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**Hacking the museum?**  
**Collections makerspaces and power in**  
**London cultural institutions**

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# Summary

What happens when the spaces of grassroots digital subcultures encounter those of institutions? This thesis examines the phenomenon of ‘collections makerspaces’, or public spaces within cultural institutions that encourage experimental interactions with cultural artefacts through digitally-mediated making and learning practices.

I begin by working from a genealogical approach to locate collections makerspaces as parts of a wider historical lineage of sociotechnical transformations amongst makerspaces (from hackspaces to media labs) and cultural institutions in the U.K. from the 1970s onward, relations increasingly characterised by institutional partnerships. I engage with a critical theoretical framework of space and power to explore how the spatiality of collections makerspaces is constituted out of the practices, imaginaries and relations of multiple actors. This enables me to situate space-making as a process, which may reinforce or resist institutional logics.

I then explore the empirical findings of my fieldwork as researcher-in-residence at four collections makerspaces in London at Tate Britain, Tate Modern, the British Museum and the Wellcome Collection. Working with a qualitative ethnographic and action research methodology, I draw from 255 hours of participant observation, 67 chats with site users, expert interviews with 38 facilitators, and 4 creative interventions to explore the circumstances of each field site, the experiences of those who are involved in it, and how it interacts with its host institution.

I conclude by arguing that collections makerspaces provide significant value to cultural institutions and publics alike, because they facilitate new opportunities for the cultural hegemony of museum logics to be examined, contested and transformed through material participation. I propose the spatial frame of ‘decoupled space’ as a lens to explore the informal cultural production of other kinds of co-creational digital spaces within institutions. This allows me to assert the broader social impacts of sites of this kind, by articulating the power-geometries of agency, access, diversity and mobility that they can reframe.

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# Foreword

My motivation for this research began with my first encounters with the Tate Digital Studio in 2013 while working as Curation and Co-design Lead at the Mozilla Foundation as a maker and organiser of digital tools and communities.

Much of my work at the time involved beta-testing Webmaker, a suite of open source tools for opening up the building blocks of the web through making and remixing, while trying to understand how these tools might work for different kinds of communities. It was suggested that I collaborate with Tate Learning staff to co-create something that might be useful to large cultural institutions. We decided to build a prototype, made up of free digital curriculum packs that would help museum staff engage with open source and remix culture principles.

This was the first time I had seen a large art institution like the Tate Britain encourage something so radical within its walls, and I wondered whether the particularities of the Taylor Digital Studio where we had been working - which seemed at once to be a central part of Tate, while also enjoying its own kind of autonomy - had something to do with it. During this time, I tried (and failed) to find research on the Digital Studio and other spaces like it in the U.K., and was left with many questions. I wanted to understand how spaces like the Digital Studio might change people's perceptions of museums, and also of themselves.

My preoccupation with these ideas led me to give up my role as a producer of digitally-mediated spaces, and become a researcher (and, at times, co-designer) of them instead. With this move, my intent has been to contribute to a shared and critical understanding of the interactions of creative digital spaces, the kinds of practices they are co-constituted alongside, and their relations with their hosts.

This thesis is thus an account not only of spaces, but also of space-making itself.

# 1. Introduction and research context

*"As more people enjoy and become accustomed to participatory learning and entertainment experiences, they want to do more than just 'attend' cultural events [...] They expect the ability to discuss, share, and remix what they consume. When people can actively participate with cultural institutions, those places become central to cultural and community life."*

– Nina Simon, 2010

In the past decade, a number of factors have combined to enable the emergence of London's first 'collections makerspaces', a term I will use throughout this thesis to refer to public spaces within cultural institutions that encourage experimental interactions with a cultural collection through digitally-mediated making and learning practices (Braybrooke 2018). Meanwhile, in 2018, 21 people who either lived or worked in the same postcode as the Tate Modern museum in London, an area where social housing blocks still coexist alongside luxury investment properties, gathered with the Cuban artist Tania Bruguera in Tate Exchange to write a manifesto that would pop up when visitors connected to the museum's free wi-fi. It stated, in part: "We, the Neighbours of Tate Modern, believe in a culture of connection, where 'we' is used instead of 'us and them'. A culture where everyone is accountable to each other while creating and sustaining a safe and open space to be together [...] We believe that oppressed communities contribute culturally, socially and politically to the betterment of all. In times when thoughts and words are not enough, actions must become our common language" (Tate 2018b, n.p.).

Projects like Tate Neighbours, which aim to foster connections between museums and their local communities, have emerged in a period of rapid growth across the cultural sector, which despite the pressures of austerity is currently estimated to be growing at a faster rate than the U.K. economy itself<sup>1</sup>. Growth, however, does not necessarily mean greater access for more diverse parts of the U.K. population. While museums have drawn ever-larger numbers of international tourists through their doors, for example, visitors from England accounted for less than 50% of museum visits from 2017-18, with numbers falling most drastically in London

<sup>1</sup> DCMS economic estimates state that the cultural sector contributed £29.5bn to the U.K. economy in 2017, a 7.2% rate increase on the £27.5bn contributed in 2016. In comparison, the U.K. economy itself grew at a rate of 4.8% (DCMS 2018b).



(DCMS 2018a). Meanwhile, the data continues to reveal stratifications of museum engagement according to privilege<sup>2</sup>, with white ethnic groups, upper socio-economic groups and adults without a long-standing disability engaging with cultural institutions at “significantly higher” rates than other groups (DCMS 2018a, n.p.; Warwick Commission 2015).

The association of geographic and socioeconomic circumstances to asymmetries in arts participation is especially visible in London, where data reveals a distinct correlation between an individual’s engagement in ‘high’<sup>3</sup> culture and the neighbourhood they live in (DCMS 2016), and the effects of these stratifications have not gone unnoticed. In 2018, Tate Modern’s director Francis Morris stated the Tate “really [does] want to be a local museum, and actually we don’t really know what that means”. She said she had found it “chastening” to meet with Tate Neighbours and “hear that, despite living a few minutes’ walk away they did not feel invited to [Tate’s] galleries” (Mead 2018, 31). The primary worry here for museum staff like Morris is that if arts participation continues to correlate so clearly with matters of race, class and ethnicity, British museums will merely continue to reinforce the hegemonic traditions that have long reinforced these kinds of structural inequities. By attempting to address asymmetries of access through new modes of participation, the field sites of this thesis have become key actors in these interactions, their digitally-mediated practices used as mechanisms for social change.

As I discuss in greater depth in Chapter 2, the participatory experiments introduced by museums to encourage more diverse public access to their collections have not only emerged from the worries of museum staff themselves. They are also the results of an increasingly competitive political economy which has defined the distribution of wealth and power across the cultural and creative industries in Britain, the circumstances of which have led to fundamental transformations in museum practices and subjectivities. Following what has been typically referred to as the ‘reflexive turn’ (Ross 2004) which accompanied the new museology debates

<sup>2</sup> While data from the Department for Digital, Culture, Media and Sport’s ‘Taking Part’ report shows that engagement has increased for all age groups since 2005-06 when it was at its lowest, it also shows that engagement amongst white ethnic groups has increased the most, and there is a downward trend in overall participation since 2013-14. The Taking Part report is commissioned by the DCMS in collaboration with Arts Council England, Sport England and Historic England, and it interviews 10,000 adults across England each year.

<sup>3</sup> Here I refer to the publicly-held products of cultural institutions, as opposed to those of popular culture.

that questioned the primacy and elitism of museums from the 1970s onward, the supposed objectivity of the museum as a protector of national culture has been widely questioned. Expansive cuts to public spending under the Conservative government of Margaret Thatcher caused further malaise across the sector, with museum visits dropping by 55% in the mid 1980s (Kendall 2013).

In the 1990s and 2000s, Tony Blair's New Labour government attempted to instrumentalise public funding for the arts and their value to society by reintroducing universal free admission to national museums, along with the "economically rationalist" mechanisms of prescriptive targets which enjoined cultural institutions to display their worth as agents of social inclusion<sup>4</sup> (Luckman and Thomas 2018, 1; Belfiore 2012; Gray 2008). This meant that the increased competition for diminishing resources that began during the Thatcher years was now associated with measurements of the creative and cultural industries. This was further exacerbated by a new round of government austerity policies in the late 2000s which resulted in widespread cuts to public funding and the shifting of services from state to market provision. This precipitated a new wave of transformations, with institutions starting to think of themselves not only as exhibitors and educators, but also as market actors, 'cultural shops' focused on generating the income required to survive from new forms of revenue which include private sponsorship (Booth and Powell 2016; Griswold 2008; Steyerl 2009).

These circumstances have meant that museums and galleries in Britain experience conflicting pressures to be more inclusive and participatory, and at the same time more competitive. The erosion of boundaries between the economic and aesthetic engagement has invited comparisons between museums and other realms of mass consumption like shopping malls (Booth and Powell 2016; Prior 2005). In 1988, the then-struggling V&A scandalized patrons with a poster campaign on the Tube that ignored its collections entirely, instead depicting itself as "an ace café, with quite a nice museum attached" (Rentschler and Hede 2009, 233). Attempts to entice ever more diverse publics to engage with cultural collections, meanwhile, have taken increasingly creative routes, from remote-controlled robots that roam the Tate's

<sup>4</sup> The Department of Digital, Culture, Media and Sport, for example, specified that museums and galleries should be "agents of social change" as early as 2000 in order to "combat social exclusion" (DCMS 2000, 1–3).

galleries at night<sup>5</sup> to tours of the London Science Museum offered in cockroach costumes<sup>6</sup>.

The collections makerspaces that are defined in this thesis are one of the cultural sector's newer experiments in participation, inspired by new museology and maker culture practices, and often precipitated by private or corporate funding. The Sackler Centre for Arts Education, which can be regarded as the first collections makerspace site in the U.K., opened in 2008 at the Victoria and Albert (V&A) Museum in London. As explored in Chapter 2, these sites are parts of a longer lineage of maker practices and spaces in the U.K. which originated with the first makerspaces of the 1970s and 1980s, typically called hackerspaces, shared machine shops, community technology networks or media labs.

Many of the spaces in the early parts of this history were autonomous, community-driven, and overtly anti-establishment in focus, and it was not until the early 2010s that shared machine shops like makerspaces started to proliferate in institutional settings, from universities to libraries. While diverse in form and focus, makerspaces typically encourage their users to get involved through peer production<sup>7</sup>, and employ hands-on pedagogies like constructivism<sup>8</sup> to foster material engagement through the mechanism of 'learning-by-making' (Ackermann 2001, 2). Other practices common to what is referred to as the 'maker culture' of spaces include the provision of access to digital fabrication and crafting tools, and the nurturing of networks that share skills and collaborate across various platforms (Davies 2018; Moorefield-Lang 2015; T. S. J. Smith 2017).

On the one hand, the institutionalisation of once-grassroots makerspaces, and their integration into government policy, can be viewed as a commodification of long-

<sup>5</sup> More at <https://www.tate.org.uk/whats-on/tate-britain/special-event/ik-prize-2014-after-dark>.

<sup>6</sup> More at <https://www.dw.com/en/cockroaches-infest-climate-exhibit-in-london/a-17116677>.

<sup>7</sup> A model of collective socioeconomic production that emerges from networks of self-organising, non-hierarchical actors who develop shared outputs by "cooperat[ing] with each other without relying on either market signals or managerial commands" (Benkler 2002, 20). As will be discussed in Chapter 2, this form of collaboration is common in F/LOSS (Free, Libre, Open Source Software), open source hardware and maker cultures.

<sup>8</sup> Here I refer to the learning framework of constructionism as active learning, as disseminated by Seymour Papert and Jean Piaget, both of whom stressed experiential participation as essential to the learning process, and learners as active, engaged agents (Harel and Papert 1990; S. A. Papert 1971, 1980). Papert's suggestions to apply constructionist learning to educational settings using technical tools been infused into maker discourse (Blikstein 2013), with some going so far as to call him 'The father of the Maker Movement' (Stager 2017).

existing creative practices<sup>9</sup>. By opening new spaces for making that put a premium on entrepreneurialism and innovation instead of grassroots, community-lead production and fabrication, it is argued, new opportunities for the exploitation of precarious workers are also introduced, with ideas and designs outsourced as free labour, and funders retaining final rights to the most promising outputs (Irani 2015; Lindtner 2017; A. Smith et al. 2016; Söderberg and Delfanti 2018).

At issue here is the intertwining of creative practices like making and tinkering with processes that are centrally concerned with marketisation. “Creativity under capitalism is not creative at all,” geographer Oli Mould has claimed in ‘Against Creativity’, “because [...] it merely replicates existing capitalist registers into ever-deeper recesses of socioeconomic life [...] capitalism co-opts creativity for its own growth” (2018, pp.18–21). These kinds of co-options, it is argued, follow a similar trajectory to those of hackers in the 1990s and 2000s, where “practices and innovations [were] adopted, adapted and repurposed by corporate and political actors” (Söderberg 2013). Other research has found that even the most ideologically-motivated hacker- and makerspaces struggle to challenge the capitalist systems within which they are implicated. A wide variety of reasons for this have been suggested, from a lack of organisation within and between spaces (Hunsinger and Schrock 2018), to the apolitical attitudes of members (Davies 2018), to the degree with which the consumption of spaces is inextricably tied to global markets (Dickel, Ferdinand, and Petschow 2014). Under this perspective, institutional affiliations come with strings, and dilute the original intent of makerspaces to widen access to the kinds of materials and knowledges that can inspire creativity for its own sake.

On the other hand, the infusion of once-grassroots endeavours like makerspaces into museums can be viewed as signs of a wider societal shift towards greater inclusivity and openness. Literature on organisational change, for example, depicts institutions as equally conservative and dynamic – prone to conformity, where isomorphism occurs between and within institutions (DiMaggio and Powell 2000),

<sup>9</sup> Critics of the American ‘maker movement’ have discussed how it appropriates traditional creative practices like knitting and circuit-bending to offer a more marketable package to investors and consumers alike. Fred Turner’s (2018) research discusses how the movement represents a push by networks of powerful engineers who infuse their own imaginaries of progress into the national narrative, with digital technologies positioned as “tools of spiritual transformation” that export American cultural values and aspirations (2018, S161-78).

but also to adaptation and pluralism, where challenges to the dominant discourse can enable the emergence of alternative social configurations (Fressoli et al. 2014; Lawrence, Leca, and Zilber 2013; Pache and Santos 2012). As I have discussed elsewhere (Braybrooke and Smith 2018), the relations of makerspaces and institutions can be understood as nuanced and fragile, contingent on the co-evolving negotiations of diverse and increasingly interdependent constellations of actors. The cross-disciplinarity of these kinds of encounters has also been shown to reinforce some societal structures while destabilising others, which can cause new sociotechnical configurations to emerge (Fuenfschilling and Truffer 2014, 772).

This thesis examines these contradictions, rooting itself in the tensions that emerge when museum spaces encounter the peer production practices of makers. By exploring the agency of museum actors in particular, the aim of this research is to open the 'black box' (c.f. Callon 1984; Latour 2005; Pinch and Bijker 1984) or the invisibility of the complicated mechanisms that define institutional relations by perceiving of institutions, like power relations, as processes. As processes, their interactions become central to how they are understood and produced in a society.

When I began the research of this thesis in 2015, the field of study on institutional spaces for making was still emerging, with only 34% of recorded makerspaces in the U.K. having been founded in collaboration with an external organisation or company (Nesta 2015, n.p.). Less than a handful of sites were located inside public institutions like libraries or schools, even fewer inside cultural institutions. There was also very little academic literature to work from, other than a few studies in the United States that looked at the role of maker educators (Brahms and Crowley 2016) and makerspace learning (Oates 2015) in museums, and a small number of reports on other kinds of spaces for making in the U.K. (c.f. British Council 2016).

I organised the inquiries of this study to address some of these gaps in knowledge through three clusters of research questions, which begin by asking the seemingly simple question of what collections makerspaces are, and conclude with a request for a more expansive and theoretically-informed rendering of the kinds of interactions that occur within, and between, these sites and their host institutions:

**First, what are collections makerspaces?** How have these spaces emerged in museums?

**Second, how do collections makerspaces work?** How do collections makerspaces attempt to widen access to museum collections? How is the 'space' of a collections makerspace produced?

**Third, how do collections makerspaces and institutions interact?** How do collections makerspaces reinforce, disrupt or reframe institutional discourses?

These questions frame the primary goal of this research project, which is to analyse how collections makerspaces are produced and imagined within cultural institutions by virtue of the encounters between different actors that occur within, and because of, them. The questions also allow me to explore what happens when a cultural institution becomes not only an exhibitor and preserver of artefacts, but also a facilitator of experimental practices. This means that publics are asked to access collections in ways that incite them to move beyond acting as cultural consumers by also interacting as producers who remix and co-create it. This provides me with the opportunity to understand whether institutional spaces for making merely reproduce the neoliberal capitalist values mentioned above by encouraging making as yet another form of entrepreneurialism, or whether there is something more complicated going on between museum collections and spaces.

This being said, there are two things that these questions do not attempt to address. First, I do not try to analyse the effects of institutionally derived spaces for making on grassroots makerspaces. Instead, I focus on the relations and practices that occur *within* institutional spaces for making, and the results of these encounters. Second, this research does not attempt to provide an instrumentalised examination of the efficacy of spaces for making in museums. Instead, it focuses on an in-depth and embedded empirical engagement with nuanced case studies that enable me to start to theorise *how* these spaces work, by exploring how they are produced, enacted and imagined. Because its inquiries have been both empirical and theoretical, drawing from a wide variety of influences to address intersections of power, space and access, this research can be understood as deliberately

transdisciplinary in form, situated in between the fields of cultural studies, anthropology, geography and science and technology studies (STS).

The case studies of the thesis are situated around four field sites at major museums in London, which include two sites at Tate's galleries, one at the British Museum and one at the Wellcome Collection. These include the Taylor Digital Studio at Tate Britain and its sister site Tate Exchange at Tate Modern; the Samsung Centre for Digital Discovery at the British Museum; and the Reading Room at the Wellcome Collection. While the level of digital engagement at each site varies, all sites have experimented with maker practices to engage publics in experimental ways through their cultural collections.

The thesis has been organised as follows. Building on this introduction, Chapters 2 and 3 present a literature review of the core concepts of space, power and access that will be returned to throughout the thesis. In Chapter 2, I examine the diffusion of hacker and maker practices into institutions in Britain through a genealogical analysis of sociotechnical experimentation in museums and in makerspaces, organised into eight waves of transformation from the 1900s onward, discussing the U.K.'s first collections makerspace at the V&A as a manifestation of the convergence of these lineages.

In Chapter 3, I engage with a theoretical framework of space and power which combines the approaches of social theorists like Michel Foucault (1971, 1975, 1981) Antonio Gramsci (1971) and Stuart Hall (1986, 2002; 2013) on power, discourse and cultural hegemony; and Doreen Massey (1992, 1993, 2005), David Harvey (2004), Henri Lefebvre ([1974] 1991) and Martin Dodge and Rob Kitchin (2005; 2011) on the social organisation of space. Working with this framework allows me to start to conceptualise the relations of collections makerspaces through a set of six analytical frames, which perceive of the 'space' of field sites as variously enacted, imagined and produced – sites of hegemony where power is maintained, but also of struggle, resistance and transformation. It also allows me to view the production of space as an ongoing negotiation that is constituted by – and in turn, constitutes – the practices and relations of those who interact with it.

In Chapter 4, I discuss this study's methodology and design. I describe how I positioned myself as a researcher-in-residence at each institution, working from an ethnographic and action research methodology in order to sometimes observe, and at other times creatively intervene in, field sites over a long period of time. I discuss how my triangulation of methods and theories from across cultural studies, anthropology, STS and geography is consistent with my epistemological stance. I then examine the complexities of moving between observational and interventionist roles, and the data collection methods I deployed during these interactions. I conclude by examining the biases inherent in my own situatedness as a researcher, and the effects of this positionality on issues regarding research ethics and the confidentiality of collaborators who are both 'experts' and 'publics'.

Chapters 5, 6 and 7 provide the empirical core of this thesis, where the extensive ethnographic and action research that has been carried out at each of the four field sites of study is explored at length and in turn. Because each collections makerspace has emerged out of its own particular circumstances according to the opportunities, expectations and limits imbued by its host institution and other collaborators, I provide some historical context on the particularities of each field site before engaging in an analysis of my interactions and key findings.

In Chapter 5, I introduce the Samsung Digital Discovery Centre at the British Museum as an example of a collections makerspace which originated from a partnership with a global technology company. The British Museum is the most ambitious and technologically advanced of the field sites of this study, aiming to engage over 100,000 participants a year between the ages of three to 19 annually from schools across the U.K (Black 2012). I explore how its relationship with Samsung relates to the perceptions of its facilitators and users, finding that it is not brand interactions or new digital technologies that define how it is produced, but instead the discourses disseminated by its powerful host, the British Museum.

In Chapter 6, I first introduce the Taylor Digital Studio as an example of one of London's first collections makerspaces which is situated within a museum that houses the British nation's collection of fine art. As a 'coded space' (Kitchin and Dodge 2011), the Digital Studio is continually co-constituted through its interactions with digital technologies. I then introduce the Digital Studio's new



sister site Tate Exchange at the Tate Modern museum, and discuss the interspace relations that have emerged between the two spaces. I discuss the circumstances of Tate Exchange, and its privileged position within Tate despite (and perhaps because) of it only occasionally being produced as a collections makerspace. I argue that the interactions between the two spaces have both enhanced, and complicated, how the Digital Studio is produced as a collections makerspace. I also provide evidence of how both spaces have started to affect the ways that institutional staff and collaborators perceive of Tate, and of their own subjectivities as makers.

In Chapter 7, the Wellcome Collection Reading Room is discussed as an example of a hybrid space for making that is always enacted as a library, gallery and public meeting grounds, but only occasionally as a collections makerspace. Despite its limited foregrounding of digital technologies, I found the space to be the most open and freely-interpreted of any of the field sites of this thesis, its facilitators encouraging the kinds of experimental material engagements of the community makerspaces examined in Chapter 2. My encounters with the Reading Room thus extended my understanding of what a collections makerspace can look like, by illustrating how a ‘maker ethos’ can exist when digital technologies are not evident.

Chapter 8 concludes this thesis. I begin by reviewing the findings of this project in light of its core research questions, reflecting on the complexities of the interspace relations within and between the field sites of study. I then start to synthesise the commonalities observed across field sites by introducing the concept of decoupled space, a frame which I use to describe the theoretical conditions under which other kinds of digitally-mediated spaces for peer production within other kinds of institutional territories might be perceived of. I also suggest directions for further research in collaboration with different kinds of spaces in different kinds of places.

By structuring the thesis in this way, my aim is to combine theoretical and empirical analyses in such a way that collections makerspaces can be understood as co-constituted alongside the practices, imaginaries and relations of their facilitators and their users. It is my hope that these discussions will not only contribute to existing knowledges, but also foster debate regarding how the social construction of collections makerspaces, and other kinds of digital spaces like them, can precipitate institutional transformations through their interactions.

