anything that you found out about London, which you did not know before?
3. Was there anything that you found out about each other that you didn't know before?
4. Did you find the screen helpful in understanding the rest of the exhibition?
5. Did anything in particular surprise you about using the screen?
(*For example: the way it worked or didn't work, the information, the graphics, the positioning, the technology, learning, the way that some member of the group used it etc*)
6. Can you recall any of the information you accessed or actions you 'did' whilst at the interactive? (*take them back to the interface if they would rather*)
7. Do you recall speaking to one another whilst you were using the screen? If yes, can you recall what you spoke about?
8. How do you understand interactivity in the museum?
9. Any comments?

Thank you very much for speaking with us. Can I just ask one of you to fill in this form (release form) and sign here so we use your response in the research?

Table 2: *Interview Questions Template for the visitors at the Galleries of Modern London.*



Interviews- NMM (High Arctic)

The interviews will last 15-30 mins depending on the discussion and will be held in groups (2 person plus).

(Script) Hello, we are a research team from City University and we are looking at the visitors experience after been to the High Arctic exhibition. Could you spare some time to answer some questions about your own experience.

Questions

1. Is there any element that you particularly liked or disliked about the exhibition that you visited today?
2. During your visit at High Arctic was it anything particularly that you felt, discovered or enjoyed most or least? Was there anything that you found out about each other that you didn't consider before
3. Prior going to in the exhibition did you looked at the information display by the entrance? Did that provide you with the information that you expected?
4. Did you find the exhibition helpful in understanding the 'purpose' of the museum? Also, how do you view this exhibition in relation to the rest of the exhibits that you saw in the museum?
5. Did anything in particular surprise you about visiting this exhibition?
(For example: the way it worked or didn't work, the information, the graphics, the positioning, the technology, learning, the way that some member of the group used it etc)
6. Can you recall any of the information you accessed or actions you 'did' whilst at the installation? (*take them back to the installation if they would rather*)
7. Do you recall speaking to one another whilst you were in the exhibition? If yes, can you recall what you spoke about?
8. What kind of experience did you have while in the High Arctic? How do you understand interactivity in the museum?
9. Any comments?

Thank you very much for speaking with us. Can I just ask one of you to fill in this form (release form) so we would be able to use your response in the research? Also, provide you with a booklet with the poems heard in the installation, by Nick Drake in collaboration with the museum and Cape Farewell.

Table 3: Interview Questions Template for the visitors at the High Arctic Exhibition.

Hello, thank you very much for finding the time to have a chat with me on your work at the museum and specifically at the interactive exhibitions around the Galleries of Modern London.

Questions

1. Could you describe me your role on the Museum of London and what it involves?
2. Would you discuss the museum approaches in relation to the integration of new technologies in your galleries and how that has evolved?
3. If you are working with designers could you describe how that works?
4. How do you select the information from all different sources that are included in the touch/multi-touch interfaces
5. What is your understanding or involvement on narrative process when creating the exhibition?
6. How you would describe the 'changes' in the exhibition through this approach?
7. Which were the expectations from the audiences understanding towards the narrative and content of the exhibition?
8. What research materials are available in the museum for visitors in discovering more about the topics introduced?
9. Was it something particular that you aimed to propose through the specific touchscreen interfaces?
10. How do you believe audience perceive or interpret these devices in relation overall engagement in the museum setting?
11. Could you tell me the relation of these interfaces with learning outcomes, knowledge and experience according to the museum's policies?
12. What was your experience when using these interfaces?
13. How do you personally understand the interactivity in museums?
14. What makes a good interactive exhibit? (sound, text, visuals)
15. What are some of the ways in which the exhibition enhances the visitor's experience?
16. Do you think bringing sound support the exhibition experience and why?
17. Is anything that you would change or improve on the work?
18. Any further comments?

Table 4: *Interview Questions Template for the museum professionals at the Museum of London.*

Hello, thank you very much for finding the time to have a chat with me in regards to your work for involvement at the High Arctic Exhibition.

Questions

1. Could you describe me your roles on the involvement of the exhibition?
2. UVA has worked with museums before, however would you discuss any different approach working with art/design museum and other museums such as NMM?
3. How you would describe the exchange with the scientists (Cape farewell) and UVA artists in the expedition and in the completion of the work?
4. How did you choose the information from all different sources prior conducting a complete final work?
5. What was UVA artists understanding or involvement on narrative process when creating the exhibition?
6. How you would describe you're the visual 'changes' during the work to?
7. Which do you think were the expectations of the audience towards the narrative of the exhibition?
8. What research materials are available in the museum for visitors in discovering more about the topic?
9. Was it something particular that you aimed to propose through the specific immersive environment?
10. How do you believe audience perceive or interpret the visual and sound narrative in general and in a museum setting?
11. What are your views on the knowledge and experience transfer to a different experience and installation?
12. What was your experience when visit the High Arctic exhibition?
13. How do you personally understand the interactivity and interactive practices in museums?
14. What makes a good interactive exhibit? (sound, text, visuals)
15. What are some ways in which the exhibition enhances a visitor's experience?
16. Do you think bringing sound, poetry support the exhibition experience and why?
17. Is anything that you would change or improve on the work?
18. Any further comments?