## 2. Two genealogies of experimentation



*Fig. 1. The Space: Tate Modern's first hackathon (Open Data Institute 2014).*

### 2.1 Introduction

How did the rebellious grassroots hackspaces of the 1970's and today's makerspaces in cultural institutions become intertwined? In this chapter, I draw upon Michel Foucault's (1971) genealogical approach to historical analysis to construct (and in some cases, rebuild) a combined history of sociotechnical experimentation that draws from the lineages of makerspaces, a term used to describe various kinds of open workshops dedicated to digital practices which include hackerspaces, fab labs and media labs (Braybrooke and Smith 2018), and cultural institutions in the U.K. In doing so, I am motivated by the aim, as articulated by the geographer Nicola Thomas in her explorations of the historical geographies of U.K. creative economies, to "understand past expressions" of maker cultures in order to be able to trace both disruptions and continuities (2018, 42).

In working with these histories, particular attention has been paid not only to the transformations wrought by different phases of innovation, but also to the stories left out of dominant narratives. As such, the transformations of both kinds of spaces have been loosely organised into eight cumulative, and often concurrent,

waves of social progress – four for museums, and four for makerspaces. In choosing the term ‘wave’ to describe its temporal moments, this history draws inspiration from feminist scholarship regarding the four<sup>10</sup> waves of feminist praxis and their often-concurrent actions. Like those of feminism, the waves of material experimentation which helped define current-day makerspaces and museums are the result of periods of convergence, where fundamental social changes pushed old traditions and ways of doing things forward into new phases of development. Also like the waves of feminism, these waves are not meant to be strictly teleological - so, depending on the nature of a particular space and its interactions, I may depict them as emerging in reversed order, all at the same time, or not at all. This reveals each wave as both historically-situated and concurrently produced and reproduced.

In its attempt to remain open to differing interpretations and contestations, this particular organisation of the events, visions and impacts of makerspaces and museum spaces de-emphasises their chronologies in its focus on their moments of flux. In doing so, it has also been inspired by genealogy as Foucault (1971) has described it (building off Nietzsche, who challenged the assumption that there is such a thing as an ‘origin’ tale to acknowledge internal conflicts that exist within any kind of *discourse*, or commonly-held narrative that is disseminated as common knowledge), an approach to inquiry that views history as both non-linear and non-final. In a genealogy, there is no claim of totality. Foucault is interested instead in absences, in the nooks and crannies of seemingly watertight histories that have not yet been acknowledged. By examining the hidden and often contradictory multiplicities within a history’s discourse, genealogy deconstructs the authority of its truths, allowing for the re-emergence of tales left out of the narrative.

Furthermore, the ‘origin’ of a history can be unveiled as a myth itself – often, it is not a moment of perfection emerging “dazzling from the hands of a creator” but instead irregular and random, discovered by chance (Foucault 1971, 147).

Genealogy calls for a history’s origin tales to be examined to avoid a false sense of totality, which can lead to the proliferation of certain ‘technomyths’ - like that of a unified, global Maker Movement (Braybrooke and Jordan 2017). Genealogical

<sup>10</sup> While I will not be able to do justice to the complex traditions of feminism here, my understanding of feminism’s four (and five, when we invite the xenofeminists) waves is informed by the work of feminists who address the sociotechnical, like Munro Ealasaid (2013), Judy Wacjman (2013) and the Laboria Cuboniks collective (2015).

accounts also discard the teleological direction of what is called ‘victor’s history’ (Benjamin [1940] 1974; Edgerton 2011) or the assumption that all historical events leading up to those of the present are significant only if they lead to whatever discourse currently holds power. Seemingly clear-cut narratives about innovation are therefore examined to detect alternative developments that may have been overlooked. In implementing a genealogical approach in order to provide an alternative analysis to dominant chronologies of hacking, for example, Tim Jordan (2017) has brought together a much less Western-centric story which discards the usual Silicon Valley origin tales to pull out key themes of hacking in four phases, from hacking as a coherent community rooted in a shared belief that cyberspace was a ‘place’, to hacking as a form of "de-differentiation" (T. Jordan 2017, 5), used in so many different contexts that its original meaning had dissolved.

This chapter progresses as follows. I begin in the year 2008, when a convergence of actors, influences and tools brought about a merging of the traditions of makerspaces and cultural institutions in the case of the first collections makerspace in Britain. I then turn to the lineage of makerspace experimentation, investigating the stories of transformation that originated with autonomous and political spaces in a first wave of development. This is followed with an outline of the efforts of second-wave makerspaces like hackerspaces to provide sustainable communities for their members, the mainstreaming and democratisation of third-wave spaces aiming for greater diversity, and the institutional partnerships that define the developments of fourth-wave spaces. At this point, the inquiry returns to the Victorian era, where I take a look at the efforts of first-wave museums to educate and reform the masses, and the experiments with arts participation as a form of social inclusion implemented by second-wave museums. I follow this with an examination of third-wave museums as market actors, and fourth-wave museum experimentation with emergent forms of interactive technology transfer. I then reintroduce the collections makerspace model as a possible product of these combined lineages. In doing so, my aim with this chapter is to illustrate how a confluence of contexts has helped determine the construction of these spaces.

## **2.2. First, a moment of convergence**

The Sackler Centre for Arts and Education opened its doors at the V&A Museum in London in 2008 with funding from charitable trusts and private donors, including the now-infamous Sackler family<sup>11</sup>. Its state-of-the-art facilities at the time included artist in residence studios, modular workshop spaces for school children, and a “digital dream room” (McClelland 2008) which featured 25 laptops, 25 Apple Macs, digital cameras and other design-enabled devices tailored for creative group activities. The space would also be facilitated by the first digital learning team at a museum in Britain. This makes the Sackler Centre the U.K.’s first collections makerspace to emerge within the bounds of a cultural institution.

Designed to be of use in both formal and informal educational scenarios, the new Sackler Centre doubled the amount of space dedicated to learning in the museum, (Victoria and Albert Museum 2011). V&A Digital Programmes Manager Irini Papadimitriou, who was one of the space’s first facilitators, discussed the excitement of these early developments with me. She explained that “we had no idea what we’d do before then, because the team itself was formed at that time. When the Centre opened in 2008, that’s when our team was formed for the first time as well, so we decided then what our priorities were, what kinds of events we’d run, everything from the ground up. It was all very new at the time, it was one of the first digital programmes of that kind... and this gave us the opportunity to really experiment” (interview 09/03/17).

The Samsung Digital Discovery Centre, meanwhile, was installed in the British Museum a year later in 2009, and by 2011 the Taylor Digital Studio had opened at the Tate. The emergence of three of the first spaces for digital making and learning at museums in London within a three-year period is not coincidental. Instead, it can be understood as one of many temporal moments of flux that make up a long progression, and regression, of practices engaged in material experimentation which have occurred in makerspaces and museum spaces over many years.

It can even be argued that the moment of convergence illustrated in the example of the V&A Sackler Centre would not have been possible at all were it not for many previous attempts at collaboration between museum actors (from curators to

<sup>11</sup> The Sackler family’s donations were later rejected by arts institutions like Tate and the National Portrait Gallery in 2019 for their role in the opioid scandal associated with the drug OxyContin (Johnson 2019).

technologists) and makerspace actors (from artists to hackers), each group of whom had for some time been testing out their own ways of interacting with publics by enabling greater access through experiments with new tools, digital and otherwise. As Papadimitriou put it: “There are so many examples of people being denied access to places, but they always find ways for their voices to be heard through other mediums. I think this is really important. We have always reinvented things. And we always will, I think.” In the next section, which depicts makerspace experimentations in four waves, I will go back in time to the 1960s to start to unpack the convergence of influences, actors and tools that led to this moment.

## 2.3 First-wave makerspaces: Political, egalitarian



*Fig. 2: C-base lounge, Berlin (Leafnode 2009).*

As I have argued elsewhere (Braybrooke 2018), the emergence of the makerspace model can be traced to the same moment that the ‘hacker’ archetype itself emerged in the 1960s. This label took its form from the asynchronous, voluntary labours of groups of computer users who enjoyed ‘hacking’, or playfully exploring the limits of new technologies from both lab-based and informal locations (Coleman 2013; Kelty 2008). These practices were similar to those of the *jugaad* ‘frugal engineering’ and making-do activities that had already been employed by actors in nations on the

periphery<sup>12</sup>, from India to China, for many years (Braybrooke and Jordan 2017; Chan 2013; Ray Murray and Hand 2013). Where the emergence of the hacker archetype differed from those of other kinds of hacking, making and fixing communities was in the motivation behind it, which emerged not from the necessity of having limited access to new digital technologies (or in the case of China, a close proximity to the means of large-scale manufacturing), but instead from the leisure power associated with having access to a surplus of them, with the first consumer-facing home computers allowing for new creative possibilities.

Hacking is typically explored during this wave as a predominantly creative and critical practice. One of many examples of these experiments is Roy Ascott's 'Terminal Art' (1980), a 'telematic art' network built before the launch of a public world wide web that linked the works of geographically dispersed digital artists, and invited viewers themselves to participate by instructing the network to generate images of anything from "giraffes [to] ice cream [...] the surrealists [can] have a field day" (Shanken 2001, n.p.). The collaborative spirit of these early creative experiments with digital networks coincided with the materialisation of the first digital communities or 'recursive publics' (Kelty 2008) like those of free software advocates, who like digital artists believed in the possibilities of removing proprietary restrictions from technical and legal artefacts to facilitate new modes of knowledge-sharing based on the open sharing of resources.

The first wave of makerspace experimentation in Britain can also be traced to the egalitarian movements for socially useful peer production that emerged in London and Manchester from the 1970s onwards. Technology Networks, or community-based open workshops that made digital tools and prototyping services available for developing socially productive ideas with, were one of the "avowedly socialist" (A. Smith 2014) Labour-controlled Greater London Council (GLC)'s first acts in 1981. They were supported by the Greater London Enterprise Board, which planned and executed leftist industrial policy, socially useful production and worker-run job creation as a "proud thorn in the national government's flesh"

<sup>12</sup> Here I use the term 'periphery' to refer to lower-income nations that have been elsewhere referred to as 'developing' or 'Global South', choosing instead to deploy Anita Say Chan's definition of them as sites of other-than-Western sociotechnical development. The periphery may be "viewed unquestioningly as a zone of diffusion and simple uptake of [Western] designs", but the practices of its nations are "hardly so passive or uninventive" (Chan 2013, x).

(Bianchini 1987, 348). Built and managed by coalitions of community groups, schools and trade unions, participant initiatives ranged from small-scale wind turbines to children's play equipment.

In fostering democratic socialist alternatives to market-oriented approaches to digital innovation, Technology Networks also experimented with free software practices; for example, prototype designs at each site were registered in a product-bank open to anyone in the community, and a core team was made available "to demystify science and technology" (Greater London Enterprise Board 1984, 14) while honouring the "tacit knowledge of local residents" (A. Smith 2014, n.p.). Spaces also tested out the efforts of grassroots radical social movements of the time to democratise production in ways that prioritised knowledge-sharing over private profit, from skill-sharing workshops to women-run IT collectives. Technology Networks were in large part influenced by the Lucas Plan, an influential<sup>13</sup> proposal published collectively by Lucas Aerospace workers in 1976, which had imagined a social diversification of production to combat redundancies from automation in industrial manufacturing (Albrecht 1978; Steward 1979). The Networks started to shut down due to a lack of funding when the GLC itself was abolished in 1986 by the Conservative government of Margaret Thatcher, but their legacy lives on, both in today's participatory design methodologies which they helped foster, and in the reconfiguration of public workshops for resource-sharing (A. Smith 2014).

Meanwhile, in the mid to late 1980s, another set of appropriated public spaces called T.A.Z.'s or 'Temporary Autonomous Zones' started to emerge, inspired in part by the works tactical activists like Hakim Bey who called for the creation of mobile spaces that would inspire communities to "be for something, not just against" (Bey 1985, n.p.) by coming together to plan revolutionary interventions. The first T.A.Z.'s in Britain emerged at the same time as the anti-capitalist and protest camp movements of the 1990s led by groups like Reclaim the Streets<sup>14</sup> in

<sup>13</sup> Steward and others have explained how the Lucas Plan "represented a novel and imaginative approach towards industrial policy and, as such, has evoked considerable enthusiasm inside, and outside, the trade union movement. Although rejected by Lucas management, the plan has received unanimous support from the Labour Party national conference and has influenced the strategy of trade unionists in a number of other firms, including Scraggs, Parsons, GEC and Vickers" (Steward 1979, 70).

<sup>14</sup> Co-founder John Jordan has written about how Reclaim the Streets began as a small group for creative activism whose tactic of blending party and protest soon spread globally. RCS actions merged the "direct action of Britain's anti-road building movement" with the "carnavalesque nature of the counter-cultural rave scene", making it a catalyst for anti-globalisation/capitalist movements of the late 1990s (J. Jordan 2012, n.p.).



London, who experimented with creative participation and urban infrastructures to incite social change (Frenzel, Feigenbaum, and McCurdy 2014). Efforts like these have long been intertwined with those of internet subcultures; the digital guerrilla collective Anonymous is but one of many to cite T.A.Z.'s and other decentralised protest movements as inspirations (Cavelty and Jaeger 2015).

From the mid 1980s to the mid 1990s, the calls of T.A.Z. and protest camp activists to materialise networks of resistance in the physical world were taken up by hackers, phreakers and others who identified themselves as part of a “digital underground” (Sellars 2010, 84) inspired by cyberpunk and science fiction imaginaries. Many T.A.Z. and protest camp spaces like the squatter communities of cities like Berlin in the 1980s, 1990s and 2000s were also informed by Guy Debord's 'Society of the Spectacle', which described the ways that contemporary life presented itself as an “immense accumulation of spectacles” (Debord 1967, 1) or renderings of the real. Nurtured by the hegemonic simulacra of mass media and advertising, Debord claimed, the power of the spectacle would inevitably render all attempted rebellions into commodified products, co-opted into the production of further symbols to support the aesthetics of ruling classes (1967). By forming and then disbanding before their activities were assimilated by the systems they aimed to defy, temporary autonomous spaces like Manjim, which opened as a creative lab in the Haifa neighbourhood of Palestine in 2017 (Asali 2018), attempt to act as “indeterminate zones within late capitalism” (Sellars 2010, 83).

Many of the first hacklabs and media labs that flourished across Europe in the 1990s engaged in similar efforts to avoid their practices being recuperated. By envisioning radical solutions to local issues through peer production and digital fabrication, they explored the growing possibilities of a collaborative world wide web. As the genealogies of hacklabs by Maxigas (2012) and F/LOSS<sup>15</sup> live-coders by Simon Yuill (2013) have discussed, while early hacklabs and hackspaces both invited the participation of cyberpunk and hacker subcultures, there were key differences between their articulations of the autonomous ideologies they disseminated, and also between them and media labs, which have typically been omitted from hacker mythologies.

<sup>15</sup> Free, Libre, Open Source Software.

Hacklabs, like Technology Networks, are inspired by egalitarian and community-oriented values, aiming to empower a wide cross-section of publics by providing tools that anyone could access who had an interest in networked technologies. They are also political, and foster culture-jammings and other tactical mobilizations aimed at promoting autonomy and empowerment, their teachings based on regionally-specific, anti-capitalist pedagogies. Hacklab spaces are often situated in squats and other appropriated built environments, their machines recycled and free-for-use. In the 2000s, many hacklabs provided technical support during the street protests that occurred around the WTO and IMF summits (Söderberg and Delfanti 2015). With the onset of neoliberal austerity measures and the 'squatting wars' of the 1990s, however, many of the early hacklabs suffered and needed to be closed down, and in 2006 hacklabs.org too closed its doors (Maxigas 2012).

Media labs, meanwhile, have mixed the anarchic spirit of hacklabs with a desire for more artistic and creative digital explorations that critically responded to 1980s and 1990s popular culture using the web as a medium. By bringing together inspirations from hackspaces, art studios and Californian 'cyber cafes' (Frost 2012), the first prominent media labs in London like Artec and Backspace helped inspire a new generation of practitioners to explore the implications of computer networks through digital art-forms (Bassett 1999), including many of the site managers and collaborators of the field sites featured in this study. Net artist Ruth Catlow, for example, started out as a sculpture artist, but quickly became disillusioned by the marketisation of the art industry in the 1990s. She has explained (interview 05/07/16) how her job as one of Backspace's first public hosts was fundamental to her founding the artist network Furtherfield. "Being there really showed me how to build communities (for lack of a better word)," she said, "because the space provided the highest-feed bandwidth that was in London at the time (about half a megahertz), and desk space, and a very friendly atmosphere [...] which meant that it by design trapped lots of itinerant philosophers, an interesting mix of international people who were interested in sites for informal shared learning, and who were interested in seeing what was going to happen to the internet."

A core concern for media lab facilitators has been the democratisation of access to tools that allowed participants to engage in digital creativity. "Though the term

'lab' conjures the image of a fairly sanitised environment optimised for scientific experiments and populated by people in white coats," Charlotte Frost explains in her study of media labs in London, "media labs... [were] quite different" (2012, n.p.). On their most basic level, they have been internet cafés that shared physical and virtual resources, from computers to software to networks. The real aim of early media labs, however, was to harness networked technologies by exploring how the internet could change the way people thought about art, made it, and shared it. High-profile media lab outputs have included 'Uncomfortable Proximity', Tate's first net art<sup>16</sup> commission in 2000 created by Graham Harwood of the artists' collective Mongrel, a group involved with the media lab Artec. This piece manifested as a 'hack' of the Tate website, which lead web users to an alternate mirrored version<sup>17</sup> that revealed "cultural cosmetic surger[ies]" (Harwood 2003, 375) where Tate had censored its less-than-flattering institutional legacies.

Ruth has described the catharsis that accompanied these kinds of engagements with early net art: "The first net art piece I ever saw was just an image [...] it was 2x4 on the screen, greyscale, took forever to load, I had no idea what I was looking at, it seemed to be the most boring thing on earth. Then I looked at it the next day, wondering 'why is this interesting', and it featured another greyscale image. I came to understand that for the last 6 years, at 8:26 in the morning, and at 8:26 in the evening, it would change, and sometimes it would be something you recognize... and that worked on me in a really interesting way. I started to understand code for the first time as a kind of pulse, from machines that allowed us to access images like this from anywhere in the world [...] and it suddenly took on an immense quality as a networked, global sculpture. I didn't know whether what I was seeing [...] was a human being, a machine, a network, people around the globe... it changed things. And [we] started talking about net art. Reviewing it, sharing it, finding other people who had a fascination with it. People who were involved in pirate radios, pre-internet communities, were connected [...] It was completely compelling, finding ourselves in conversation with people who were New Yorkers, from Berlin, from Australia, in the middle of the Yugoslavian war... and what we all had in common was that we were explorers" (interview 05/07/16).

<sup>16</sup> Term typically used for works that have used the internet as a medium for critical exploration.

<sup>17</sup> Site archive at <http://www2.tate.org.uk/netart/mongrel/home/intro.htm>. Further details can be found on this, and other Tate net art commissions at <https://www.tate.org.uk/about-us/projects/reshaping-the-collectible>.

By providing access to high-speed internet bandwidth that would otherwise have been too expensive for private use and managing it cooperatively, early media labs in the U.K. like Backspace were also able to host collaborative experiments with other media labs across Europe by launching networks aimed at critiquing social inequalities through digital practice. These networks have allowed many current-day media labs to remain critical actors while simultaneously receiving funding from local, arts and European councils to engage disadvantaged communities through the provision of public services. Services have ranged from computer access to professional training for individuals experiencing long-term unemployment – programmes that several contemporary media labs like SPACE Studios in London and Access Space in Sheffield continue to offer today.

In the early 2000s, a combination of austerity policies and a declining public appetite for tactical media outlets in the face of increased corporate conglomeration of web services lead to many of the most famous media labs<sup>18</sup> closing. Others, like Lighthouse Arts in Brighton and the Pervasive Media Studio in Bristol, evolved with the times to gradually transform themselves from radical internet cafés into public forums that focused on activities like inciting dialogue and offering mentorship and residency opportunities. As decentralised spaces of critical creativity, media labs and hacklabs continue to inform many of the differently-motivated hackerspaces and makerspaces they associate by fostering new and experimental modes of digital, creative and community engagement.

## **2.4 Second-wave makerspaces: Sustainable communities by, and for, hackers**

A second wave of makerspaces started to open a few years after the hacklabs of the mid 1990s, becoming widespread by the second half of the 2000s. The year 2008 in particular has been cited as a key moment in hackerspace history, when a widely-publicised exchange between German hackerspaces and American hacktivists called 'hackers on a plane' brought the concept of these kinds of spaces to the attention of

<sup>18</sup> Backspace, for example, closed in 1999 with an email sent to digital art list-serves that celebrated its decade of "loose learning [and] independence in the face of relentless commercialization" (Stevens 1999).

Western publics for the first time (A. Smith et al. 2013). The spaces of this wave have chosen a different path to that of hacklabs and media labs. They typically call themselves ‘hackspace’ or ‘hackerspace,’ and have developed from the more libertarian tenants of hacker cultures which aim to legitimise the hacker as an identity by mainstreaming it in ways that are framed as apolitical. While both first- and second-wave spaces would consider themselves devoted to the liberation of digital knowledges, their interpretations of the exact definition of ‘liberty’ and the freedoms that should entail are divergent (Maxigas 2012). As Coleman and Golub have argued (2008), hackers in what can be described as a second-wave tradition have typically ascribed to a vision of technologically-informed liberalism which is inspired by romantic individualism, but focuses instead on universal access to knowledge as an essential condition of freedom.

The famous hacker communities of the 1980s and 1990s like the C-base space (see Fig. 2) and Chaos Computer Club (CCC) in Germany, and the Electronic Frontier Foundation in the U.S., paved the way for hacker cultures to articulate themselves on their own terms. The spaces that emerged out of these traditions aimed for legitimacy, opening in rented (not squatted) environments, and building their communities around formal membership and payment structures. In doing so, the goal was to provide stable spaces for those who shared a belief in what has been called a ‘hacker ethic’ (Levy 1984). This prioritisation of long-term stability and public legitimacy over more radical revolution allowed the cultivation of a distinct hacker subjectivity to emerge around second-wave spaces, the practices of which aimed to debunk negative depictions of hackers that had proliferated in mainstream media since the first crackdowns on digital crime of the late 1990s. A prominent example of a second-wave space is Berlin’s C-base, which opened in 1995 as one of the world’s first hackspace and helped foster the creation of the German Pirate Party in 2006. As of 2018, C-base continues to flourish, with 550 active members hosting workshops on topics that include metalworking, 3D modelling, circuit-bending, wireless networking and sound-hacking (C-base 2018).

There is other evidence of the long-term sustainability of this second wave of spaces. Many of the hacker projects that were initially built as radical free software prototypes in the 1990s and 2000s later took flight under the more business-friendly frameworks of open source culture – the spectacle becoming what Debord

(1967) might refer to as the commodity that maps a new world. The servers of Google, IBM and Facebook, for example, continue to rely on the Linux operating system, which is a free software project (Braybrooke and Jordan 2017; Weber 2004). In his much-cited piece ‘Coase’s Penguin, or Linux and the nature of the firm’ (2002), Harvard Law School professor Yochai Benkler described collaborative efforts to build non-proprietary alternatives to digital software with the term ‘commons-based peer production’, a concept which continues to inspire current-day proclamations of makerspaces as potential enablers of innovation.

Meanwhile, other kinds of second-wave spaces and initiatives in the early 2000s like that of the cyberfeminist Old Boys Network started to emerge from the alienation of the “pushyocratic” (Toupin 2014, n.p.) culture of hackspaces – which, it was argued, focused too much on promoting openness at the expense of other issues, such as the inequities of gender, race and class that persisted within them (Nafus 2012; Braybrooke 2011; Sollfrank 1998). Many feminist hackspaces, like Mz Baltazar’s Laboratory in Vienna, have persisted almost as long as other kinds of hackspaces, but are centred on more egalitarian values. They can thus be portrayed as either first- or second-wave spaces, because they engage in overtly political and tactical activities while at the same time providing stable communities by, and for, those who define themselves as hackers.

## **2.5 Third-wave makerspaces: Mainstreamed for many makers**

The third wave of makerspaces has manifested itself through an accumulation of new kinds of spaces calling themselves a variety of monikers, from fab labs to design studios, which aim to draw in more diverse participants who do not necessarily self-define as hackers. In 2016, user-reported data revealed over 1,400 spaces that called themselves ‘makerspace’ around the world, 14 times as many as in 2006 (Lou and Peek 2016). Third-wave makerspaces can also be defined by their overtly apolitical styling. Instead of focusing their energies on critiques of capitalism or the cultivation of hacker subjectivities, they promote making as a meaningful leisure activity, a way to leave politics at the door through the “mundane engagement” (Davies 2018, 171) of personal projects.

In order to foster a “maker mindset” (makerspaces.com 2015, n.p.), the technical affordances of third-wave spaces are typically quite varied, ranging from high tech tools such as 3D printers, CNC machines and laser cutters, and ‘no tech’ materials like sewing machines and crafting supplies, and many of these sites also focus on the provision of educational programmes for young people. By disseminating deliberately vague discourses about the power of ‘making’, ‘maker culture’ and a ‘maker movement’, third-wave sites also aim to democratise making by distinguishing themselves from their radical roots (Meehan, Gravel, and Shapiro 2014). These evolving discourses can be seen in a 2016 study which found a sharp increase in web searches for the term ‘makerspace’ while searches for ‘hackerspace’ declined (Voigt, Suero Montero, and Menichinelli 2016). Sites that call themselves ‘makerspace’ have been especially popular in the U.K., where over 100 such sites were found in a 2015 census by the innovation foundation Nesta (Nesta 2015).

In positioning third-wave makerspaces as catalysts for economic and social progress, proponents of contemporary maker cultures argue that making, like public participation in museums, empowers individuals by democratising access to knowledge and other assets. These developments have led to claims of a united, coherent ‘Maker Movement’ that is bringing about a “new industrial revolution” which will “reverse the arrow of globalisation” (Anderson 2012, 2; Brand 2013, n.p.). As *Make* magazine founder Dale Dougherty (2013, 12) put it in the much-cited piece ‘The Maker Mindset’ which called for a “Maker Movement” for children in libraries and schools: “Whether it is figuring out what you can do with a 3D printer or an autonomous drone aircraft, makers are exploring what these things can do [...] out of that process emerge new ideas, which may lead to real-world applications or new business ventures. Making is a source of innovation.”

Makerspace evangelists like Dougherty claim that making can inspire everyday people to become prosumers, or consumers who create. The puritanical roots of the American maker movement in particular has been discussed by Fred Turner in his account of key makerspace pundits who encourage makers to “reimagine themselves as creators, as entrepreneurs, as innovators in the mould of Elon Musk and Steve Jobs” (2018, S165). These assertions are disseminated through widely-read publications like Dougherty’s *Make* magazine, which is funded by O’Reilly

Media, the Silicon Valley publishing empire that he co-founded in 1975 with Tim O'Reilly. O'Reilly Media also sponsors Maker Faire, a network of local events which can draw crowds of over 100,000 in science-fair style settings. 400 such events have been organised around the world since 2012; the White House in the U.S. held its first in 2014 during the Barack Obama administration<sup>19</sup>.

Assumptions that current-day maker cultures originated from the ideas of a few American technology moguls, however, obstruct the heterogeneities of making practices in other historical and regional contexts, and the fact that articulations of 'maker culture' vary widely by nation (Braybrooke and Jordan 2017). In China, for example, where *shanzhai*<sup>20</sup> or copyleft culture is a key influencer of maker cultures, the term 'making' connotes innovation, creativity and a business mindset – a narrative that was crafted by makers themselves to distinguish their practices from those of 黑客 or 'hacking', which has been used to describe more illicit activities (T. Saunders and Kingsley 2016).

Where assertions about the value of fostering making cultures have been picked up by national governments, the discourse has tended to instrumentalise making as an enabler of entrepreneurial subjectivities. The White House has explained that its motivation in hosting a Maker Faire was to enable a 'nation of makers' by "foster[ing] the development of advanced manufacturing in the United States" and "expand[ing] the resources available for young makers and maker entrepreneurs" (Obama White House 2014, n.p.). The U.K. government, meanwhile, published a policy guidance<sup>21</sup> on makerspaces in libraries in 2018, and makerspaces also featured in the U.K. Digital Strategy in 2017. Much of the focus of governmental, business and third sector attention on making also comes from the belief that fostering digital skills in STEM (Science, Technology, Engineering and Mathematics) subjects will promote economic development and address what is referred to as the 'digital divide' by democratising access to new technologies.

<sup>19</sup> The White House has explained its motivation to enable a 'nation of makers' through this event by "foster[ing] the development of advanced manufacturing in the United States" and "expand[ing] the resources available for young makers and maker entrepreneurs" (Obama White House 2014).

<sup>20</sup> Originally a term used to describe mountain bandits who opposed the government, shanzhaism has become its own philosophy centered on rapid iteration, mass production of counterfeit goods, open sharing and copycat culture. I have discussed shanzhaism in Asia at greater length elsewhere (Braybrooke and Jordan 2017).

<sup>21</sup> This particular guidance, which was updated 18 September 2018, was written by the UK government's Libraries Taskforce, which reports regularly to the Department for Digital, Culture, Media and Sport (DCMS).



Another way that third-wave spaces proliferate a ‘maker’ subjectivity is through temporary techno-social gatherings (TTGs), or community events that are generally referred to as hackathons, pop-ups or workshops (Braybrooke, Damiani, and Philip Sage 2018). TTGs are important for third-wave spaces because they introduce making practices to new groups in such a way that they are gradually mainstreamed. By introducing a challenge to be solved with digital tools and approaches over a few hours or days, TTGs promote the use of rapid design and development approaches while fostering ephemeral maker networks. As a result of their intensive collocation, or physical co-presence (Trainer and et al 2016), issue-oriented TTGs in particular have been found to address social concerns through material participation (Lodato and DiSalvo 2016). In doing so, it can be argued that they bring a modicum of first-wave politics back into third-wave making. However, it has also been argued that TTGs are more successful at producing neoliberal subjects than socially productive technologies, reinforcing a wider orientation in maker cultures toward the kinds of profit-driven, entrepreneurial values that originate from Silicon Valley, where the hackathon itself was also conceived (Cardullo, Kitchin, and Di Felicianantonio 2018; Irani 2015).

Build Brighton is an example of a typical third-wave space. It was formed in 2009 in collaboration with Mitch Altman, a famous hacker from the Noisebridge hackerspace in San Francisco, and helped organise the first Maker Faire in the U.K. The space is careful to remain apolitical for "pragmatic" (A. Smith et al. 2013, 113) reasons, preferring to focus on promoting a supportive community that demystifies digital technologies. Like many other third-wave spaces, it has also recently chosen to change its name from ‘hackspace’ to ‘makerspace’, in an effort to distance its practices from what it sees as the more negative connotations of hacker culture (Build Brighton 2017).

## **2.6 Fourth-wave makerspaces: Hybridisation and institutional partnerships**

A fourth wave of spaces started opening in the late 2000s which represented a further diffusion of makerspaces through an increased hybridisation of their practices. Fourth-wave spaces, while having similar motivations to third-wave

spaces, typically originate not from community-led initiatives, but instead from cross-sectoral collaborations between makers, institutions and private organisations. They are often located within universities, libraries and companies. The inclusion of once-grassroots makerspaces (like community media labs) into the dominant structures of a society (like public museums) has been portrayed by some as the final step in the mainstreaming of hacking practices (Söderberg and Delfanti 2018). However, the data on such sites remains ambiguous.

The global fab lab network exemplifies the trajectory of fourth-wave spaces. The first fab lab was opened through a partnership between MIT's<sup>22</sup> Grassroots Invention Group and its Centre for Bits and Atoms in America in 2001 with the aim of fostering new possibilities for community-based fabrication methods. The fab lab model and brand soon spread to other regions, who opened their own fab lab spaces which were accepted to the network because of their use of the same fabrication and design tools as the original fab lab. By 2018, 1,200 fab labs in 30 nations were active on fablabs.io, many in partnership with local actors like India's National Innovation Foundation in Gujarat (Fab City Research Lab 2018). There are even plans for a 'Flotante' fab lab in Brazil which aims to float along the Amazon River and build new collaborations along the way.

Other fourth-wave spaces have opened through cross-sector institutional partnerships in neglected urban districts of cities like Buenos Aires and Detroit, such as the media lab and art centre Hangar in Barcelona, which is based in an old textile factory in the El Poblenou district and sits alongside former citizen-led cooperatives (Braybrooke 2016). As I have discussed elsewhere with Adrian Smith (Braybrooke and Smith 2018), increased institutional attention towards fourth-wave makerspaces has made them subject to a plurality of experimental developments. These relations may incite pressures for once-autonomous spaces to conform to institutional logics, but they also provide opportunities for spaces to instigate new practices and modes of interacting.

It is here, in a fourth wave of makerspace developments, that the collections makerspaces in museums which are featured by this study have originated. While

<sup>22</sup> Massachusetts Institute of Technology.

each space is by necessity tailored specifically to the needs of its institutional host, it also moves within a wider milieu of other spaces like it, from other kinds of fourth-wave spaces (like Exeter FabLab, the first fab lab to open in a public library in the U.K.) to different kinds of first-, second-, and third-wave spaces. As will be explored in the analytical chapters of this thesis, some of these other spaces, like FACT in Liverpool (which opened as a second-wave space in 2003 and can now be qualified as fourth-wave due to its broadened institutional affiliations) and SPACE Studios in London (which has engaged in similar cross-sectoral collaborations since its establishment as a creative space for artists in 1968) even helped inspire the emergence of collections makerspaces.

I will now trace four waves of sociotechnical progress that have been experienced by museums in Britain since the 1800s, where new developments have fostered moments of convergence and social change. This will allow me to conclude the inquiry by looping this genealogy back to its beginning, where the significance of the four waves of makerspace progress will be articulated alongside those of cultural institutions.

## **2.7 First-wave museums: Instructive engagement for the masses**

The first wave of museum experimentation which influenced the emergence of current-day collections makerspaces can be traced to the British Museum Movement of the early nineteenth century. During this period, referred to as the ‘museum golden age’ (Redman 2010), cultural institutions started to experiment with public engagement as a mode of governance, and came to be viewed as sites of social change. This occurred alongside many museums opening their doors to the masses for the first time as part of a newly industrialist society, providing governments with new opportunities to utilise the tactics of soft power rather than overt coercion to reinforce their dominance (Bennett 2013).



**Fig. 3: Visitors admire new fountains at the British Museum (Wellcome Collection 1860).**

As will be discussed further with a look at Wunderkammer traditions in Chapter 7, the first museums were closed-off rooms in palaces aimed at the enjoyment of royal and aristocratic audiences. Stuart Hall (2005) has described how the ruling classes cultivated cultural collections to distinguish themselves and negotiate their roles in society, by harnessing the power to determine the worth of material cultures by ranking and classifying artefacts. The hegemonic associations between the imperialist activities of the British empire and its cultivation of national museums, for example, have been extensively documented by historians and cultural theorists (c.f. Barringer and Flynn 1998; Delbourgo 2017; Thompson 2005). The studies of Barringer (2006), Bennett (2004) and van Beurden (2018) in particular have traced the origins of museum artefacts and their acquisitions across Europe to parallel supply chains of distributed colonial dominance, coercion and capital across the geographies of British colonial states.

It was not until the Museum Movement, however, that cultural institutions came to be seen as potential instructors not only for members of the elite, but also for the masses. As a result of government legislation in the 1800s that enabled more efficient allocations of public funds to museums as a result of the emerging consciousness that they could represent national heritage (Burton 2015), a new generation of public museums opened across the U.K. Many of these were founded

with collections gifted to the public from wealthy private donors, which situated museums too as symbols of national wealth, and as respected centres of knowledge and scientific research. The Liverpool Public Museum was one such institution, opening as a result of a private donation of two natural history and archaeology collections in 1851 (van Keuren 1984). In its first year alone, it saw almost a quarter of a million visitors - a popularity shared by other public institutions that emerged in this period like the V&A which opened in 1852, and the Tate in 1897.

First-wave museums readily experimented with new technologies to make their collections more attractive to new audiences (see Fig. 4). In 1857, the V&A Museum launched the world's first artificially lit exhibition which utilised an extensive system of gas burners. This allowed the museum to invite the working classes to engage with it until 10pm for the first time – a transformative innovation given the fact that most labourers did not have leisure time until 8pm. However, claims of “flirtatious activity” (Swinney 2002, n.p.) as a result of the excitable atmosphere prevented further museum innovations that featured gas burners until 1886. In 1850, meanwhile, public complaints about the “heat and foulness of the rooms” (D. Saunders 1992, 200) and a dirty film that had started to cover paintings at the National Gallery inspired it to test some of the world's first preventative conservation technologies tailored for museum use.

By encouraging public engagement, the first-wave museums of the Victorian era used their spaces and collections to reinforce moral values amongst patrons, from obedience to the observance of rigid class hierarchies, while at the same time highlighting the glories and acquisitions of the British empire. As Edinburgh Museum of Science and Art's first director George Wilson put it in 1858: “[This] is a Museum of the Industry of the World [...] and as this, it will increase our civilization and add to our power to civilize the rest of the world” (Swinney 2002, n.p.). This focus allowed museums to explore what ‘governmentality’ (Hall 2005) might mean as an apparatus of cultural hegemony, where the minds of a populace are won by disseminating the values, beliefs and norms of the ruling class in such a way that these ideologies seem to be everyday common sense (Gramsci 1971; Hall 2002). Engagements with cultural hegemony as a mechanism of institutional power relations will be discussed in further depth in Chapter 3.

The proponents of the Museum Movement in particular believed that a disorderly working class could be brought to heel through the ‘civilising’ aspects of high culture, which would steer their leisure activities away from more disruptive pastimes, such as revolting against the state. Tony Bennett (2013, 100) has discussed how Victorian museums targeted the bodies of museum-goers as primary objects of reform “through a variety of routines and technologies requiring a shift in the norms of bodily comportment [...] rules forbidding eating and drinking, outlawing the touching of exhibits [...] what should be worn and what should not. In this way, while formally free and open, the museum effected its own pattern of informal discriminations” (100). Tony Bennett (2013) and Pierre Bourdieu (1984) have also described how a duality emerged during this period between the public fair as a particular site of disorder, and the public museum as a site of order, where patrons could be properly observed, instructed and pacified. For this reason, Foucault has described museums alongside prisons and cemeteries as ‘heterotopias’, or spaces “outside of all places” in which the relations of a culture are suspended in time to represent, contest or revert “the very institution[s] of society” – in particular its modes of discipline and control (1998; 1978, 179-181).

The Pitt-Rivers Natural History Museum in Oxford is an example of an institution that has deliberately maintained its first-wave aesthetics to the present day, to the point that it is often referred to as a “museum of a museum” (Koshy 2018, n.p.). It was founded in 1844 from the private collection of the archaeologist Augustus Pitt-Rivers, and is responsible for popularising his typological system of material organisation, which came to be used widely across the first-wave institutions of the Victorian era. By ordering groups of specimens by type rather than origin (such as ‘primitive’ spears) the original aim of this taxonomy was to “control and direct” (van Keuren 1984, 189) museum patrons to make comparisons between them, in doing so demonstrating the evolution of technologies over time. The tendency of this taxonomy to present a particular (in this case, Western European) version of history as an unbiased, comprehensive totality has led to much criticism (Chapman 1991), and it is rarely used by institutions in other waves. In recent years the Pitt-Rivers Museum itself has made moves to start decolonising its artefacts from their

problematic origins by setting up interactions with the “originating communities” (Koshy 2018, n.p.) who created the items in its collection<sup>23</sup>.

The first-wave articulation of museums as educative laboratories remains a formative part of how they continue to understand and construct themselves. However, critical contestations have emerged since the Victorian-era ‘golden age’ which have made many institutions take on their roles with more caution, especially regarding how they justify and explain themselves to a British society that is increasingly critical of their legacies.

## **2.8 Second-wave museums: ‘New’ spaces for public participation**

The second wave of museum transformations arose from a series of evolving political, social and economic factors that shifted public expectations of museums in Britain during the 1970s and 1980s. The post-war period that preceded this second wave had brought with it a renewed acknowledgement of the importance of ‘modern’ museums as sites of engagement, in a society that was hopeful about the possibilities of modernity as a form of social progress. The Arts Council of Great Britain, for example, is a non-departmental public body that has commissioned artworks and arts organisations since 1946, when it was founded along with other government-funded social reforms aimed at widening access to public services (Arts Council England 2018). Developments like these enabled many museums like the Hayward Gallery, which the Arts Council opened in 1968, to experiment with experimental public programmes during this period.

It was not until the second wave of museum transformations, however, that the taken-for-granted neutrality of institutional subjectivities started to be questioned. In a highly critical 1969 study of 21 museums across Europe, Pierre Bourdieu and Alain Darbel found evidence of museums reinforcing discriminatory power

<sup>23</sup> Director of the Pitt-Rivers Museum Laura Van Broekhoven has discussed the complexity of these exchanges: “There are times when you think, ‘What are we doing here? Are we decolonising or are we neo-colonising?’ [...] But that’s why it’s so important to think through the power balances in these relationships. It should certainly never be tokenistic. Decolonising really needs to be a process and as it deeply questions the institutional practices it will often be painful” (Koshy 2018, n.p.). Despite these moves, to date very few artefacts from the Pitt-Rivers collection have actually been repatriated back to their originating communities.

relations through ‘cultural distinction’, which nurtured the aesthetic views of the upper classes who, as a result of social conditioning, already had enough knowledge of art to feel like “people of taste” (Bourdieu, Darbel, and Schnapper 1991, 94), while making others feel excluded. Other accounts derided the “bourgeois, western, patriarchal and national” (Sternfeld 2013, 2) biases of museums’ curatorial practices, and the nurturing of public museums in particular as “nationalistic temple[s] of culture” (Hooper-Greenhill 1992, 12).

The influential work of postcolonial scholars like Gayatri Chakravorty Spivak (1999, 1988), Edward Said (1978, 2014) and Baidik Bhattacharya (2011, 2017), meanwhile, has revealed how the cultivation and display of museum collections has led to a politics of cultural dominance. By attributing universalist classifications to acquired (and all too often, stolen) cultural artefacts according to the taxonomies of their colonisers, they have argued, the power of dominant groups and their knowledges have been solidified while the those of others have been diminished. By depicting “The East” through patronising depictions of the seemingly ‘exotic’ cultures who have inhabited nations in the Middle East, Asia and North Africa, for example, Said (1978) has explored how their representation has become inextricably tied to the legacies of British imperialism. Bhattacharya’s (2011, 2017) work, meanwhile, has discussed how the cultural dominance of high-income nations has resulted in lasting spatial configurations, which reinforce the hermeneutic dominance of ‘ruling’ races and the inferiority of oppressed social groups at the margins, whom Spivak (1988) has referred to as the ‘subaltern’.

These evolving consciousnesses led to a period where the traditions of the so-called ‘modern’ museum (in particular the elitist presumptions mentioned previously and the reinforcement of curators as unbiased cultural authorities) were increasingly questioned by publics. The discourses of what has loosely been referred to as ‘New Museology’ have enjoined museums to reflect more critically on the ways their collections had historically reinforced the values of privileged social groups, and also on the conceptual assumptions underlying their practices as conservators and educators. New Museological approaches typically involve three primary points of departure from the practices of the ‘modern’ museum: First, an acknowledgement that the meanings of museum artefacts are contextual and situated, not objective; second, an integration of ‘new’ practices that promote public participation; and



third, an understanding that visitors perceive exhibitions through a multiplicity of perspectives (Macdonald 2011; Vergo 1997).

The debates introduced by New Museology also highlighted an increased public consciousness of the politics of representation. In an aim to “abandon monolithic visions of history” (Ross 2004, 85) museums like the Tate Modern, which opened in 2000 as a sister-site to the Tate Britain in London, have actively sought to redress the traditional museum prioritisation of ‘high’ or elitist cultural forms over those of ‘low’ or mass culture (Griswold 2008), and the narratives of certain traditions, ethnicities, genders and experiences over others. The ongoing efforts of some institutions to ‘decolonise’ their collections by returning them to their original owners is another attempt at atonement after “five centuries of European dominance” (Beurden 2018, 66).

Like those of the first wave, the social experiments of second-wave cultural institutions have often coincided with those of local and national governments. Under the Labour-controlled administration of Ken Livingstone on the Greater London Council (GLC) from 1981 to 1986, and the national New Labour administration of Tony Blair from 1997 to 2010 there was a push by both museums and governments to promote greater public participation in the arts. For museums, this helped address the issues of access and diversity that had been introduced by New Museology. Reflecting the progressive populism of a Labour-controlled GLC, the aim was to empower minorities and other marginalised communities not only to participate more widely in public culture, but also in politics. As the GLC’s Arts and Recreation Committee chair Tony Banks put it: “In all GLC policies there was an ingredient which involved the arts... we could use the arts, in a way, to [build] a better understanding of the other policies. We could, in other words, use the arts as a medium for a political message” (Bianchini 1987, 105).

For New Labour, meanwhile, the push for public participation in the arts was motivated by a different set of factors. These are illustrated most prominently in the commercially-motivated experiments of third-wave museums, but they can also be seen in the relationship that started to emerge between New Museology, public policy and social practice art in the 1990s (Bishop 2012). The turn towards social practice art, or “art that is socially engaged, where the social interaction is at some

level the art” (Tate 2017c, n.p.) signalled the emergence of a new mode of second-wave social interventionism, which like New Museology aimed to challenge the hegemony of museums through public engagement. This time, however, the primary agents of progress were not politicians or curators but instead artists, who aimed to overturn traditional hierarchies between creators and audiences with respect to cultural artefacts. In response to an art scene that they viewed as too preoccupied with the commodification of cultural artefacts as alienated objects to be sold, social practice artists called for works of art to be ongoing projects that viewers would be invited to participate in, much like the telematic art experiments of early computational artists in 1970s Britain described in Section 2.3.