Table 5: *Interview Questions Template for the professional team of the High Arctic exhibition.*

Observation tracking

Are there more groups or individuals that stop in front of the interactive?

<p>Group info</p> <p>Age <input type="text"/></p> <p>Gender <input type="text"/></p> <p>How many people <input type="text"/></p> <p>Family <input type="text"/></p> <p>Friends <input type="text"/></p> <p>Couple <input type="text"/></p> <p>Other (specify) <input type="text"/></p>	<p>Does the interaction seem to be characterised by these indicators?</p> <p>Inquiry <input type="text"/> wonder <input type="text"/> excitement <input type="text"/></p> <p>Frustration <input type="text"/> Boredom <input type="text"/> interest <input type="text"/></p> <p>What makes you note that?</p>	<p>Who is mainly touching/interacting with the screen (adults, young people or children)?</p>	<p>Do people go straight to the interactive or do they relate with other exhibits around as well? (questioning the place of the interactive within narrative of the space)</p>
<p>Time the group spend at the interactive</p>		<p>When interacting, do they look at each other or at the screen?</p>	
<p>Level of social interaction between the group or other people around (example: is it extended or short, verbal or physical)</p>		<p>How many people from the group touch the screen?</p>	
<p>Other comments</p>			

Table 6: Observation template used at the Galleries of Modern London and the High Arctic exhibition

Interview Release Form
Museum of London- touch-screen interfaces in museum spaces

The purpose of this research case study is to understand how museum visitors use the touch-screen interfaces within the Museum of London galleries space, which provides a unique environment to deepen the research. It has been assumed that the touch screen interfaces offer a significantly more social museum experience. However, we want to observe in more detail, how visitors (mainly groups) experience the interface, what are the feelings and outcomes from the interaction and if it indeed offers any special information and knowledge to the user.

Number of participants in the group: <input style="width: 80%;" type="text"/>	Age: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 50%; padding: 2px;">0-7</td> <td style="width: 50%; padding: 2px;">8-15</td> </tr> <tr> <td style="padding: 2px;">16-25</td> <td style="padding: 2px;">26-35</td> </tr> <tr> <td style="padding: 2px;">36-45</td> <td style="padding: 2px;">46-55</td> </tr> <tr> <td style="padding: 2px;">Over 55</td> <td></td> </tr> </table>	0-7	8-15	16-25	26-35	36-45	46-55	Over 55		Sex: <input style="width: 80%;" type="text"/>												
0-7	8-15																					
16-25	26-35																					
36-45	46-55																					
Over 55																						
The reason I visited the Museum of London is: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 80%; padding: 2px;">To see the exhibitions or a new exhibition</td> <td style="width: 20%;"></td> </tr> <tr> <td style="padding: 2px;">Tourism</td> <td></td> </tr> <tr> <td style="padding: 2px;">Day out with friends/family</td> <td></td> </tr> <tr> <td style="padding: 2px;">Special event or programme</td> <td></td> </tr> <tr> <td style="padding: 2px;">Education & Learning</td> <td></td> </tr> <tr> <td style="padding: 2px;">Research</td> <td></td> </tr> <tr> <td style="padding: 2px;">Other (please specify)</td> <td></td> </tr> </table>	To see the exhibitions or a new exhibition		Tourism		Day out with friends/family		Special event or programme		Education & Learning		Research		Other (please specify)		I live in: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 80%; padding: 2px;">Greater London</td> <td style="width: 20%;"></td> </tr> <tr> <td style="padding: 2px;">United Kingdom</td> <td></td> </tr> <tr> <td style="padding: 2px;">Other (please specify)</td> <td></td> </tr> </table>		Greater London		United Kingdom		Other (please specify)	
To see the exhibitions or a new exhibition																						
Tourism																						
Day out with friends/family																						
Special event or programme																						
Education & Learning																						
Research																						
Other (please specify)																						
Greater London																						
United Kingdom																						
Other (please specify)																						

By signing the form below, you give your permission for the interview completed during this project to be used for research purposes including publications, reports, and presentations.

I agree to the uses of these materials described above, except for any restrictions, noted below.*

Name (please print):	Signature:	Date:

Please do provide us with your phone number and email address if you are interested in taking part on a possible follow up phone interview.

Tel No:	Email:

*Restriction description:

Table 7: *Template of Consent Form used for both exhibitions.*