In 1999, for example, the Danish arts collective Superflux created an internet TV station project called ‘Tenantspin’ which engaged elderly inhabitants of a housing project in Liverpool, the results of which were exhibited at FACT Liverpool<sup>24</sup>, an arts space that remains an influence for many of the fourth-wave spaces described in this thesis. The project has been described by curator Charles Esche as a social ‘tool’ because of its aim to build a stronger sense of community amongst residents of the tower block (Bishop 2012). Crucially, Esche has added, it enlisted the audience as “helpers in the production and reception of the art”, in the process building an artwork that while rooted in community, “also [has] purchase on an international art world” (Esche 2005, 11).

The art critic Nicolas Bourriard has typically been credited with popularising social practice, or what he called ‘relational’ art, as its own genre by calling for the articulation of a new “criteria of aesthetic judgement” (2002, 4) that addresses not only the outputs of culture, but also the effects of its interrelations. In one of many critical responses which have addressed the myriad contradictions of social practice art, Claire Bishop (2012) has discussed how social practice art started to dissolve as a distinct cultural aesthetic under the positivist cultural rhetoric of New Labour policies under Tony Blair in the 1990s and 2000s – which were, in a sense, responses to Bourriard’s call.

<sup>24</sup> Liverpool Foundation for Art and Technology.

During this period, cultural policy departed from the democratic socialism of the GLC under Labour, and the subsequent neglect of the Conservatives, by attempting to harness free market economics to both encourage greater public participation in the arts (by reintroducing universal free admission to British museums in 2001, for example) and calculate their utility to society. In the influential report ‘Use or ornament?’ (Matarasso 1997) published by the think-tank Comedia in the same year that New Labour came into office, which was the most extensive piece of research into the social impacts of participatory art of its time, cultural engagement is depicted as a panacea for many of society’s failings. Among the 50 listed benefits include assertions that it prevents crime, promotes intercultural contact, and makes individuals less anti-social.

By making ‘exclusivity versus inclusivity’ (Bishop 2012) the main mechanism of receiving public funding, the national government again engaged in social experiments as it had during the museum golden age. The effects of transformations of this kind remain limited, however, if they promote social stability over social change. Instead of addressing the structural inequalities that historically limited arts participation amongst the marginalised, for example, it has been argued that New Labour’s cultural policies “aim[ed] to ‘help’ people accept them” (Merli 2002, 113), as “self-administering, fully functioning consumers [...] who can cope with a deregulated, privatized world” (Bishop 2011, p. 14). The encouragement of a creative sector, meanwhile, where workers assume the entrepreneurial risk-taking behaviours commonly associated with artists rather than attributing those risks to governments or corporations, can be viewed as a strategy to minimise reliance on a welfare state (Belfiore 2012).

These kinds of second-wave experiments in arts participation have led to a widespread instrumentalization of museum inclusion practices in the U.K., and it is now typical for funding ecosystems to require museums to demonstrate clear evidence of the positive social and economic outcomes of their public programmes. Many museums (including those featured in this thesis) thus continue to experiment with second-wave initiatives that increase participation in the arts. This being said, some museums can also be seen resisting further quantification of their engagements by setting up new opportunities for public participation that are deliberately difficult to measure, as Chapter 6 will illustrate. In the next section, I

describe the impact of the economic shifts of the late 2000s on the development of museum experiments in their third wave.

## 2.9 Third-wave museums: Marketised actors

The U.K. government's austerity measures that followed the global financial crisis of 2007/08 propelled what has been referred to as a "regressive redistribution" (Hastings et al. 2017, 2007) of government services that included drastic reductions in public spending, capped benefits, income freezes and cuts across public offerings from schools to housing. This restructuring of British society along market lines has been described by theorists Stuart Hall, Doreen Massey and Michael Rustin in the *Kilburn Manifesto* (2013) as a form of soft power that has encouraged the cultivation of entrepreneurial subjectivities across urban regions and institutions alike that reinforce the mechanisms of neoliberalism (or global free-market economics) as common sense. They suggest applying a conjunctural approach to locate these shifts not as part of a master plan of a "capitalist super class" (Grayson and Little 2017, 61), but instead as the product of the converging relations of many actors and influences which circulate around particular temporal moments.

Applying a conjunctural approach to the third wave of museum developments in particular allows me to examine in this section how the gradual marketization associated with neoliberal policies has affected their practices. The growing precariousness of creative workers who precipitated the so-called "rise of the creative class" (Donald, Gertler, and Tyler 2013, 3) lauded by governments, for example, has encouraged interactions between unexpected collaborators to reach new audiences, like the brand partnership between Tate and the international clothing company Uniqlo that launched the 'Uniqlo Tate Lates' series for young people as a marketing project at Tate Modern in 2016 (Steven 2017). Another example can be seen in the market-oriented approach of the Heritage Lottery Fund, a non-departmental public body in the U.K. which distributes grants to not-for-profit organisations like museums based on the sale of National Lottery tickets. On years like 2018 when lottery ticket sales decline, there is a corresponding drop in much-needed grants for museums in particular (Bailey 2018).

These shifting relations can also be witnessed in the progression in arts discourse from economic to managerial language, with terms like ‘cultural industry’ being replaced by ‘creative industry’, and more recently ‘creative economy’, to accompany the migration of public services from state to market provision (Newbigin 2017; Mateos-Garcia and Bakhshi 2013). Garnham (2005) has described how such shifts reveal the increased ideological value of terms that describe arts engagement in terms of economic growth. This intertwining of cultural and economic capital has been especially prevalent in the urban regions of Britain, where the pursuit of a more competitive ‘entrepreneurial city’ (Harvey 1989) has shaped urban geographies according to the criteria of global neoliberal accumulation.

In London, for example, redevelopment projects typically include the provision of space for “creative industries to attract relevant professionals, businesses and talent” (Pappalepore, Maitland, and Smith 2014, 12), and museums are viewed as valuable assets for tourism. One of the primary ways in which museums are being transformed as a result of these capital flows is through the emergence of a “consumer-oriented” (Ross 2004, 86) approach to the framing and delivery of their offerings in order to draw additional funding out of the vacuum left by austerity measures. In this setting, image-making is used by museums and cities alike to compete for the attention of tourists and donors who want to “get off the beaten track and discover the ‘real city’” (Maitland 2013, 14). By emulating the language of entertainment and leisure products, the concept of London itself is rebranded into “City as Event” (Evans 2003, 417), its museums depicted as prime environments for urban luxury consumption.

These developments have correlated with the rise of what Pine and Gilmore (1999) have called an “experience economy”, where memorable experiences become the product, and discerning consumers (such as younger museum visitors) prioritise immersive encounters. This has propelled institutions in London like the Science Museum to prioritise exhibits which feature “infotainment” (Lucas 1991) or less charitably, “mindless learning” (Yahya 1996, 123) opportunities that present knowledges simply, using hands-on play as a form of entertainment. This erosion of boundaries between popular culture and art, and between economic and aesthetic priorities, replaces the primacy of Bourdieu and Darbel’s worries about cultural distinction in the 1960s with what has been referred to as a “culture of distraction”

(Prior 2005, 123), where museums are situated next to shopping malls and amusement parks as consumer entertainments.

Meanwhile, as the efforts of civil society organisations combine with a greater public access of once-hidden corporate practices, there has been a greater demand for ‘corporate social responsibility’ or CSR (defined as the setting-aside of profits for projects deemed positive for society) programmes (Bénabou and Tirole 2010). CSR has come to encompass a wide variety of initiatives, from internal projects such as being more environment-friendly or respectful of local communities, to external support for ‘good’ causes such as education – and, increasingly, the arts. The cultivation of CSR relationships with museums in particular has allowed global corporations like Uniqlo to become increasingly integral cultural actors, by projecting their own interests through association and collaboration (Rectanus 2002, 3).

When combined with the aforementioned pressures on museums to become more resilient and entrepreneurial actors, the conjunctural moment which defines the third wave of museum experiments is perhaps best described as “the new ethos of corporate involvement” (Hooper-Greenhill 1992, 1). Seitanidi and Ryan (2007) have described how these partnerships have gradually become the main mode of interaction between non-profit organisations and businesses over the past 200 years, primarily through transactional relations like sponsorships and other forms of social partnership. The embedding of CSR programmes into the activities of museums as other forms of funding are diminished is, of course, not without its politics. In her examination of the celebrity ‘celanthropy’ of the Victorian period and its association to the ‘philanthrocapitalism’ of contemporary corporate sponsorship as seen in initiatives like Bono’s RED campaign, for example, Jo Littler (2015) has argued that while the charitable projects of Victorian donors contributed to a British welfare state that was not yet in existence, philanthrocapitalism has been more deeply involved in helping dismantle it. The entrepreneurial philanthropy that helps define the focus and remit of museum endeavours in their third wave of progress is rooted in the assumption that neoliberal capitalism, despite its social ills, can also lead to social good. As a result, Littler states, charity has become yet another opportunity for capital accumulation,

used as “a means to increase corporate power – by stealth, and with an ostensibly moral alibi” (2015, 475).

However, it can also be argued that the transformation of some museums into multi-use cultural centres, such as the Centre Pompidou in Paris and the ArtScience Museum in Singapore, also provides them with new opportunities to become not only sites of consumption, but also what Rectanus (2002) has referred to as sites of interactive technology transfer. The modes of production enabled by these encounters take many forms, from philanthropic community-oriented activities in the public spaces of museums to more experimental engagements like those of Tate’s Uniqlo Lates, whose curators worked with the London-based radio station NTS to feature music mixes created by local artists at public events (Anand 2018). As will also be discussed in the analytical chapters of this thesis, corporate funding can even provide museums like Tate and the British Museum with unprecedented opportunities to launch more ambitious hands-on programmes that they would never have been able to afford otherwise.

In such moments, the traditions of shared machine shops, museums and external funders meet to co-create new kinds of experiences. Thus, the third wave of museum progress is defined not by government experiments with social integration, but instead by a general commodification of culture. As the interests of markets and museums continue to converge, the boundaries between cultural and consumptive experiences blur. In future-focused Asian cities like Singapore and Chengdu, for example, a new generation of third-wave museums are nestled within luxury condominium complexes and shopping malls and are now entirely run by corporations, who manage them not as cultural partners, but instead as cultural curators. What delineates museums in their second or third wave from those in their fourth, however, is not a question of whether marketization has occurred (because it is now a characteristic of every museum in the U.K.) but rather what kinds of tools and practices are used to evoke the kinds of social transformations that museums hope to enable. In the next section, I will discuss the fourth-wave museum as a place for experimentation with interactive technologies.

## 2.10 Fourth-wave museums: Sites of interactive technology transfer

As discussed in their first wave of transformations aimed at educating publics through instructive and disciplining mechanisms, British museums (like makerspaces) have always experimented with new technologies to survive. To deal with the damp environments of disused Tube stations of London where artworks were hidden during WWII airstrikes, for example, the technical prevention of artefact deterioration became a primary concern for institutions like the British Museum in the 1940s, who led in the cultivation of ‘wet rooms’ for experimenting with new conservation technologies (Lambert 2014). Hooper-Greenhill has also discussed how new technologies and subject-positions have been formed at times when museums have found themselves needing to care for newly acquired and sensitive materials, necessitating corresponding innovations in “collecting, storing, dividing, and sorting” (1992, 176).



*Fig. 4: Craftivism workshop, Refugee Week, V&A Sackler Centre (Craftivist Collective 2014).*

It was not until the adoption of digital technologies by many museums in the 1990s, however, that their sociotechnical innovations became evident from a public perspective. In 1994, the Natural History Museum became the first in the U.K. to



publish its website on the web in the form of an e-brochure (Hawkey 2004). By the early 2000s, however, the digitising activities of museums were still primarily focused on enhancing their operations, for example by “building digital collections, creating silos for museum education, curating virtual exhibits [and] multimedia resources” (Hume and Mills 2011, 276). In 2003, a study of 371 museums in Sweden concluded that use of the web “was still in its infancy” (Lagrosen 2003, 132) because of continued confusion about its possibilities amongst museum staff.

Perhaps the biggest factor in the cultural sector’s acceleration towards digital tool usage in the 2000s was a convergence of marketization (as experienced in third-wave museum developments) and the other economic pressures experienced by museums in their fourth wave to stay competitive for grants and other funding opportunities. Roy Hawkey (2004) has described how the increased importance of user engagement targets in Britain has enhanced the value of digital learning specialists, who are increasingly invited to join curators and other teams in the development of exhibitions and public programmes. These shifts have coincided with a re-emergence of the first-wave Victorian subject-position of ‘museum as educator to the masses’, except this time the focus has been less on provoking reformist-era social order, and more on reinforcing the modes of access introduced in second- and third-wave museum experiments. Pressure from activist groups like Museum Detox<sup>25</sup>, for example, continues to push museums to “be more transparent about the provenance” of their collections by “amplify[ing] the voices of the oppressed” through new public programmes (*The Economist* 2018, n.p.).

Where cuts to funding have been combined with the continued implementation of the kinds of quantitative performance measures that were introduced in Britain by New Labour, museums have increasingly prioritised experimental digital programmes as one way to address these concerns. An analysis of 12 cultural institutions around the world by Hume and Mills (2011) found a clear interrelation between economic pressures and uses of interactive technologies. This wave of experiments is also defined by institutions in the U.K. hosting their first temporary techno-social gatherings or TTGs (Braybrooke, Damiani, and Philip Sage 2018) in an overt invitation to open up their collections to be remixed and used by non-

<sup>25</sup> A group of young museum professionals from BAME backgrounds who formed in 2016 with the aim to “challenge narratives in cultural institutions” (Museum Detox 2016)

traditional groups, who typically include hackers and makers. In 2014, an £8.6m digital arts partnership funded by the U.K. Arts Council and the BBC funded the Tate's first hackathon. The project involved 140 creative practitioners including the Chinese artist Ai Wei Wei, who provided the names of victims of the 2008 Sichuan earthquake as a piece of data to be iterated upon by himself and others (Masters 2014). Aiming to "encourage digital innovation" through collaborative interactions, the Tate asked participants to "take any form of data and transform it into a digital artwork" (Ruggerio 2014, n.p.), resulting in 40 new pieces of digital art.

By the time the U.K.'s first collections makerspace, the Sackler Centre, opened at the V&A in the mid 2000s, the time was ripe for more enduring engagements with digital technologies that would provide new opportunities for museum visitors to, in the words of Rectanus (2002, 238), "turn the tables" on the production of culture. As V&A Digital Programmes Manager Irini Papadimitriou has explained (interview 09/03/17), from the very early days of the Sackler Centre her team "had at our disposable accessible technologies... so there was Processing, programming playgrounds, Arduino, Lilypad... very much focused around DIY and open source culture... and we just started experimenting with these and exposing people to them. People of all ages and backgrounds. In this way, we used the Sackler as a kind of lab, or a big open studio, which was the whole idea - to make it accessible, to enable new collaborations." They did not have many links with makerspaces of the time, she said, because many of the maker- and hackerspaces themselves were still starting up in London. She explained that "it was media labs we were leaning towards at the time, not makerspaces really, but maybe that was just because maker movements hadn't been as visible to us in 2008. They were happening in studios, behind the scenes, the but were less evident back then. Now, everything's so connected." In the end, she said, that collaboration came naturally, because of those kinds of "continual link[s]" between makers and museums (see Fig. 5).

In many ways, the introduction of the collections makerspace as a fourth-wave makerspace experiment into the halls of cultural institutions that had once been fortresses of Victorian-era 'golden age' authority, like the British Museum, reveals a convergence of institutional, government and market-driven interests, each of which have impacted on their enablement. As Elena Hooper-Greenhill has put it: "Museums, in common with all other social institutions, serve many masters, and

must play tunes accordingly” (1992, 1). However, this does not mean that museums have not been able to introduce transformations of their own in return. A central aspect of the kinds of partnerships that have funded institutional makerspaces in their fourth wave of developments has been the centrality of “interactive technology transfer” (Rectanus 2002, 241), where information, services, products, hardware and software are exchanged between technology corporations and museums in such a way that the digital technologies used also shape the context of their broader social relations, for example the ways they articulate and consume data, and their promotion of digital making. As I have discussed elsewhere, many of the impacts of partnerships between institutional and grassroots actors are still in the process of being studied, and thus the results of these kinds of cross-sectoral experiments in material participations can be more transformative than expected (Braybrooke and Smith 2018). The potential of these interactions, where new kinds of spaces for sociotechnical and material experimentation which have at least partly been inspired by the autonomous, radical interventions of the grassroots spaces that came before them are introduced into institutional territories, is important, and will be returned to in many different ways throughout this thesis.

## 2.11 Conclusion

In this chapter, I explored how the gradual intertwining of the seemingly separate lineages of makerspaces and museums with the opening of the U.K.’s first collections makerspace at the V&A has helped inspire the onset of the spaces examined in this study. I arranged these tales into four waves which focused on their sociotechnical experimentations, which I argued occurred sometimes chronologically, and at other times concurrently, depending on the conjunctural moments within which they were situated (Hall, Massey, and Rustin 2013).

The genealogy began with a key moment of convergence in 2008, where the two lineages meet with the launch of the Sackler Centre for Arts and Education at the V&A. From this point, I traced the first hacker- and media lab-defined experiments of the makerspace model from the political focus of first-wave spaces, to the sustainability sought by second-wave spaces, to the mainstreaming of third-wave developments, and to the hybridised, institutional partnerships of spaces in their fourth wave. I then turned to the experiments of museum spaces, taking a look at

the educative first-wave efforts of Victorian museums, second-wave museum innovations that took a more critical and instrumental look at art participation, third-wave interactions that led to museum marketisation and partnership-building, and fourth-wave museum experiments in interactive technology transfer.

It is important to note here that this rendering of history is by no means complete. In seeking both absences and moments of contestation, I have found that there is no single way to tell the stories of these spaces in all their myriad detail. On a practical level, this has meant that by focusing on certain themes (such as recorded instances of sociotechnical experimentation, and lesser-known community histories) over others (from the education policies of museums to interactions between makerspaces and schools), my rendering of the determinants of these histories has inevitably omitted other determinants which impacted on the form and function of these spaces. This chapter also illustrates how while the proposed waves do constitute a general progression, they have also emerged at uneven moments, propelled by unexpected offers of institutional funding, new collaborators, and complex needs that have manifested themselves and shown their influence in different ways in different temporal moments. A few first-wave media labs like SPACE Studios in London, for example, may continue to co-exist in the current day alongside the collections makerspaces of this study, but it can also be argued that they might be best-placed within the fourth wave of makerspace progress by virtue of their increased institutional partnerships and evolving priorities<sup>26</sup>. As a result, several of the hybrid spaces depicted in this thesis are experiencing the developments of many waves at once, and may defy the organisation and sequencing of events in this chapter altogether. In the next chapter, I will explore the nature and impacts of these interactions and multiplicities in further depth by establishing the conceptual frameworks that will help me examine the hybrid spatialities – and power relations – that are produced by experimental spaces which exist within institutional territories.

<sup>26</sup> While SPACE would not necessarily call itself a shared machine shop, it shares many characteristics with first-wave SMSs. It has taken many forms since it was opened in 1968 by a collective of artists, and now runs 19 studio sites across 7 neighbourhoods in London, as well as a public space which is used for its digital programmes (SPACE 2017).

## 3. A framework of space and power

### 3.1 Introduction

*"Power structures everything: Relations between the sexes, between social groups, between capital and labour. How do we assert it - or defy it?"*

- Matthew Sweet, *The Economist*, 2019

In this chapter, I turn to the contingent relations of power and space that constitute the practices of what I have termed collections makerspaces. In doing so, the aim is to build a conceptual framework that enables me to view how the 'spaces' of institutional spaces are constructed. This space-making is understood as both a product of the power relations of the institutional environment of each space and its host, while also in a process of continual flux based on the evolving needs of those who are involved in it. To start to explore these kinds of institutionally-situated relations of power and space, this chapter examines key perspectives from two related fields of conceptual inquiry. The first field portrays power relations as central to social practice, and the second portrays space as central to social practice. In the case of many of the theorists referenced in this chapter, most notably Doreen Massey, Stuart Hall, Henri Lefebvre and David Harvey, these fields have been interwoven to discuss space-making *itself* as a form of power.

This chapter progresses as follows. In the first part of the chapter, I take a look at how the practices and power relations of institutional spaces are intertwined. In particular, I examine how their social practice is associated with the mechanisms of institutional power relations and discourses, as discussed in the classic works of Michel Foucault (1980; 1975), Antonio Gramsci (1971) and Stuart Hall (1973, 2002, 2005; 2013). In the second part of the chapter, I look at the mechanisms of space itself as a socially productive and relational force. Working from the spatial triads of Lefebvre ([1974] 1991) and Harvey (1994, 2004), the critical contestations of Doreen Massey (1994, 2005, 1992, 1993), and an additional framing from Rob Kitchin and Martin Dodge (2005; 2011), I introduce the six conceptual frames that will help me explore how the particular spatiality of the field sites examined by this thesis is produced through their relations.

Together, these explorations of space and power make up the conceptual framework that grounds this thesis, which is derived from the work of theorists who conceive of space as a dynamic process of co-production. This process, I will argue, is rooted in heterogeneous social and material practices, which may be both limited by, and at the same time resistant to, the processes of dominance and power with which they are in negotiation.

### **3.2 Power as a process**

In this section, I begin by examining Michel Foucault's theory of 'power/knowledge' (1980; 1975) to explore how domination can be maintained not through force, but instead through the discursive mechanisms of social relations. I will then work with the concept of cultural hegemony as discussed by Antonio Gramsci (1971) and redeveloped by Stuart Hall (1986, 2002; 2013) to understand how power can be maintained through consent, where the ideologies (ideas, beliefs, values and norms) of a society's dominant groups are disseminated in such a way that they appear to be common sense. By integrating Hall's encoding/decoding theory (1973), I will examine how such ideologies can be embedded into mass cultural texts, and how these communications can be not only reinforced but also subverted by consumers who choose to become 'producers' by engaging in both passive and active modes of participation (Bruns 2008, 2014). This will help me examine power both as a set of processes, and as a socially productive force.

#### ***Power exercised through knowledge and discourse***

Michel Foucault (c.f. 1990, 1975) has described how power can be manifested through a variety of techniques, namely those of discursive practices and social relations. "There is no power relation without the correlative constitution of a field of knowledge," he has stated, "nor any knowledge that does not presuppose and constitute at the same time power relations" (1975, 27). Foucault deployed the term 'power/knowledge'<sup>27</sup> in particular to reveal how certain knowledges are suppressed,

<sup>27</sup> While I will not be able to do justice to the complexity of Foucault's works on histories of sexuality here, I will note that he did introduce a third 'shift' of thinking in relation to power in addition to that of power/knowledge in Volume 2 of *The History of Sexuality* – that of the subject. "After first studying the games of

while others are produced, as a form of power – signifying how the dominant discourses of a society, from its scientific inquiries to its rule of law, come to be seen as common sense. Because a form of knowledge is expressed through corresponding practices and social relations that further reinforce its claims, Foucault argued, it “not only assumes the authority of 'the truth', but has the power to make itself true. All knowledge, once applied in the real world, has effects, and in that sense at least, 'becomes true' (1975, 27). In this reading, the discourses or ‘games of truth’ of a society are expressed everywhere and can be seen in everything, because they are manifested and reinforced through social relations. While the omniscience of these mechanisms of power may feel restrictive, they are not necessarily only repressive, because they can also lead to the production of new social realities and regimes of truth. In this continual capacity for production, Foucault argued, there are also possibilities for contestation, where new discourses emerge.

Here, I can begin to understand the mechanisms of power as maintained through a process of continual negotiation. It is then valuable to ask not *who* happens to have power in any given moment, but instead what fields it is manifested within, and how these fields ensure a particular set of social realities are “gradually, progressively [and] materially constituted through a multiplicity of organisms, forces, energies, materials, desires [and] thoughts” (Foucault and Gordon 1980, 97). By viewing the power relations of different kinds of actors as rooted in social relations and historically contingent ideas that produce seemingly irrefutable knowledge and meaning (Adams 2017), this conception of power allows me to start to understand how the dominant discourses of a society come to reinforce the values, beliefs and norms of some groups over others. As Foucault has shown in his studies of how dominant notions of sexuality, morality, crime and madness have evolved over time (c.f. 1967, 1975, 1990), the nature of these relations is crafted, manifested and disseminated within a plurality of related fields, including (and often most prominently) those of institutional and state-endorsed environments.

truth [...] in their interplay with one another [...] and then studying their interaction with power relations, as exemplified by punitive practices - I felt obliged to study the games of truth in relationship of self with self and the forming of oneself as a subject,” he said (1990, 6).

An example of this perspective on power can be seen in the works of STS scholars who examine the ways that artefacts, like a digital device or an item in a cultural collection, can also be viewed as discursive subjects. Through their relations with other kinds of actors, it is argued, they too carry the agency to reinforce or undermine the “interpretive negotiation[s]” (Magaudda 2014, 66) of a society, and can even “format” (Law 2016, 32) it by interacting with its dominant narratives, texts and interactions. By reading webs of knowledge production in this way, Donna Haraway has argued, it may become possible to “reconfigure what counts as knowledge” (1994, 62) by providing alternative perspectives to those that are dominant. Wiebe Bijker and Trevor Pinch, for example, have correlated the development of simple machines like bicycles with their relations with, and contestations to, prevailing social norms (W. Bijker 1997; W. E. Bijker, Hughes, and Pinch 1987; 1984, 1984). Judy Wajcman's studies of time as a social construct, meanwhile, discuss how dominant concepts of temporality are both supported and resisted through the ways individuals use digital technologies and experience gender, race and class (MacKenzie and Wajcman 1999; Wajcman 2013, 2014).

### *Power exercised through cultural hegemony*

Another understanding of the ways power can be maintained through social relations can be found in Antonio Gramsci's concept of ‘cultural hegemony’. Gramsci developed a new way of understanding how the relations between material conditions, social relations and consciousness were intertwined, and how they could be manipulated.

Informed by his experiences with the rise of fascism in 1920s Italy amongst peasants and other workers despite the efforts of cultural Marxists and other anti-fascist political parties to win their support<sup>28</sup>, Gramsci believed that for revolutionary action to be successful, it was first necessary to build a new consciousness by winning the minds of the masses through the mechanisms of ideology, or the system of ideas, beliefs, values and norms used by individuals to

<sup>28</sup> As a member of Italian Parliament, Gramsci tried to build a united front across party lines before he was thrown into prison by Mussolini, where he remained for the rest of his life. In prison, he observed that orthodox Marxism, in viewing a socialist revolution as inevitable, had been unable to explain popular support for fascism amongst workers (Dworkin 2015). The explanation for this, he believed, had to move beyond purely economic, material or political concepts of power to address the importance of culture and history to the consciousness and consent of the masses (Girling 1984).



conceptualise their world. In his classic neo-Marxist text *The Prison Notebooks* (1971), Gramsci argued that the ruling classes of Europe maintained control by manufacturing ‘spontaneous consent’ for their own cultural hegemony, his term for strategies that disseminate the ideologies of a dominant group to the masses so that they seem like common sense. Under cultural hegemony, ideology can be, systemized through the continuous re-creation of symbols using various mediums, from artistic and written works to unions, political parties and cultural institutions (Adamson 1983; Lears 1985).

The cultural theorist Stuart Hall in particular has portrayed these concepts as always ‘in thought’, using concepts like money and freedom to describe how ideologically disseminated metaphors enable social actors to “represent to ourselves and to others how the system works” (Hall 1986, 39). Instead of these metaphors being fixed or pre-ordained, however, Hall also highlights Gramsci’s emphasis of a ‘war of position’ – the terrains of struggle under which such concepts are articulated. By viewing the consent of ideology as “always divided and ambiguous” (Lears 1985, 570), a Gramscian reading of power reinforces the possibilities for counter-hegemonies to also emerge, enabled by the “contradictory consciousness” of subaltern (or subordinated) groups, who choose at different moments to either adopt or resist the status quo (Gramsci 1971, 326–27).

Another key element of a Gramscian perspective on power relations is an emphasis on the roles that can be played by individuals who are called ‘organic intellectuals,’ or organisers from subordinate groups who may be able to replace a society’s dominant cultural scripts by "renovating and making ‘critical’ already existing activit[ies]" in order to foster alternative conceptions from within those discourses (Q. Hoare 1971, 331; Reed 2013, 564). This possibility for contention at the heart of even the most hegemonic of systems is perhaps the most powerful of Gramsci’s claims, as it suggests possibilities for the ‘renovation’ of the seemingly iron-clad discourses of social infrastructures like cultural institutions through the practices of those who interact with them.

### ***Power exercised through media interactions***

An important aspect of these kinds of negotiations is their potential to not only reinforce or resist the discourse of dominant ideologies, but also to transform them. By developing an ‘encoding/decoding’ model of communication in collaboration with the Centre for Contemporary Cultural Studies (CCCS) in Birmingham in the 1970s, Stuart Hall has suggested an approach to these interactions which examines the delivery and absorption of cultural texts in particular, an example being the delivery of mass media circuits like those of television programmes.

In order to observe a more “complex structure in dominance” (Hall 1973, 91) in these relations than other send-and-receive models which portrayed mass media audiences as passive consumers, Hall and his colleagues examined how the discourse of cultural texts, which encoded the ideologies of their producers and were therefore ‘imprinted’ with institutional power relations, were translated into social practice. While the social parameters and conditions that structured these relations did tend to reproduce hegemonic patterns of domination, they argued, there was no guarantee that audiences would interpret or ‘decode’ encoded messages according to the terms of their producers.

Viewers might take a ‘negotiated’ position to a text, for example, by engaging in both preferred and resistant decodings of its intended message based on their own contexts, or an ‘oppositional’ position where they chose to reject the preferred “map of social reality”(Hall 1973, 98) that had been embedded into it according to the logics of its producers. These findings enabled Hall and his colleagues, most notably David Morley<sup>29</sup>, to argue that while audience readings of cultural texts were constrained by the knowledge frameworks of their social class and experience, the ways they decoded ‘preferred’ textual meanings could never be completely controlled.

By examining how the ideologies disseminated by a society’s dominant groups help them retain power while also stressing the uncertain outcomes of these relations, Hall’s later work on the nuances of cultural hegemony and reception (Hall 2002, 2005; Hall, Massey, and Rustin 2013) engaged in deeper explorations of how the

<sup>29</sup> Morley’s ethnography of audience interpretations of the television magazine *Nationwide* (Morley 1980) provided one of the first empirical studies to use the encoding/decoding model in practice, and it also complicates Hall’s model by finding evidence of dissent amongst the decoding practices of those who were a part of the same class groups.

“new forms of consciousness, new conceptions of the world” (Hall 1986, 29) precipitated by subordinated groups that had originally been referred to by Gramsci could emerge not only through the processes of decoding, but also through new forms of social practice.

It is Hall’s portrayal of consumers as ‘active’ producers of meaning, however, that is perhaps most applicable to the present-day settings of cultural institutions. My perspective on the productive aspects of media interactions has also been informed by more recent examinations of encoding/decoding theory that have made it more applicable to interactions between digital media and their users (Shaw 2017), and between museums and their audiences (Stylianou-Lambert 2010; Rectanus 2002). However, here my interest lies not only in the ways that users of collections makerspaces decode or consume the meanings embedded within a cultural collection, but also how their subject-positions as active producers may be negotiated. It is here that opportunities can emerge for re-articulation. As Hall has discussed in his critique of binary utilisations of the term ‘popular culture’ to describe cultural forms consumed by the masses as opposed to the ‘high’ cultural forms of cultural institutions: “Popular culture is neither, in the ‘pure’ sense, the popular traditions of resistance to these processes [of hegemony]; nor is it the forms which are superimposed on and over them. It is the ground on which the transformations are worked” (Hall 1981, 229).

By examining the ways in which power can be exercised through the mechanisms of discourse, cultural hegemony and media interactions, my aim with this section has been to build an understanding of how the practices of experimental spaces within institutions are articulated by the social relations around which they are situated. These relations may be imbued with mechanisms of dominance and control, but they also need not be viewed as static. Instead, they can be understood as embedded in dynamic processes of consent and dissent, which are always being renegotiated and which in certain cases can lead to a transformation of the very conditions under which such relations have emerged. In the next section, these theoretical understandings of power as a process will be woven into a series of conceptual frames which will be used to examine how the particular relations of the field sites of this thesis are constituted not only through practices, but also through their production as hybrid institutional spaces.

### 3.3. Space as a process

I will now introduce the critical theories of space from cultural geography and anthropology that I will work with to explore the dynamics of institutional spaces, which enable me to perceive of space, like power, as a process. Tensions between consent and resistance are portrayed as key to the production of space, just as in power relations. This perspective is particularly evident in the spatial triads of Henri Lefebvre ([1974] 1991) and David Harvey (2004, 1994). In this section, I will combine the frameworks of these two triads with more dynamic concepts about the social organisation of space that have since been developed by Doreen Massey (1993, 1992, 1991a; 2013; 1994), Arjun Appadurai (1990, 2010, 1996), Edward Soja (1996, 1989), and Rob Kitchin and Martin Dodge (2005; 2011; 2009). I will do this by engaging with six separate yet co-producing spatial frames (material space, relative space, representational space, relational space, lived space, and ontogenetic space) which combine Harvey and Lefebvre's triads with the critical reworkings of Massey, Appadurai, Soja, Kitchin and Dodge. This will allow me to produce an account of space that is rooted in both tensions and opportunities.

#### *Conceptualising space*

Before I begin, I want to first articulate my particular reading of space in this thesis, so it is clear why I have chosen to conceptualise it as something that also encapsulates place. Definitions of 'space' and 'place', and their relations with time, have been, and continue to be, variably characterised according to evolving perspectives of the spatial across disciplines and cultures (Hubbard 2005). The way I define space thus cuts across several of these traditions by adapting geographer Doreen Massey's notion of it as an "ongoing production" (2005, 55) that is both material and abstract in form, emerging dynamically from social relations and connected to the multiple histories and senses of place that have produced it. This means I can understand the 'spaces' of the field sites of this thesis as overlapping "envelopes of space-time" which are continually enacted, contested and rearticulated (de Certeau 1984; Harvey 1973; Lefebvre [1974] 1991) in relation to 'power-geometries', or uneven differentiations of spatial mobility and access that

affect the ways that social groups experience the same space as many different kinds of places according to their own contexts and experiences (Massey 1993, 1994, 5). Here, space and time are intimately connected, and space becomes a series of layers, a “pincushion of a million” of individual places and their stories. By viewing the spatial as not only space but also time, Massey has argued, the places of a space emerge as “a particular articulation of [the social relations of] a particular moment [...] such a view of place challenges any possibility of claims to internal histories or to timeless identities. The identities of place are always unfixed, contested and multiple” (1994, 5).

This depiction of space as an evolving moment in time, made up of multiple relations and layers of meaning that determine how we perceive of and experience it as a series of places, reflects the perspectives of a wider legacy within the social sciences and humanities that has been referred to as the ‘spatial’ or ‘topological’ turn, (c.f. Campbell 2018; Phillips 2013; Withers 2009; Ek and Tesfahuney 2013), a series of debates that emerged to contest absolutist geographic inquiries that depicted the earth as a blank canvas which could be objectively measured through scientific, statistical approaches<sup>30</sup>. These contestations can be described as ‘materialist’ (Hubbard 2005), because instead of following the assertions of naturalistic or humanistic spatial traditions that depict places as distinctive and bounded, they perceive of space as socially produced and consumed<sup>31</sup>. In this reading, place is a core *enactment* of space, exercised through relational practices like naming, territory-defining and the sharing of imaginaries.

Materialist spatial theory also echo the assertions featured earlier in this chapter by describing the spatial organisation of social relations as another way in which power can be exercised (Seamon and Sowers 2008). Thus, while an institutional space can be understood as constructed out of many intersecting flows of place-

<sup>30</sup> The ‘spatial turn’ has been variously described as the moment when a general consciousness of the effects of advances in communication technologies and a perceived decrease in distance between places lead to a ‘collapse’ in the assuredness of scientific, naturalistic spatial theory, allowing new conceptualisations of space to emerge. Dodge and Kitchin (2005) have argued that was not until this moment that absolute spatial ontologies, codified through the schemas of engineers and mappers and the discourses of Euclidean geometry (a grid with x, y and z dimensions), were questioned.

<sup>31</sup> Humanistic spatial theory is influenced by the traditions of phenomenology and existentialism, and stresses the importance of personal, sensual experiences of place, examples being Yi-Fu Tuan’s (1977, 1976, 2010) work on place, experience and ‘fields of care’; Edward Relph’s (1976) call for a ‘phenomenology of place’ which emphasised bodily experience as a primary mode of knowing; and Tim Ingold’s (1993) claim that places are timeless ‘living landscapes’.

based experience and history that define how people envision and interact with it, this thesis additionally explores the structural processes<sup>32</sup> that limit those relations. By structural processes, I refer simply to the systematic inequalities that lead to various forms of social and spatial stratification, which include variables such as race, class, gender and ethnicity that structure and reinforce such relations. The aim here is to observe both the nature of these kinds of limitations, and also how institutional spaces may be situated “within globalizing processes while not being subjugated to them” (Kitchin 2016). In the next section, I will introduce the six spatial frames that provide me with a mechanism for exploring the spatial organisation of collections makerspaces in further depth.

### ***Introducing the spatial triads of Harvey and Lefebvre***

My inspiration for working with six separate yet connected spatial frames of analysis comes from the Marxist geographer David Harvey’s article ‘Space as a key word’ (2004). In this foundational text, Harvey describes one of the key mechanisms for examining the socially productive aspects of space that he has used in his career: A three-by-three matrix or “tripartite” of spatial frames which combines the processes of the spatial triad introduced by Henri Lefebvre with a new triad customised to his own spatial analyses.

The Marxist philosopher Henri Lefebvre’s work on space was intertwined with his experiences with radical movements like the 1968 student revolts of Paris and avant-garde artist collectives like the Situationist International and the surrealists. Working from his famous assertion that “(social) space is a (social) product” in key texts like *The Production of Space* ([1974] 1991, 26), Lefebvre explored how the production of planned spaces reinforced alienation as a result of ruling class hegemony under capitalism, yet could also facilitate a politics of struggle. Because of the contradictory nature of spatial processes, he argued, there was always the possibility to ‘reclaim’ urban space from the machinations of dominating groups like city planners through the “everyday utopianism” (Gardiner 2004, 228) of organic action as discussed in texts like *The Right to the City* (Lefebvre 1968). For example, despite the “inherently violent” ([1974] 1991, 387)

<sup>32</sup> Here I refer simply to the systematic inequalities that lead to social stratification, and include variables such as race, class, gender and ethnicity which structure and reinforce these relations.

city planning of Paris, which he believed served the interests of the political establishment by projecting security and order, Lefebvre argued there was an “acute contradiction” ([1974] 1991, 386) in the responses of other actors (for example, the students, artists and intelligentsia who participated in the 1968 revolts), who reinforced instability by precipitating various forms of reconstitutive resistance.

Lefebvre explored tensions like these through a triadic model of three distinct but co-producing processes or ‘forces’ that included social thought, social action and social creativity, a three-dimensional update of Hegelian and Marxian dialectics that he called ‘trialectic’. Christian Schmid (2008, 33) has explained how while Hegelian (thesis-antithesis-synthesis) and Marxian (affirmation-negation-negation of the negation) dialectics position two contradictory terms that are then ‘sublated’ or negotiated through a third term, Lefebvre’s triad situated all terms in three-dimensional, two-way interaction without necessarily being reconciled through synthesis. As a result, all three terms in a Lefebvrian perspective are deemed to be of equal importance. He used this trialectic not only to analyse the instabilities and contentions inherent in the production of space (specifically through the three competing forces of ‘material space’, ‘conceived space’, and ‘lived space’, to be examined later in this chapter) but also those of other social processes, including theories of language (Schmid 2008) and economics of environmental degradation (Molotch 1993). Here, however, my interest lies in Lefebvre’s application of his trialectic to space-making in particular.

David Harvey’s diverse body of work as a geographer has also been inspired by Marxist materialism, but for him the primary question has been to determine how the processes of theorists like Lefebvre apply to organisations of space that address social injustice. In foundational texts like *Social Justice and the City* (1973) and *The Limits to Capital* (1982), Harvey has both developed and complicated Lefebvre’s claims, calling for more intricate conceptualisations of emerging urban and global processes that offer new possibilities for social and environmental justice. In later texts like ‘Space as a keyword’ (2004), Harvey describes how he examines different phenomena of spatial relations through a customised three-by-three ‘tripartite’ matrix, which combines the three frames of Lefebvre’s triad with a new triad which additionally includes the processes of ‘relative space’, ‘relational

space’ and ‘absolute space’. This turns Lefebvre’s triadic into a mental map that is both less restrictive and more contextual (Charnock 2014, 314).

Instead of agreeing with Lefebvre that the production of a space emerges “only in the interplay of all three” (Schmid 2008, 43) frames occurring simultaneously, Harvey argues against the “arbitrary” (1973, 13) application of such rules in his tripartite, stating instead that the application of spatial models should vary depending on the circumstances of study. In discussing which of the frames of his own spatial triad he would use to examine the phenomenon of Ground Zero in New York City, for example, he has stated: “The absolute conception [of space] may be perfectly adequate for issues of property boundaries and border determinations, but it helps me not a whit with the question of what is Tiananmen Square or Ground Zero [...] I find it far more interesting in principle to [...] think the interplay among them. Ground Zero is an absolute space at the same time as it is relative and relational in space-time” (2004, 6).

### ***Exploring the production of space through six spatial frames***

In the rest of this chapter, I will work from Harvey’s modified tripartite to see how the six spatial frames it offers can be applied to institutional spaces in particular. I will do this by discussing the theoretical perspective and tensions suggested by each frame. In doing so, my aim is to build an account of the production of space that helps me think about these kinds of spaces not only through their physical infrastructures, but also as systems which are constructed out of the relations of many different kinds of forces.

To customise this inquiry to the hybrid circumstances of the field sites of this thesis, I have modified Harvey’s suggested tripartite in two ways. First, while I do attribute each frame to the legacy of one or a few theorists in particular, I have also woven in addendums and contestations from other related social theories that enrich its perspective. This has led to some incongruencies. For example, while I discuss Doreen Massey’s concept of ‘power geometry’ as part of what I refer to as David Harvey’s ‘relational space’ frame, the notion of ‘relational space’ has by no means been invented by Harvey, and as a concept regularly activated by cultural



geographers, it has been discussed often by both Massey and Harvey despite their many other disagreements<sup>33</sup>.

Second, while I work with the three spatial frames of Henri Lefebvre's triadic ('material space', 'representational space', and 'lived space'), I only engage with two of the spatial frames he has suggested ('relative space' and 'relational space') and replace his 'absolute space' frame with an alternative frame, 'ontogenetic space'. This frame has been drawn from the work of geographers Rob Kitchin and Martin Dodge (2005; 2011) on the roles played by software in transforming spatial production, and in addition to being less oppositional to the perspectives of the other frames I work with than 'absolute space' is<sup>34</sup>, the frame is more directly applicable to the settings of digitally-mediated spaces.

By modifying Harvey's trialectic to make it even more flexible, I also aim to move beyond what has been described as the too-narrow focus of dialectic (and triadic) models and their tendency towards materialist determinism by allowing the frames to be materialised with more modularity to fit the evolving relations of hybrid spaces (c.f. Charnock 2014; Löw 2008; Unwin 2000). Harvey himself has pointed out the limitations of adhering strictly to his three-by-three matrix model, by noting that focusing on the tensions between frames requires taking a "speculative leap" (2004, 10) which may "confine representation to an absolute space" (2004, 10). I will now discuss each of the six frames that I will use to explore the spatial organisation of institutional spaces in turn, which have been organised according to their level of theoretical abstraction.

### ***Frame 1: The everyday interactions of 'material space'***

The first frame which makes up Lefebvre's triad, which has been variably referred to as 'material space', 'perceived space' and also 'spatial practice', looks at the

<sup>33</sup> One of many examples of the adversarial relations between Harvey and Massey can be seen in Massey's article 'Flexible sexism', which critiqued Harvey's "supposed universal of the white, male, heterosexual" (1991b, 31) in his work with regards to its subjugations of issues of gender and ethnicity to capital. Harvey responded that "she has since found that feminism is a much more convenient stick to beat on me with, so she has switched to that track" (1994, 132).

<sup>34</sup> As argued previously in this chapter, the assumption of an 'absolute space' is that space is a distinct, immovable entity that can be codified, measured and logged objectively through scientific methods (Rynasiewicz 2014). Thus, this perspective stands in direct opposition to those of the other five frames used to examine spatial organisation.

material dimensions of everyday social activities and interactions, and how these relations facilitate individual experiences of spaces through sensory perception. This frame provides my inquiry with the least abstracted perspective of the six frames offered, by helping me take a look at the ways that the spatial organisation of institutional spaces may affect the constitution of their more mundane routines. Harvey defines material space as “quite simply the world of tactical and sensual interactions with matter” (2004, 5) while Lefebvre described how it reveals the close association “between daily reality (daily routine) and urban reality” ([1974] 1991, 38). Taking a look at the everyday spaces of social interaction that are deemed appropriate for work, leisure and private life, Lefebvre argued, reveals where the “extreme separations” ([1974] 1991, 38) of alienation (in his case, due to capitalism) exist. “We may not even notice the material qualities of spatial orderings incorporated into daily life through deep familiarities and unexamined routines,” Harvey states, “yet it is through those daily material routines that we [...] build up certain spaces of representation for ourselves” (2004, 8).

By applying a ‘material space’ frame to the organisation of an experimental space within an institutional environment, I can start to examine the rituals and routines that occur in the space which may not seem notable at first, but on longer look reveal the flows of more complex externalities and connections. When exploring what this framework can tell me about the habitual practices of a space like the Tate Britain, however, it is also important to avoid what has been perceived of by some as a “subordination of the everyday” in Lefebvre’s triad (Felski 2002, 608). By situating routine spatial activities as unreflective, as opposed to the more evocative outputs of aesthetic spatial expression, it is argued, a sense of elitism against those who live and work in the everyday can all too easily be cultivated. One way to combat this is to recall the three-dimensionality stressed by Lefebvre, who worked to illustrate how the routines of ‘material space’ could allow the more creative and transformative interactions of ‘lived space’ to be fostered so that possibilities for small contestations could emerge, “everyday utopias” (Gardiner 2004, 229) that reinterpret how even the most routine of spaces are negotiated.

## ***Frame 2: The multiple geometries of ‘relative space’***

Relative spatial ontologies can be traced to 1915 with the emergence of Albert Einstein's theory of general relativity, which refuted the absolutist claims of other physicists who had claimed that space and time were separately occurring entities (Born 1962). For Harvey, however, the activation of a 'relative space' frame offers two valuable options for observing spatial relations with. First, he argues, it reflects the "multiple geometries from which to choose" to perceive of a space, and second, its perspectives "depend crucially on what is being relativized, and by whom" (2004, 3). Instead of perceiving of a space like Tate Britain as fully individuated, it thus becomes possible to perceive of the "multiplicity of locations" (2004, 3) that constitute it, and examine how these locations are warped and logged according to the relative positions of local and global topologies.

Harvey is careful to note that a 'relative' spatial frame still perceives of spatial organisation as something that can be controlled and observed, as seen in how this frame has been utilised in science and physics research as a way of understanding how space exists relative to other forces as a measurable entity. Nevertheless, he argues, it can still be useful to apply the frame with regards to specific spatial circumstances, for example in observing the exchanges of capital utilised by large institutions to address the frictions associated with distance, which can result in movements of goods, people, information and services across space. This speeding-up of relational processes has been referred to by Harvey in other works as 'time-space-compression' (1982, 1994), the details of which will be discussed further alongside the 'relational space' frame.

### ***Frame 3: The plans of 'representational space'***

Lefebvre's 'representational space' or 'conceived space' frame focuses on the ways space is disseminated through knowledge production. This can be seen both in the ways it is defined and described as 'space', and also in how it is represented through physical forms, for example through images, models, maps, designs, signs and acts of resistance such as public artworks or street demonstrations.

Representational space, Lefebvre has stated, is produced by "scientists, planners, urbanists, technocratic subdividers and social engineers, as of a certain type of artist with a scientific bent – all of whom identify what is lived and what is perceived with what is conceived" ([1974] 1991, 38). This frame is intertwined with

power relations, he has argued, because representational features typically reinforce the perspectives of dominant ideologies. The influence of ideology can be observed by taking a look at how a space has been planned and developed, and how those ways change over time. The social theorist Michel de Certeau, for example, has described how a map is not an objective depiction of an absolute reality but instead a “totalizing device,” which depicts its own version of a topographic “symbolic order” that “colonises” space by homogenising its practices (1984, 120–21)<sup>35</sup>.

“Representational space is alive”, Lefebvre has declared ([1974] 1991, 42), because it “intervenes” in everyday life by modifying the “textures” of spatial relations, in doing so playing a key role in influencing the production of space. The ways that space and time are represented in the dominant discourse of a society, Harvey has argued, are important, because these expressions are instrumental to how people experience the spatial and temporal in their daily lives<sup>36</sup>. One of the most visible ways this frame is expressed is through architecture, which can be perceived not only as material constructions but also as a series of symbolic projects, dialogues with the prevailing cultural aesthetics and beliefs of their time that either reinforce or challenge what is deemed meaningful to society. By engaging with the ‘representational space’ frame in association with the ‘material space’ frame, it also becomes possible to observe how the “abstract representations” (Harvey 2004, 6) of design interventions affect not only how different groups engage with spaces through social practice, but also how social practice in turn informs their spatial representations. By observing the plans for Tate Britain created by its architect Sidney R.J. Smith, for example, which were initially rejected as too “pretentious” (Tate Archive 2003, n.p.), I can explore Tate’s nationalistic obligations as a gallery that was originally intended to be dedicated to British artworks, its spatial textures intertwined with its role as a discursive mechanism of the state.

#### ***Frame 4: The interactions of ‘relational space’***

<sup>35</sup> Certeau is not alone in describing how maps represent the dominant discourses of the time. Both Harvey and Certeau, for example, have described how medieval maps emphasised “sensuous rather than rational and objective qualities” (Harvey [1989] 1992, 241–43) of spaces which also “fixe[d] and reifie[d]” (de Certeau 1984, 120–21) subjective views as fact.

<sup>36</sup> “The oceanographer/physicist swimming among the waves may experience them differently from the poet enamoured of Walt Whitman or the pianist who loves Debussy”, for example (Harvey 2004, 8).

‘Relational’ spatial ontologies regard space as its own kind of reality which is produced through social relations (Harvey 1994, 2004; Hugget and Hoefler 2018). This frame can be traced to the critical reworkings of materialism that emerged with the spatial turn in the 1970s as explained earlier in this chapter, with theorists asserting the centrality of space-making to society and arguing that the spatial organisation of society emerged not through the inalienable qualities of locations on a map, but instead through human interactions. A core theme for theorists who work within a relational spatial frame has been an attempt to describe the ways that space, time and distance may be differently negotiated as a result of technological innovations, bringing about transformations that affect social and economic relations (Dodge, Kitchin, and Zook 2009; Graham 2015; Hubbard 2005; Kitchin and Dodge 2011; Massey 1993; Thrift and French 2002).

The anthropologist Arjun Appadurai’s (1990, 1996, 2010) meta theory of ‘global cultural flows’ or ‘scapes’ is an example of one such attempt to articulate the cultural dimensions of globalised space using a relational space frame. Appadurai describes what he sees as an accelerated, placeless present resulting from the “speed and spread of the internet and the simultaneous, comparative growth in travel, cross-cultural media and global advertisement” (2010, 4). This ‘explosion’ of traffic in information and commodities makes the spatial organisation of the present-day radically different from that of past societies, he argues, causing unprecedented disjunctures and unpredictabilities in cultural and social economies. He describes local senses of place as replaced with the chaotic flows of five global ‘scapes’: Ethnoscapes, mediascapes, technoscapes, financescapes and ideoscapes (1990, 298). Together, these flows form a new kind of cultural-spatial interactivity that Appadurai refers to as the ‘social imaginary’, which supplants older models of local acculturation and nationhood because each scape carries within it multiple co-existing realities which constitute new subjectivities, with local places becoming no more than “temporary negotiations between globally circulating forms” (Appadurai 2010, 13). For example, a group of Afghan refugees selling small gifts in the streets of Thessaloniki form a global node within an ‘ethnoscape’ even as they are disconnected from the capital flows of global ‘financescapes’ (Kokot 2006).

Appadurai's assumption that placelessness is the outcome of his flows framework is problematic, however, because this fails to acknowledge that flows also constitute and reproduce local geographic entities (like borders). Similarly, his emphasis on the novelty of present-day flows, while neglecting the existence of other kinds of flows that have existed throughout history, has been rightly criticised (Heyman and Campbell 2009). His neglect of class considerations and his continued derision of Marxist and neo-Marxist models of social practice, meanwhile, positions his concept of space in opposition to that of many of the other social theories referred to in this chapter. This being said, looking at museum spaces as nodes, where a multiplicity of flows (from ethnoscapas to technoscapas to financescapas) meet and circulate, can provide insight on how such interactions may also bring about unpredictable productions of localised space.

Harvey's theory of time-space compression (1994, [1989] 1992), which he developed to address how societal relations seemed to be increasingly 'stretched' across time and space while distances 'shrink', has been another attempt to work with a relational space frame to understand how spaces evolve through uses of new technologies. This theory views space as 'warped' by an acceleration of economic processes (like the flow of capital) associated with technological innovations (like the steam engine<sup>37</sup>) which reduce spatial barriers (like distance and time). Here, Harvey has been influenced by Marx's description of an "annihilation of space by time" in *Grundrisse* (Marx [1939] 1973), which portrayed how the technological innovations that led to reductions in spatial barriers also became vital to capitalist accumulation<sup>38</sup>. By perceiving of space as socially constructed from temporally-situated relations, while also associated with asymmetries of power according to material processes, Harvey's concept of time-space compression places the frame of relational space in tension with that of material space.

Doreen Massey, meanwhile, heavily critiqued the premises and assumptions of time-space compression (1991b, 1992, 1993, 1994, 2005). While she agreed that

<sup>37</sup> The historian Wolfgang Schivelbusch has written about how the introduction of the steam engine in the 19th century (as manifested through railroads) destroyed the traditional space between points of travel in such a way that the prevailing sense of distance between places, rooted in an "isolation of localities", was lost, rendering animal-based transportation "hopelessly anachronistic" (Schivelbusch 1977, 45; as cited in Warf 2011).

<sup>38</sup> "The more developed the capital [...]" Marx wrote, "the more extensive the market over which it circulates, which forms the spatial orbit of its circulation, the more does it strive simultaneously for an even greater extension of the market and for greater annihilation of space by time" (Marx [1939] 1973, 464).

relations of space and time are socially constructed, and that relations of power are intertwined with such processes, she also argued that time-space compression needed to be differentiated through a more nuanced “politics of mobility and access” (1991a, 26). Massey expressed three main concerns. First, she asserted that compressions of space by time under a relational space frame cannot be effectively addressed without first acknowledging that transformations of mobility and access affect not only perceptions of space but also of place, and also that time-space-compression is by no means a new phenomenon. Claims that space is only speeding up and globalised in the present day, with place rendered obsolete (as Appadurai suggests) or that there was a past era where “places were (supposedly) inhabited by coherent and homogenous communities” (24) are nothing more than idealised notions, Massey stated, which all too easily give rise to reactionary and territorialist conceptions. Second, Massey argued that time-space compression should not be universalised, because it is not necessarily happening for everyone, everywhere, at the same time but instead in a variety of ways throughout history according to varying circumstances and conditions<sup>39</sup> (1991a). Third, Massey argued that despite capitalism being characterised as the main determinant of spatial relations, there are other social stratifications, like race, ethnicity and gender, that influence those relations in undeniable ways, for example the degree to which movement between nations or between streets in a city late at night is possible (1994).

To address these concerns, Massey provided an alternative conceptualisation of spatial relations under time-space compression, speaking instead of ‘space-time’ as a dimension constructed from uneven relations of power which reflect global-local multiplicities. She reinforced this view by introducing the concept of ‘power geometry’ as discussed earlier in this chapter, which was used to address the uneven differentiations of mobility experienced by social actors in relation to the flows and movements of space-time, which enables the control over mobility held by some groups and individuals to undermine the power of others (Massey 1993).

<sup>39</sup> "To what extent," Massey has asked, "does the currently popular characterisation of time-space-compression represent very much a Western, coloniser's, view? The sense of dislocation which some feel at the sight of a once well-known local street now lined with a succession of cultural imports - the pizzeria, the kebab house, the branch of the Middle-Eastern bank - must have been felt for centuries, though from a very different point of view, by colonised peoples all over the world as they watched the importation, maybe even used, the products of, first, European colonisation, maybe British [...], later US, as they learned to eat wheat instead of rice or corn, to drink Coca Cola, just as today we try out enchiladas" (1991a, 24).

She also developed the concept of a ‘progressive sense of place’ to articulate the places of a space not as static entities but instead as ongoing negotiations, “articulated moments in networks of social relations” (1991a, 29) which have many identities, the scales of which reach beyond the local and include the global.

By collaborating with other theorists like Stuart Hall (Hall, Massey, and Rustin 2013) to address the perceived imbalances of the structural processes involved in the workings of dominant political conjunctures and their effects on individual relations, Massey’s work, and its further developments by other geographers who have also used relational space frameworks to address the stratifications of digitally-mediated spaces in particular (c.f. Zook and Graham 2018; Kitchin 2016; Cardullo, Kitchin, and Di Felicianantonio 2018), has added valuable nuance to the perspectives of this frame by portraying space as contextual, uneven and highly personal. The influence of these kinds of refinements can also be seen in Harvey’s later thoughts on how social constructions of space can be intertwined not only with capital, but also with culture and ethnicity (1994, 2004). By viewing space as made up of many senses of place, which correspond to patterns of geographic centrality and peripherality that characterise individual experiences, this frame enables me to start to perceive of the myriad multiplicities that are expressed through, and in turn determined by, the relational elements of space-making.

### ***Frame 5: The imaginations of ‘lived space’***

The ‘lived space’ or ‘spaces of representation’ frame, which is at once the most abstracted and applied element of Lefebvre’s spatial triad, views space as both “real-and-imagined” (Soja 1996, 3), causing a tension between it and what Lefebvre describes as the co-producing forces of his other two frames (‘material space’ and ‘representational space’). Here, it is argued, space is typically experienced passively through the senses without much reflection, which can make it into either a space of domination (mediated, in Lefebvre’s case, by the ‘representational spaces’ that are planned and imposed under capitalism) or a space of imagination and daydreaming (Lefebvre [1974] 1991, 38).

This means in lived space there are always opportunities for appropriation, where the everyday environments of ‘material space’ can be overlaid by alternative spaces



of inspiration, where spatial objects are articulated evocatively in personal ways. Lived spaces, Lefebvre has argued, “need obey no rules of consistency or cohesiveness. Redolent with imaginary and symbolic elements, they have their source in history – in the history of a people” ([1974] 1991, 41). Because lived space “has no real”, the theorist Christian Schmid states, its primary outputs are symbolic works of expression, such as artistic creations, visions, fantasies and dreams (2008, 41). While Lefebvre’s triadic approach can otherwise be limiting to spatial inquiry in that it conceives of personal agency as restricted by the structural constraints of capitalism (Löv 2008), this frame allows for key contestations that undermine dominant discourses (and here Lefebvre’s approach echoes the work of Foucault, Gramsci and Hall on power earlier in this chapter) through alternative visions, enabling other kinds of spaces to emerge.

Schmid (2008) has described how the lived space frame was in part informed by phenomenology and Maurice Merleau-Ponty in particular, whose theory of the ‘lived-world’ described space as rooted in the authentic relationships of subjects to their world. However, Lefebvre also critiqued Merleau-Ponty for making personal ego-subjectivities the focus of lived spaces instead of social action. A key example of how this frame can be engaged with to explore the possibilities of spatial appropriation as its own kind of creative resistance can be found in Michel de Certeau’s text *The Practice of Everyday Life* (1984). Here, a distinction is drawn between ‘strategies’ (the plans of dominant groups to maintain control, as seen in representational space) and ‘tactics’ (the adaptations of subjugated groups in navigating their lived realities), which manifest themselves in myriad, unplanned ways through everyday spatial encounters.

In an especially influential chapter entitled ‘Walking in the city’, de Certeau described how the subjective ways in which “bodies, subjects and built environments are interlinked and enmeshed” (Morris 2004, 676) revealed urban spaces as performances of pre-existing scripts. The city is described as generated by the strategies of its ‘producers’ – corporations, planning bodies, governments and institutions – who depict it as a unified whole (here again we see the influence of representational space). The dominance of this discourse is continually challenged, however, by the everyday practices of ‘consumers’, for example the walker as *flâneur* or *flâneuse* (in French, ‘stroller’ or ‘loafer’) who steps off

formalised streets to discover their own pathways, in doing so building their own senses of city-as-place that are never fully determined by the machinations of others. This view of lived space positions the seemingly innocuous act of walking as one of resistance and subversion, as can be seen in the playful and tactical explorations of psychogeographers like the Situationists who so inspired Lefebvre.

Another articulation of the lived space frame can be found in the geographer Edward Soja (1989, 1996)'s notion of 'thirdspace', who like Harvey worked from Lefebvre's spatial triad to update the ways in which space could be produced through social practice. For Soja, spatial experience emerges through one of three scales which have been constructed as part of his own alternative triad, and which he claims can also exist independently: 'Firstspace', where space is perceived, compartmentalised and mapped; 'secondspace', where firstspace is disseminated, for example in art and media; and 'thirdspace', where all scales meet in flux, and space is actually experienced and reworked. Here, Soja diverges from Lefebvre's triad by situating thirdspace as a "space of radical openness" (1996, 84) which is also a fusion of the other two spaces. He refers to thirdspace as a kind of 'hyperspace', which has no temporal or physical boundaries because it is continually being rearranged through infinite pathways of possibility. This leaves opportunities, he argues, for the other two spaces of his triad to be transformed.

A key criticism of both de Certeau and Soja's models relates to the distinctions they situate between concepts. By setting up a binary opposition between producers and consumers, with one always in dominance and the other in resistance, de Certeau's conceptualisation of the 'arts of doing' remains limited. A more productive approach for the circumstances of institutional spaces is to perceive of these interactions as two-way "interfaces" (Morris 2004, 693), or contingent assemblages of actors who co-create, as will be seen in the works of Massey and Hall, and Kitchin and Dodge in the next section. Perhaps unsurprisingly, Massey also cited concerns with de Certeau's "romanticised" notion of power and resistance (2005, 45–47). The strategies of dominant groups are never as self-coherent or secure as he portrayed them to be, she argued, nor is power so easily removed from the 'everyday'. Instead of working with a dominance-resistance binary, she suggested activating a politics of transformation, which would "challenge the constitutive

relations which construct spaces in the first place” by reordering practices to be “more egalitarian, less exploitative, more mutually enabling” (Massey 2002, 285).

Soja’s reinterpretation of the triadic model is also limited in its positioning of the production of each spatial frame as fully autonomous from the others, instead of existing in simultaneity and tension as the triads of Lefebvre and Harvey have emphasised. It has thus been criticised for “not hav[ing] much in common with Lefebvre’s theory” (Schmid 2008, 42) because Lefebvre would argue a ‘thirdspace’ cannot be produced without the first and second spaces being produced at the same time in the dialectic relations of continual synthesis. Nevertheless, Soja’s activation of a ‘thirdspace’ that carries within it even more fluidity, flux and possibility than that of Lefebvre’s ‘lived space’ is helpful in that it points to the possibilities for power relations to be transformed through heterogeneous social practice, instead of merely contested.

### ***Frame 6: The technological relations of ‘ontogenetic space’***

It is here, amidst the possibilities of spatial objects that not only produce space, but also help transform it, that I suggest the inclusion of ‘ontogenetic space’ developed by the geographers Rob Kitchin and Martin Dodge (2009; 2005; 2011) as the sixth spatial frame to be engaged with in this thesis. This frame builds on the theories of the relational space frame, and also those of lived space, to examine the relations of digitally-mediated spaces in particular, which it views as emerging through a process of continual transformation which consists of the ‘transductive’ or making-anew practices of computer software and hardware in addition to the social relations of human actors.

The primary assertion of the ontogenetic spatial frame is that our everyday relations have become increasingly intertwined with, and mediated by, the interactions of technological actors. These actors may take on many different forms, from digital operating systems (from Windows to Linux) running on hardware (from laptops to Arduino microcontrollers), to ‘coded infrastructures’ (from wireless hubs to ‘smart’ devices) and ‘coded objects’ (from scanners to printers) (Dodge and Kitchin 2005). An ontogenetic frame thus views space as brought into being not only by human actors, but also by the hybrid relational

assemblages and relationships between humans and other-than-humans, which render binary oppositions between such actors problematic. While it can be argued that the representational space frame also acknowledges the value of other-than-human actors in the production of space (as seen through the power attributed to architectural elements of the build environment) the ontogenetic space frame moves beyond this by situating all actors in a state of relational interaction, co-creation and contestation – which results in the continual transformation of space itself.

Kitchin and Dodge's use of 'ontogenetic' has been derived from the term 'ontogenesis', or the biological development of a living organism over time based on its experiences. They argue that ontogenetic spaces emerge in particular through the processes of 'technicity', or the combined production of human and technological practices; and also through 'transduction', or the creation and re-creation of space through transformative and reiterative practices that change its conditions of being (Kitchin and Dodge 2011, 17). Kitchin and Dodge have described how the ontogenetic space frame is a contemporary operationalisation of the philosopher Gilbert Simondon's concept of 'technogenesis', or the theory that humans and digital technologies co-evolve. While technogenesis has influenced many key works in software studies and beyond (c.f. Fuller 2008; Haraway 2006; Hayles 2012; Latour 2005; Thrift and French 2002), the ontogenetic space framework is unique in that it addresses not only the emergence of hybrid relations, but also the hybrid *spatialities* that may also be co-constituted alongside these relations.

Ontogenetic space is viewed as "constantly bought into being as an incomplete solution to an ongoing relational problem" (Kitchin and Dodge 2011, 71). This enables the development of a variety of hybrid spatial forms, three of which are most prominent. The first spatial form is 'code/space', where software and space are mutually constituted and technological actors are essential to the production of the space, an example being a museum exhibit that entirely consists of digital artworks. The second form is 'coded space', where the relation between software and space is not co-dependent, because while digital technologies do provide a solution to the space's needs, they are not the only solution. Thus the role of technological actors in a 'coded space' is one of facilitation and augmentation,

rather than regulation or control (Dodge and Kitchin 2005, 173). An example of a coded space would be a museum workshop that involves a slideshow on a digital projector, which does affect the nature of its spatiality, but is not essential to its production as a space. The third spatial form is 'background coded space,' where interactions between digital technologies are either not activated, or are activated but do not affect spatial relations, for example a museum café that has limited technological capabilities and only allows the public to use laptops after lunch. Once the laptops are opened, the transduction of its space is altered, and becomes that of a code/space or coded space. By reconfiguring structural flows like that of global capital around the ongoing assemblages of interactions, transactions and mobilities that occur between diverse actors, an ontogenetic space frame asserts the mutually dependent and constitutive practices of co-production as a core determinant of spatial organisation.

### 3.4 Conclusion

In this chapter, I have introduced the conceptual framework that grounds the perspectives of this thesis, which has helped me develop an account of the space and power relations of institutional spaces as intertwined forces in their production, with space-making itself viewed as a form of power. This inquiry has also enabled me to perceive of the production of space as a co-constitutive process, which emerges not only from relations of space and time, but also out of the interactions and practices of human and other-than-human actors. The controls which stratify these relations (for example the dominant discourses of an institution's representational space) need not be viewed as set in stone; on the contrary, they can be understood as existing in a state of tension and continual co-evolution, the directions of which are negotiated not only through acts of domination and resistance, but also transformation. As Lefebvre ([1974] 1991, 8) has asserted, we are "confronted by an indefinite multitude of space[s], each one piled upon, or perhaps contained within, the next" (8). Despite their limits, these multitudes carry within them many possibilities, some of which will be explored by this thesis.

## 4. Methodology and research design

### 4.1 Introduction

*"It matters which stories tell stories, which concepts think concepts [...] it matters which figures figure figures, which systems systematize systems."*

– Donna Haraway, *Staying with the Trouble*, p. 161

In this chapter, I introduce the research methodology that has guided the perspectives of this thesis and the ways it has constructed what counts as knowledge. I begin by describing the thinking behind the transdisciplinary epistemological stance that I have adopted. I then discuss its relationship with the ethnographic and action research methodologies that I used to explore the research questions outlined in the introduction to this thesis. This is followed with a discussion of the data collection methods that I employed during 13 months of fieldwork as researcher-in-residence across three cultural institutions, and my criteria for selecting the study's field sites and participants. I conclude by reflecting on how my own positionality and situatedness as the study's researcher is intertwined with issues of bias and also with the power relations of the research itself, and a brief summary of my analysis of the data and its core themes.

### 4.2 Epistemological stance

Before discussing the practicalities of this project, I will first clarify the epistemological premises which have framed how I have designed its methodology. As examined in the previous chapters which address the genealogical and theoretical approaches explored in this thesis, my epistemological viewpoint has been influenced by what are loosely referred to as post-positivist, post-structuralist or 'post-post' approaches to qualitative research (Friedman 1991; St. Pierre 2004; Wright 2006)<sup>40</sup>. In practice, this means that my underlying understanding of the

<sup>40</sup> By post-positivism, I refer to the academic application of post-empiricist approaches like constructivism and critical realism that responded to the viewpoint that scientifically-derived knowledges are the only credible or authentic knowledges, and the assumption that it is possible to gather empirically observable data with an objective perspective. By post-structuralism, meanwhile, I refer to academic reactions to structuralism (ie, the belief that rational human reason and behaviour will bring about social progress) which have defied claims to absolute facts or 'truths'. The "developing hegemony" (Friedman 1991, 466) of post-structuralism itself has also

social, cultural and material dynamics of our world has been constructed from the perspectives of four related fields of inquiry: Cultural studies (in its focus on the discourses of power and the politics of contemporary culture), anthropology (in its focus on cultural logics and the study of symbols, signs, practices and other semiotic methods), STS<sup>41</sup> (in its focus on the socially constructed aspects of digital technologies, and relations between human and other-than-human actors) and cultural geography (in its focus on spatial organisation as central to social relations).

In negotiating my relationship to these fields, I have applied a triangulation approach to draw relevant theories and methods from each of them (Flick, Kardoff, and Steinke 2004). While triangulation has been critiqued for its presumption of a methodological hierarchy which tends to position quantitative methods on top in order to “help [...] qualitative researchers become more rigorous” (Denzin 2015, 214), the “celebration of diversity” (Denzin 2012, 82) of later approaches to triangulation like that of MMR (mixed method research)<sup>42</sup> have demonstrated how it remains a useful tactic for “accept[ing] a view of research as revealing multiple constructed realities” (Seale 1999, 474). Here, I have found it useful as a loose frame to integrate theoretical and methodological approaches from across the disciplines I mentioned. This has allowed me to bring together the qualitative methods of empirical analysis typically used in fields like anthropology and STS with the theoretical frameworks of cultural studies and cultural geography.

The field of STS in particular, which integrates the sociotechnical perspectives of various fields that include cultural studies, science studies and feminist studies, has illustrated how the nature of epistemology itself can be interrogated by triangulating approaches across disciplines. John Law (2016) and others (c.f. W. Bijker 1997; Haraway 1988, 1994; Latour 2005) have described how STS began as a response to the supposed objectivity of scientific inquiry by arguing that a power-asymmetrical world, all knowledges are socially constructed. This is because

been discussed, with Elizabeth St. Pierre arguing that ‘post’ qualitative inquiry entered a ‘post-post’ period in the 2000s because “all epistemologies and methodologies have their limits. As we put them to use, we come up against their inadequacies and have to [...] rethink them” (2004, 136).

<sup>41</sup> Science and Technology Studies.

<sup>42</sup> Denzin (2012, 82) has described MMR as defined by “eclecticism, paradigm pluralism, a celebration of diversity, a rejection of dichotomies [and] an iterative approach to inquiry” that “adds rigor, breadth complexity, richness, and depth” despite criticisms arising from the incompatibilities of quantitative-qualitative method combinations.

scientists, like all other researchers, have been trained to view the world in a particular way – which includes building authoritative solutions to the kinds of problems that are deemed appropriate (Law 2016, 33). Thus, the research methods and theoretical approaches of academic disciplines are not merely techniques. They also carry their own agendas, which in turn reproduce certain discourses and format social relations. By exploring how the construction of research itself can be a mechanism of social practice, it becomes clear that knowledge production cannot be separated from its social context – as Foucault, Hall and the other theorists discussed in the previous chapter have also argued.

When the approaches of a variety of disciplines are critically triangulated in this way, however, a question emerges: If all knowledges are socially constructed, how can any kind of shared understanding or ‘truth’ be arrived upon? One way to address this is by providing a clear signification of the researcher’s own position and context in order to avoid the “false sense of all-knowingness, the god trick of seeing everything from nowhere” (Haraway 1988, 582) that can all too easily be assumed during the research process. Thus, my epistemological stance in this thesis has also been influenced by ‘situated knowledge’, an approach to self-reflexive research introduced by Donna Haraway (1988, 1994) which has suggested that instead of trying to position themselves as separate, neutral observers of reality, researchers take a close look at how their own positionality affects the nature and outcomes of their research. As such, throughout this thesis I have attempted to state my own positionality and embeddedness in relation to the research where possible. This forces me to address the fact that this study includes certain assumptions that are embedded within the particular Western, European and privileged context of its production, a matter that Dipesh Chakrabarty (2000) and Eduardo Kohn (2013, 38) have referred to as the ‘essentiality of provincialization’ of any theory-building process. I will address these issues more deeply later in this chapter by discussing how the power relations implicit in my subjectivity as researcher-in-residence affected my consideration of research ethics.

### **4.3 Constructing a mixed-method approach**

Because I wanted to observe everyday experiences and practices at collections makerspaces, but also address how the space of each site was produced through



broader institutional relations, it felt most appropriate to combine the in-depth participant observation of an ethnographic methodology with the engaged practices of an action research methodology. This allowed me to work from a primarily ethnographic perspective, but with augmentations from action research methods that involved collaborative co-creation and design interventions. In doing so, I was able to move flexibly between observing people, and making things with them.

To describe my combined role as observer and maker, my interactions with sites took the form of what I referred to as a 'Researcher in Residence' model. This allowed me to draw from a rich legacy of interdisciplinary 'in residence' collaborations between practitioners and institutions that involved different kinds of co-created outputs (Bresler et al. 2000; Marshall et al. 2014). A particular inspiration was Furtherfield co-founder Ruth Catlow's research residency at the Taylor Digital Studio from 2015-2016, which culminated in an adult learning course that explored networked art forms (Tate 2016a).

## ***Ethnography***

Ethnography is a methodology that originated in anthropology and is now widely used in many contexts, from sociology to journalism to the fashion industry. It is so widely used, in fact, that it has been declared that "everything is now ethnography" (Gobo and Marciniak 2016, 104). Despite this diffusion of the original intent of ethnography to engage in deep observation of a particular culture over a long period of time (Levi-Strauss 1966), it can still be distinguished from the "grab-it-and-run" (Gobo and Marciniak 2016, 105) approach of related methods<sup>43</sup> in the following ways.

The first characteristic that is central to an ethnographic methodology is its emphasis on direct participant observation, where the everyday patterns and logics of a cultural group are studied by a researcher who participates in their everyday activities, allowing a gradual "deferral to subjects' modes of knowing" to emerge (Holmes and Marcus 2008, 82). While participant observation has traditionally

<sup>43</sup> Gobo and Marciniak have described how the co-option of ethnography as an "abused buzz word" (2016, 104) into market research has included surveys, interviews and short case studies that claim to follow an ethnographic approach.

only been used to observe social relations rather than impede in their direction, it now includes more interactive and embedded approaches alongside participant observation that build a deeper understanding of the social context, from semi-structured interviews to the collaborative interpretation of discursive and visual materials (Atkinson et al. 2007; Kohn 2007).

The second characteristic of an ethnographic methodology is the design of a research project that involves a lengthy period of time spent accessing a field of observation. This commitment to embeddedness allows researchers to engage in a mode of interpretation that the anthropologist Clifford Geertz has called 'thick description', or a detailed first-person picture of the field rooted in "small, but very densely textured facts" (1993, 28) that highlights the semiotic and constructive nature of social relations. Alan Stewart (1998, 7) has described how this is "immersion within a particular setting" is essential to the 'veracity' or reliability of ethnographic inquiry, because it allows the researcher to construct a contextualism built on holistic linkages across their data. By engaging with field sites for a period of 13 months from September 2016 and October 2017, I was able to observe not only their day-to-day relations, but also how they evolved over time.

In particular, my ethnography has been informed by two critical ethnographic frameworks: Institutional ethnography and multi-sited ethnography. A defining characteristic of critical ethnographic inquiry is its rejection of the "romantic interest in the subaltern" (Saukko 2003, 178) of previous ethnographic research that focused on the so-called "savage" (Levi-Strauss 1966) cultures of an exotic other. Thus, many critical ethnographies (c.f. Boxwell 1992; Coleman 2012; Rapp 2004) position the researcher in the field sites of their own cultures within which they are already embedded. These may include the seemingly mundane settings of homes, schools, workplaces and institutions (Atkinson et al. 2007). The anthropologist George E. Marcus has described how critical ethnographic approaches are interdisciplinary, involved in both the everyday and also in new cultural forms, and situate the ethnographer as a "circumstantial activist" (1995, 95) who deliberately works across multiple sites and disciplines to challenge dichotomies like the 'local' and the 'global'. Activist ethnographers like Patrick Reedy and Daniel King, meanwhile, encourage critical scholars to not only

understand social practice, but also “work toward changing it” by redefining dominant discourses and challenging practitioner subjectivities (2019, 565).

Institutional ethnography (IE) has been inspired by feminist and Marxist approaches, and seeks to understand how the ‘ruling relations’ of institutional discourses are translated into the social organisation of everyday experiences, described by its founder, the sociologist Dorothy Smith, as being “in-body” (2005, 10). This means the phenomena which institutional ethnography examines may include mundane chores, working practices or the construction of knowledges (Tummons 2017). Institutional ethnography also examines how institutions, from government bureaucracies to corporations, are coordinated through language, using textual analysis and discussions with informants as primary methods for exploring how discourses are ‘activated’.<sup>44</sup> Another important aspect of IE is its commitment to what is referred to as ‘standpoint’, a “a point of entry into discovering the social that does not subordinate the knowing subject to objectified forms of knowledge or political economy” (D. E. Smith 2005, 10). By taking a specific look at the tacit nature of working knowledge, IE works to understand both how people feel about the work they do every day, and also how the specific circumstances of that work and the forms it takes may be coordinated by others.

Conducting a multi-sited ethnography (Holmes and Marcus 2008; Marcus 1995), meanwhile, has allowed me to observe how the field sites of this thesis are both implicated in the “local time-space” (Marcus 1995, 95, 105) ecosystems of London that define their everyday relations, while also interacting with other kinds of spaces across local and global networks. The corresponding relations of these, meanwhile, are understood as stratified according to the kinds of power-geometries (Massey 1993) discussed in the last chapter. Saukko (2003) has described how multi-sited ethnography avoids the ‘typification’ of one-sited ethnography by acknowledging the multiple perspectives and contexts that contribute to how social phenomena are enacted. He states that “what multiperspectivalism espouses is not relativism, but an approach that is capable of acknowledging that there is more than one side to each issue, and of bringing these different sides into a

<sup>44</sup> Smith has discussed how institutional ethnography is a “sociology for the people” (1), because in making language its focus, it explores how “the everyday world of our experience is put together by relations that extend vastly beyond the everyday”, causing societal relations to affect individual conceptions of knowing (2005, 1).

conversation with one another to create more inclusive research and politics" (2003, 195). These perspectives are enriched through institutional ethnography's focus on how the local and everyday is always defined by, and linked to, the 'translocal' – "those social, administrative, or geographical spaces that are outside the boundaries of people's everyday experience" (Tummons 2017, 148).

By working from a multi-sited, institutional ethnographic methodology, this project has aimed to move beyond a simple comparison of its field sites by exploring the circulation of "chains, paths, threads [and] conjunctions" (Marcus 1995, 105) between them, and also how their "ruling relations" (D. E. Smith 2005, 13) have organised their everyday realities. Silvia Lindtner's research on hacker communities in China is a key example of the kind of multi-sited and critical ethnographic inquiry that this project has been informed by. Instead of engaging purely with Spivak's (1988) mode of "let[ting]... the subaltern speak" (Lindtner 2015, 859), she works to find ways of collaborating with her informants as partners, publishing outputs together that trace how their imaginaries are negotiated by processes of global production, manufacturing and investment (c.f. Lindtner, Greenspan, and Li 2015; Lindtner and Li 2012; Sun et al. 2015). "The multi-sited nature of my work," Lindtner has argued, "is essential for understanding deeply the diverse practices, visions, and goals that come together under the maker and hacker rubric, and how they travel and take shape across sites and over time" (2015, 859).

### ***Creative practice as action research***

Because my first interactions with collections makerspaces originated from a space of co-design, I wanted to find a way to not only participant observe, but also create with, my informants as collaborators. To achieve this aim, my research methodology moved beyond the mostly-observational realms of ethnography and adopted an action research approach on four occasions, where my interactions took the form of creative practice.

Kurt Lewin originally coined the term 'action research' in 1946 to describe a new methodology that would "help the practitioner... in group relations" (1946, 34), describing the process as a spiral staircase of collective steps that would lead to

direct action. Present-day action research is used widely across academic fields and social movements, from indigenous land rights campaigns to labour-organizing, and from social work to public policy (Kemmis, McTaggart, and Nixon 2014). Action researchers, like critical ethnographers, work from the notion that because knowledge is socially constructed, researchers should try to become embedded within systems of values and interactions to build a situated understanding of them. However, unlike ethnographers, action researchers also work to challenge the field being studied through critical interventions that are negotiated in partnership with their informants (Brydon-Miller, Greenwood, and Maguire 2003; Kemmis, McTaggart, and Nixon 2014).

Action researchers Peter Reason and Hilary Bradbury have explained how action research is primarily concerned with using participatory methods in “the pursuit of practical solutions to issues of pressing concern to people” (2001, 1). They suggest five key tenants of action research projects. First, they argue, action research produces “knowledge in practice” that will be of use not only to the researcher, but also to the community. Second, action research engages in “participation and democracy” by fostering participation that meets people in their everyday lives. Third, action research acknowledges there are “many ways of knowing” which move beyond the dialogical and written forms and may include tacit, experiential and other knowledges. Fourth, action research projects are “emergent”, negotiated over time with their communities of practice. Fifth, action research projects focus on producing “worthwhile purposes” which attempt to aid the communities they are involved in (Reason and Bradbury 2001, 2).

By expressing my “intention to foster participation” (Reason 2004, 273) at the beginning of the project to my collaborators at each field site, I was able to allow the creative interventions of action research to emerge where there was a need for them. In their ‘critical design ethnography’ account of building design as a form of action research for ethnographic projects, the instructional designer Sasha Barab and his colleagues have described how they “w[ore] our hats as ethnographers” or as designers depending on the shifting nature of their myriad relationships with participants (Barab et al. 2004, 256). This flexibility helped them avoid carrying the kind of outside agenda into their interventions that can often accompany design projects. It also allowed the design they created to serve “not as an end in

itself, or as a product positioned to impact a situation” but instead as a “tool that is part of the system” (Barab et al. 2004, 258).

By engaging with field sites as both participant observer and action researcher, I was careful to place the hat of “change agent” (Barab et al. 2004, 257) on my head only when it was clear that that kind of intervention would be not only of value to myself and my research, but also to my collaborators. I did not choose to undertake action research at the Wellcome Collection for this reason. However, I did receive invitations to intervene in public initiatives at the Tate and the British Museum. These collaborations resulted in four creative practice interactions, from the production of an archival website to the organisation of digital making workshops, which I will describe in the next section.

## 4.4. Data collection methods

I will now outline the methods that I used to collect data during my interactions with field sites. In total, this involved 255 hours of participant observation around 28 events; informal, unrecorded chats and anonymous questionnaires with 67 site users; ‘expert’ interviews with 38 site facilitators; and 4 creative action research interventions. My specific research interactions with each field site consisted of the following: At the British Museum, I engaged in 40 hours of participant observation during 10 workshops for schools and families; semi-structured expert interviews with 10 members of staff who had helped produce the SDDC; questionnaires and informal chats with 15 of the space’s users, and the ‘Speculative Universes’ action research intervention for the Future Makers series.

At Tate, I conducted 115 hours of participant observation at the Taylor Digital Studio in between events and during a weekly research drop-in day that I helped facilitate, 35 hours participant-observing five public events and five staff events, and 30 hours of participant observation during three public events at Tate Exchange. During this time, I chatted informally with, and gathered questionnaires from, 38 users of the spaces, and conducted expert interviews with 22 facilitators who included site managers, Tate staff, and external collaborators. I also moved from observing the spaces to helping shape their production on three occasions through creative action research interventions in collaboration with

facilitators. At the Wellcome Collection, meanwhile, I conducted 35 hours of participant-observation in the form of making, hanging out and informal, unrecorded chats with 30 participants around five public workshops.

### ***Participant observation***

The first data collection method I employed in this project was participant observation, where I became directly involved in field sites as their researcher-in-residence. By interacting with spaces not just as an observer but also as a participant, I was able to “commit to the exploration of a particular cultural setting first hand” (Atkinson et al. 2007, 2) by embedding my own body inside the field. The circumstances of this participation, however, was often contingent on the amount of access I was provided at each field site. The facilitators of the Taylor Digital Studio, for example, offered me the opportunity to situate myself there and run my own research activities every Friday from September 2016 to January 2017. This meant I needed to be shown how to close the space at the end of the day if I was the last one using it, a level of access that gave me a backstage look into the space of the Studio which I was not afforded elsewhere.

Other opportunities for participant observation offered by site facilitators in addition to ambient hanging out and making with site users included the observation of staff-facing events, such as planning meetings, A/V testing days and professional development sessions; and public-facing events, such as lectures, workshops and courses. This allowed many informal interactions to emerge that I did not record, from speaking with institutional staff about their internal struggles to taking a lunch break with site users. As the anthropologist Lana Rapp has discussed, one of the benefits of participant observation is this flexibility – while the researcher may set out with a preconceived set of assumptions to start with, it is only after being informally “educated” (2004, 2) by informants about the complexities of the field that such assumptions can be challenged.

### ***Interviews***

This participant observation data was enriched by, and gathered alongside, my other main method of ethnographic data collection: Interviews. These were semi-

structured in form, and focused on the insights of individuals who had been deeply associated with one of the field sites in some way and could therefore be called an 'expert' on it. The sociologist Alexander Bogner and his colleagues (2009, 2) have described how an 'expert interview' can be used as a means of obtaining data from someone who holds a key position in an institution, and understands the organisational structures behind it enough to act as a "crystallisation point" in gaining further insider knowledge. For this study, I wanted to interview both institutional staff and also collaborators outside of the organisation – each of whom had their own kinds of valuable knowledges to impart.

The process of gaining insider knowledge through interviews is especially essential in an institutional ethnography (IE) framework. By talking to people about their everyday "work knowledge" (D. E. Smith 2005, 10), IE researchers argue, "the institutional ethnographer can explore how people are able to talk about their experiences and also the extent to which they have, or have not, acquired the discourses that may be ordering their actions" (Tummons 2017, 150). This allows a relationship to be built between the researcher and their collaborating interviewee which explores the terms and limitations of power imbalances. Keeping this relationship in mind, I worked from a skeleton of core questions which were intended to direct the discussion towards participants' everyday experiences of the space, as well as their more emotional and intimate thoughts on the nature of its relations, with an additional focus on institutional power dynamics.

The questions were generated from prompts that included the following:

How would you describe your work? What are its challenges?

How do you feel this space is understood by the rest of the institution?

Who do you feel has the most power in the interactions that happen here?

Do you think this kind of space inspires organisational changes within the institution?

I then tailored each set of questions to the circumstances of the space and participant and modified them during the interview to allow it to have a conversational flow. I made it clear that the interviews would be recorded so I could transcribe them later as part of my research process, unless participants asked for them not to be. I also invited participants to become collaborators by



helping guide the interaction based on what they wanted to discuss, bringing to mind Latour's notion of giving subjects the "option to object" by being "interested, active, disobedient, fully involved in what is said about themselves by others" (2000, 116). Most interviews were an hour long, but for this reason a few ran up to four hours in length. Meanwhile, while most interviews were just between me and one other person, I also conducted a group interview with four individuals at their request, which took the form of a collective conversation.

In total, I conducted 45 interviews with site facilitators, collaborators and institutional staff across the 4 primary field sites of study, and one interview at the V&A while the Sackler Centre was being renovated. Because of the 'expert' nature of these interactions, I was able to gain an in-depth knowledge about each site from those who had been central to its existence. Their insights provided me with some of this study's most valuable findings, which I will address in the three empirical chapters of this thesis.

## ***Questionnaires***

The third data collection method employed was short-form questionnaires, which were handed out to members of the public who might define themselves as 'users' of the spaces, but not as collaborators or facilitators. While I already had some informal participant-observation notes from initial interactions with members of this group, I wanted to find a way to learn more about their experiences in their own words. I soon learned this would be a challenge, however, because we typically only encountered each other during fast-paced and busy public events hosted in the spaces.

Thus, instead of asking them for interviews, I turned to the more informal method of short questionnaires in the cultural probes tradition of the designers Bill Gaver, Tony Dunne and Elena Pacenti (1999), an experimental method used by designers to help them "understand the particularities" of users of digital technologies through creative interactions that focus on "impressionistic accounts" (1999, 5) of their beliefs, desires and speculations. Instead of using formal-looking questionnaires that make researchers seem like "doctors diagnosing user problems", a typical cultural probe pack often includes "fun" items like postcards,

markers, maps and cameras that ask users to share “unexpected ideas” over time (Gaver, Dunne, and Pacenti 1999, 1). While my own questionnaires did not include these materials because I needed them to be returned quickly during events, they were constructed with a “deliberate lack of preciseness” (Gaver, Dunne, and Pacenti 1999, 5) that focused on the imaginative and the playful, such as asking what the participant’s name would be if they were a ‘space-spirit’ who inhabited the space (see the ‘Spacehacker’ action research intervention below for more on this). I also encouraged participants to sketch, act out or discuss answers instead of responding in writing if they wanted to.

While the questionnaires provided me with an on-the-go tactic to build an understanding of the “emotional ambience” (Plant 2002) of this group, they also caused tension due to the fact that all three of the institutions I worked with already handed out their own questionnaires during events. At the Samsung Centre and the Reading Room in particular, some staff expressed the worry that my version might duplicate their efforts. So, we arrived at a compromise: I would be able to read, but not record, institutional questionnaires where applicable, and hand out my own questionnaires during the events that I myself planned or facilitated. This allowed me to draw spontaneous and of-the-moment insights from the 50 individuals who participated across the field sites, many of whom had just engaged with the spaces for the first time, but it also meant that I handed out far less questionnaires than I might have otherwise.

## ***Action research***

The last method I used for data collection in addition to the above three primarily observational tactics was creative practice as a form of action research. As described earlier in this chapter, the action research process is focused on critical interventions that produce “worthwhile purposes” (Reason and Bradbury 2001, 2) in partnership with participants. During the course of fieldwork, I launched four interventions that took the form of creative practice and transformed my role from observer to co-creator: ‘Digital Studio Remix’ and ‘Spacehacker’ at the Taylor Digital Studio, ‘Speculative Universes’ at the British Museum, and ‘Art:Work’ at Tate Exchange. I will now describe each project and how it employed creative practice as a form of collaborative data collection.

## Digital Studio Remix



*Fig.1: The Digital Studio Remix website. Photo by author, 2018, CC-BY.*

Digital Studio Remix<sup>45</sup> was a website that I designed in 2016 in collaboration with the managers of the Taylor Digital Studio at Tate Britain as this study's first action research intervention. It was created to provide Studio managers with a living archive of key activities that had happened in the space, something they had been wanting for a long time but had not previously had the resources to produce. Because of my ability to design digital interactions like websites, I felt it was something I could offer them which could also provide me with a useful method for gathering data on events.

The process of collaboration began with a series of planning sessions with members of the Tate digital learning team (who will be introduced in the Tate chapter of this thesis), where we decided that the archive website launch would feature 35 of the Taylor Digital Studio's most impactful events since it had opened. We planned for the shortlist of these events to be drawn up by myself in partnership with Studio manager Luca Damiani, at which time I would gather additional first-person

<sup>45</sup> Site located, and updated regularly by Tate staff, at <http://digitalstudioremix.tumblr.com>.

accounts and media from facilitators, staff and other collaborators who had been involved in planning each event.

I chose to design the website on the Tumblr<sup>46</sup> platform, due to my experience of it providing good back-end usability as a group blogging interface that allowed site content to be hosted for free on its servers. I included additional functions that would make it easier for future users of the website to tag, submit and edit new events, with the thought being that the website could be regularly updated not only by event facilitators but also by users, with new posts moderated by associated Tate staff. I then worked with Tate's Digital Learning team to gather the necessary data for the 35 featured events, from staff training workshops to public pop-ups. This necessitated a 6-month process of identifying and then getting in touch with more than 50 individuals across Tate and beyond who had been involved in the events, and asking each of them for event links, media, and personal reflections.

As I will describe in the Tate chapter of this thesis, this process became essential to the research because it gave me a deep knowledge of how the Taylor Digital Studio interacted with the Tate as an institution, and also the opportunity to get to know many of the Studio's most valuable collaborators who had helped envision and produce the space through their relations, 21 of whom later became interviewees in this study. After bringing together this data, I designed the website, populated it with the content I had gathered, and worked with Studio managers to launch the website to the public in late 2016. At the time of writing in 2019, it continues to be updated by the Studio's current managers to showcase the events that have occurred in the space.

## **Spacehacker**

<sup>46</sup> Located at <http://space-hacker.tumblr.com>



*Fig. 2: Masks made by participants of Spacehacker. Photo by author, 2018, CC-BY.*

The second action research intervention I planned in collaboration with the Taylor Digital Studio was a creative experiment in participation called ‘Spacehacker,’ which was facilitated as part of the ‘Digital Artist Show and Tell’ workshop on October 10-11, 2016. This workshop featured two days of public lectures, discussions and hands-on activities facilitated by artists who were featured in the annual ‘MozEx<sup>47</sup>’ exhibit on art and society that was curated by Tate and V&A at the 2016 Mozilla Festival each year. I was asked by Studio managers to join them as a facilitator, with the thought being that I could use the activity I launched as a method for gathering research. Because I wanted to inspire participants to discuss conditions of ownership, power and access at the Studio, I chose to work again with the cultural probes method (Gaver, Dunne, and Pacenti 1999) by organising a set of creative and playful activities called ‘Spacehacker’.

The core of the Spacehacker intervention was a mask-making workshop, where I asked participants to imagine themselves as ‘space spirits’ of the Studio (as I had in the questionnaires above) by creating their own spirit mask using a variety of craft materials. I set up a table near the entrance of the Studio, and covered it with a variety of materials including markers, pens, confetti and scrap paper. I

<sup>47</sup> Located at <https://issuu.com/mozfest/docs/mozex>

distributed blank masks which had been digitally remixed from an open access vector file and asked participants to use the masks to recreate themselves as a ‘space spirit’. We then reflected together on the experiences of their spirit through a handout which used a set of playful prompts to inspire them to reflect on the space and its interactions. Finally, I took a photo of each participant inhabiting their favourite part of the room and posted the photos to an online gallery<sup>48</sup> I had created which represented each spirit.

Spacehacker’s co-creation process allowed me to discuss my initial research concepts with 35 collaborators, many of whom were members of the public unassociated with the Studio, in an informal way. It also served as a useful prototype<sup>49</sup> for the questionnaires that I would later create to gather on-the-go insight from participants during public events, while allowing me to not only observe, but also become a part of, the process of organising a public event in the Taylor Digital Studio for the first time.

## **Speculative Universes**

‘Speculative Universes’ was a two-session digital making workshop on March 19<sup>th</sup>, 2017 that I was invited to plan in collaboration with managers of the Samsung Digital Discovery Centre at the British Museum. Because it was part of the British Museum’s regular ‘Future Makers’ series for families that happened on weekends, the workshop needed to combine an experimental use of Samsung digital technologies with creative making practices applicable to a wide range of ages. It also had to relate to the British Museum’s featured exhibit on traditional and contemporary Korean pottery.

In order to combine these topics, I proposed a workshop plan that would use a speculative design<sup>50</sup> approach to combine science fiction concepts with hands-on making and training in open source app usage<sup>51</sup>. I worked from Wakkary et al (2015, 97)’s concept of ‘material speculation’ as a method to “question the possible” by deploying everyday physical artifacts as sites of critical inquiry through future-

<sup>48</sup> Gallery located at <http://space-hacker.tumblr.com>

<sup>49</sup> A preliminary visual model used to help develop a design or product.

<sup>50</sup> Speculative design uses futuring to “create not only things but ideas” (Dunne and Raby 2013, 4).

<sup>51</sup> Plan located at <http://bit.ly/SpecUniverses>

oriented design. The plan was approved by Discovery Centre managers, and together we built a script for the two sessions that would be given to the Weekend Teachers (to be discussed more in the British Museum chapter) who specialised in facilitating sessions for families. Thus, while I intervened in the curriculum for the sessions, I played an observational role when they were executed, which allowed me to take photos and notes more easily.

To begin each session, the facilitators started by playing a video about the recently-discovered TRAPPIST-1 planetary system, and then asked participants to imagine themselves as aliens who were living one on the seven planets that orbited it, and who had just landed on Earth to behold its pottery for the first time. After touring the Korean pottery exhibit with alien perspectives in mind and using Samsung tablets to take photos and notes, the participants returned to the Samsung Centre to create their own ‘alien’ versions of artworks from the collection using a diverse array of craft materials, clay, collages and digital tools, visualising what a new kind of pottery might look like if it was created by someone from a parallel universe. As the final step of each session, the participants were asked to find a way to ‘exhibit’ their artworks together as a digital exhibit, using projectors, open source glitching apps and digital storytelling methods to show how their parallel universe creations were connected. The result was a co-created multimedia ‘alien artwork’ that had been built collaboratively by all.

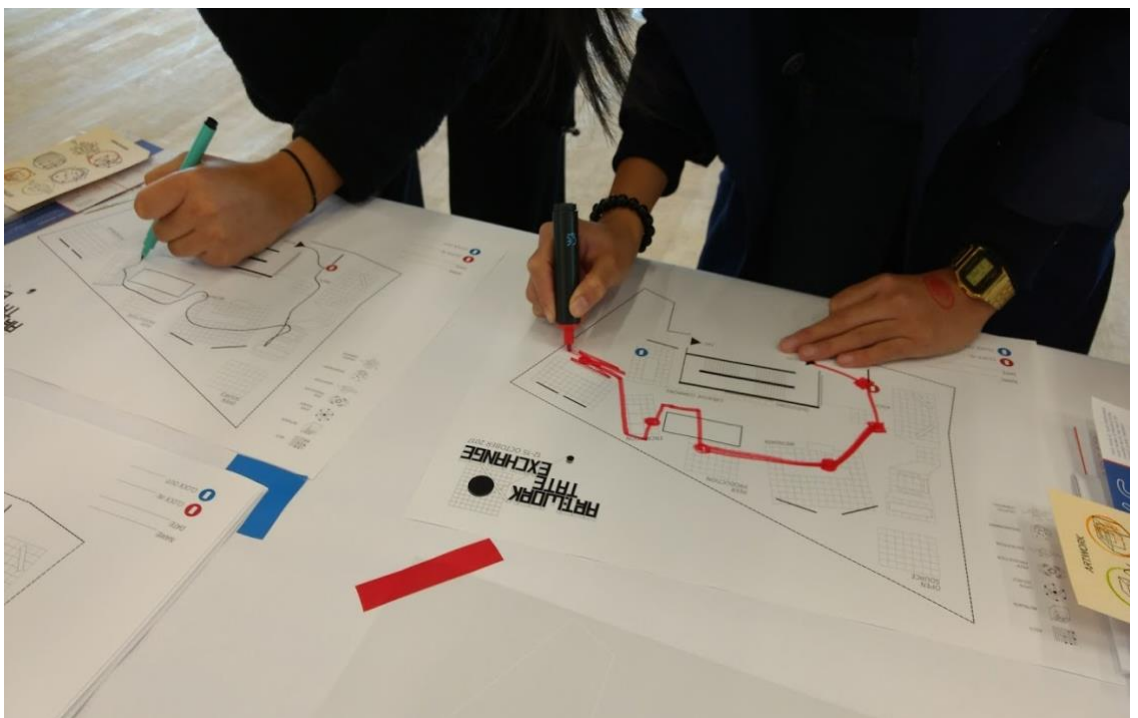
As I will discuss in further depth in the British Museum chapter of this thesis, the process of planning Speculative Universes allowed me to build an understanding of the internal systems used to programme the Samsung Centre, and also the importance of both the feedback of regular users and the influence of British Museum deliverables. It also gave me the opportunity to observe two sessions I myself had envisioned, giving me a behind-the-scenes understanding of how the Centre was articulated as a space.

## **Art:Work**





*Fig.3: Users add to the concepts board during Art:Work. Photo by author, 2016, CC-BY.*



*Fig.4: Users work on flow maps of Tate Exchange at Art:Work. Photo by author, 2016, CC-BY.*

The last action research intervention that I was involved in planning (and this time, also helped facilitate) was ‘Art:Work’, a week of hands-on public activities at the Tate Exchange space at Tate Modern in October of 2017 aimed at exploring



“the power and politics of making in the age of digital labour” (Tate 2017a)<sup>52</sup>. I was asked to help organise the Art:Work week by Tate’s Digital Learning Convener and team as part of their practice of co-devising events through interdisciplinary creative ecologies. In practice, this meant that I worked with collective of artists, researchers, designers and musicians to envision the week’s activities. The finalised programming focused on demystifying digital technologies by engaging participants in hands-on making and tinkering, from programming their working weeks onto a set of vintage knitting machines with the artist Sam Meech to engaging in a ‘data detox’ of their devices with the Tactical Technology Collective.

As part of this collaboration, I worked with the designer John Philip Sage and the Digital Learning team to plan a set of hands-on research exercises that would ask participants to creatively reflect on their own interactions with the space of the Tate Exchange during the week. The space had been partitioned into activity zones based on how we thought participants might want to flow through it; an ‘open source’ corner, for example, had couches and a small library of reading materials on making, hacking and craft; in the ‘sneakerware’ zone, meanwhile, participants were invited to experiment with audio glitching and remixing tools alongside the artist Gary Stewart. In order to build a better understanding of how participants moved through these spaces, and how they felt about their interactions with them, we created two exercises aimed at inspiring reflection.

In the first exercise, we provided prompts on an empty blackboard we called a ‘concepts board’ and provided event participants with chalk and post-it notes, asking them to discuss their thoughts on the topics that had been posed by the activities they had done elsewhere in the room which addressed issues related to digital art, making and labour. Like in ‘Speculative Universes’, I encouraged participants to find connections between their reflections to incite conversations between them. By the end of the week, the concepts board was filled with a rich and assorted set of ideas, sketches and opinions.

The second exercise involved a ‘flow map’ (Fig.4) that asked participants to map out their own pathways through the different zones of the Tate Exchange space

<sup>52</sup> Located at <https://www.tate.org.uk/whats-on/tate-modern/tate-exchange/workshop/artwork>

during the event, reflecting on which areas they lingered in and why. We again encouraged connection between their reflections by asking them to hang their diagrams on the wall for others to comment on and add to. This also allowed us to create a composite map of the space for the use of Tate Exchange facilitators which examined how different groups and individuals had interacted with the Tate Exchange at different times of the week.

The Art:Work intervention became a formative part of my research process because it helped me build an understanding of how user perceptions affected how the spaces of both the Taylor Digital Studio and the Tate Exchange were enacted. It also gave me the opportunity to view Tate Exchange as a complimentary field site for ‘temporary techno-social gatherings’ (Braybrooke, Damiani, and Philip Sage 2018) to the space of the Digital Studio for the first time, a relationship I would not have been able to observe had I not been based at the Tate Modern during the planning and delivery of the event. The process of conducting both observational (participant observation, interviews, questionnaires) and creative interventions also gave me the chance to engage with the field sites of this study not only as a researcher, but also as organiser, facilitator and co-designer. This gave me a knowledge not only of how the ‘public’ side of the spaces worked, but also how their more intimate back-stage relations were negotiated. In the next section, I will discuss why each field site was chosen for this study.

## **4.5 Field sites and participant selection**

In this section, I will discuss my process of selecting field sites and participants for this project. To prepare for fieldwork in the autumn of 2015, I started with desk-based research to build insight on the current status of sites for digital making and learning (which I was not yet thinking of as collections makerspaces) within institutions in the U.K. while getting an idea of how the field was distributed globally by visiting many other kinds of fourth-wave makerspaces associated with institutions outside of the U.K. and interacting with them informally. These included Hangar.org, a cultural centre and media lab in Barcelona that had retained its associations with hacker communities since being opened in 1997 by the Association of Visual Artists of Catalonia; the Gearbox open hardware hackerspace in Nairobi that had been opened by the African innovation lab iHub;

Aalto University's open access Fablab in Helsinki; and the Rainbow Room workshop space situated inside the ArtScience Museum in Singapore. I also accepted an offer in March 2018 to join Living Research<sup>53</sup>, a two-week British Council delegation of eight makers and academics to Chengdu and Xi'an in China. This included the investigation of 40 different kinds of making and craft spaces across both cities.

These varied engagements helped me understand the value of focusing on spaces for making that were situated within cultural institutions in particular. My decision was also precipitated by the release of a set of public datasets in the U.K. between 2012-2014 which, as I discuss in the introduction to this thesis, suggested that while visits to London's museums and galleries had increased by a small margin, there still remained a strong causal correlation between sustained participation in 'high' culture in the city and socioeconomic status (DCMS 2016; Department for Culture, Media & Sport 2013; Trust for London 2012). This motivated me to want to explore the political economies of London-based museums specifically, and the circumstances that had led to them opening the city's first collections makerspaces, which I had started to loosely define at the time as makerspaces which worked in some way with a distinct cultural collection. At the time, there were only four such sites in London which fit this criteria: The Sackler Centre for Arts Education in the V&A Museum (which was being renovated at the time), the Taylor Digital Studio in the Tate Britain, the Samsung Digital Discovery Centre in the British Museum, and the Reading Room in the Wellcome Collection.

After encouraging meetings with Tate, British Museum and Wellcome Collection staff, I was provided research access to their spaces, and these became the primary field sites of this thesis. In September 2016, the Tate Exchange space opened on the new 5<sup>th</sup> floor of Tate Modern as a new experiment in hands-on public participation, and as its facilitators also seemed to loosely situate their activities around a cultural collection (in this case, the contemporary and modern art of the Tate Modern itself, along with other prominent artworks that were in the public domain) it also fit my selection criteria, which gave me the opportunity to examine

an additional field site in the Tate family alongside the space of the Taylor Digital Studio. Engaging with these four field sites also enabled me to observe digitally-mediated interactions with four different kinds of cultural collections. While Tate's collections are focused on fine art, in particular modern and contemporary art and the nation's collection of British art from 1500 onward, the British Museum collection historicises art and cultural works from around the world, and the Wellcome Collection focuses on works that are related to health and medicine.

My criteria for selecting the study's primary participants, meanwhile, was in large part determined by the level of access I was provided to each field site, and the informal relationships I was able to build with those who were involved with it. I chose to focus in particular on the experiences of two groups of actors who seemed to be integral to the production of each space. The first group, 'facilitators', refers to the individuals I engaged with during fieldwork who had either helped envision the space, or who cited feeling some sense of ownership over how others experienced it. This group included museum staff associated with the space, site managers, and external paid or unpaid collaborators. The second group, 'users', refers to the individuals I interacted with who engaged with the spaces as participants, on either a regular or irregular basis. By virtue of their material engagement, they can be understood as more than just 'passive' consumers; instead, as the law scholar Yochai Benkler has described when discussing users of peer production communities, they are "substantially more engaged participants, both in defining the terms of their productive activity and in defining what they consume and how they consume it" (2007, 139). This group was also made up of museum staff, external collaborators and members of the public. It is important to point out that these categories were also flexible, with many individuals performing the roles of facilitator and user depending on the occasion.

While my relationships with facilitators and users typically began organically while I was handing out questionnaires or participant-observing the field sites, for example while we were making something together during a public workshop, recruiting 'expert' members of these groups for research interviews turned out to be no easy task. A few of the 45 individuals whom I ended up interviewing were people whom I had already encountered during time spent together in the spaces. The majority, however, were much harder for me to access, often as a result of their

institutional affiliations and the lack of trust they felt towards engaging with external researchers. This meant that securing an interview sometimes required over a year of internal introductions, rounds of emails and initial meetings before a date for the final recorded interview was agreed upon. Indeed, this study would have very little interview data at all had it not been for a few staff at each field site who believed in the research, helped me gain access to the necessary parts of their host institutions when I needed it, and introduced me to colleagues who they felt would have useful insights about the field site to share.

To keep track of these encounters, I kept a log of the affiliations of interview candidates (see a sample network diagram of this below in Fig. 5) and tried to ensure I was able to interview a diverse cross-section of ‘expert’ institutional staff and external collaborators who had engaged with each space. I specifically requested to be introduced to A/V teams, for example, because I felt that their technical perspectives on the affordances of the spaces would be a useful addition to those of digital learning and curatorial staff. I also asked to be introduced to external collaborators where possible for the same reason.



**Fig. 5: Network map of informants at each site who provided the study with its core research data. The nodes specify the museums, spaces and categories of collaborators. These included ‘site staff’ directly affiliated with the site, ‘site associates’ who facilitated the site but were not hired to manage it, and ‘site users’ who were typically members of the public. Available as an interactive visualisation on Graph Commons at <http://bit.ly/netmap1>**

## 4.6 Positionality and power relations

I will now examine my *own* positionality in this study, and how it has affected issues of power, objectivity and bias. In order to maintain a critically reflexive understanding of my own complicity in the practices of domination that been involved in the construction of this research project, I want to begin this section with an acknowledgment that my own relationship with the intersectional stratifications of class, gender and ethnicity (Simons 2010) is inevitably implicit in the ways that I have examined the systems of power that produce space. For example, by exploring how the maintenance of multiple categories of difference has led to cultural privileges for some social groups over others, and then trying to address some of the ways that staff at cultural institutions are trying to challenge that, I tried to resist proliferating dominant discourses about how museums work, and how people are meant to interact with them.

I am cognisant, however, that in attempting to do so, I have nevertheless disseminated other discourses which accompany my personal background as a researcher who inhabits the dual subjectivity of “insider/outsider” (Mutua and Swadener 2004, 88) and therefore feels at once deeply involved in, yet at the same time situated outside of, her field of research – as the tours I was able to engage in at various other kinds of makerspaces around the world illustrate. As I explained in the Foreword to this thesis, I was loosely involved with the Tate Taylor Digital Studio from the beginning of the project because I first encountered it while I was still working as a digital practitioner for the Mozilla Foundation. These relations led me to ask one of its managers, Rebecca Sinker, to become my third doctoral supervisor, which enabled me to get access to behind-the-scenes spaces (like staff cafeterias) and other resources (like doctoral researcher networking sessions) during my time conducting fieldwork at Tate.

One of the ways I have tried to negotiate this bias has been by working from the situated knowledges perspective discussed in section 4.2 of this chapter (Haraway 1988). This has involved an honest rendering of my epistemic proximity as insider/outsider, and a rejection of the guise of objectivity that would help me claim that I am not personally involved in the research. As the anthropologist Gwendolyn Mikell has asserted, sometimes this closeness can actually enhance the reach of an ethnographic study, because the most effective researcher may be “the one who

ha[s] an element of commonality with the people being studied" (1982, 218).

However, this also means that I was implicated in the field sites I studied, both as a participant within the webs of actors who facilitated them, and as a researcher studying those interactions.

This means that there is a unique set of moral challenges to be addressed in relation to the multiple power dynamics that can emerge between a study's researcher and its participants. Institutional ethnographer Dorothy Smith has discussed these dynamics as an "imbalance, that is tilted in the direction of the researcher, but is mediated to some extent by the expertise of the informant, and the concomitant ignorance of the researcher" (D. E. Smith 2005, 139). As a participant, the researcher is subject to the same power struggles, hierarchies and ideologies experienced by informants – but they are also able to position themselves in a space of separation, shielded from these concerns by their intellectual interest. I have tried to remain conscious of these positionalities and their limitations with regards to our subjectivities as collaborators.

These stratifications can also be witnessed in the reflections of the study's interview participants, who by no means represent the common experiences of those who interact with collections makerspaces because as 'experts' they too are privileged actors in museums. Their associations with the field sites carry their own multitudes – loyalties, omissions and oversights. They, like myself, have left holes in the narrative. In recognising these biases inherent in our shared constructions of knowledge, I have thus tried to avoid presenting the study and its context as universal. By engaging with the observational/active and insider/outsider roles discussed in this chapter, I have instead tried to use my privileged position to enable the kinds of deep collaborations that the geographers J.K. Gibson-Graham have spoken of when they call for research which helps foster new kinds of "openings [that] provide a space of freedom and possibility" (2008, 618) by engaging in a critical, participatory and highly contextual engagement.

## 4.7 Ethical considerations

As I have discussed above, issues of positionality, access and power are implicit in a research project of this kind, especially when the researcher is embedded in the

field and forges close relationships with the study's participants. This made it especially important to ensure that the dual roles I played as observer and co-creator did not compromise my maintenance of an ethical relationship with field sites and participants.

Before I started my fieldwork, the project went through the University of Sussex's ethical review process, and I was granted two certificates of ethical approval (references ER/KB359/1 and ER/KB359/2) from the Social Sciences and Arts Cross-school Research Ethics Committee (SSARTS C-REC)<sup>54</sup>. In line with their recommendations, I always sought to share an information sheet (see Appendix 2) with everyone I interacted with during my time as researcher-in-residence, which explained the nature of my research and how the data I collected would be used. Interview participants were also given a consent form (also at Appendix 2) to sign which specified the amount of confidentiality and anonymity they required, and explained that they would be free to withdraw from the project at any time, while also stating that the research would be published publicly.

While the site users I interacted with during the study have all been left anonymous by default, in some cases I included names and professional affiliations of interview participants where it was deemed useful in the analysis, and where they had provided consent to do so. Mark Israel and Iain Hay have discussed a variety of situations where it can be "inappropriate" to offer confidentiality, for example with participants who are discussing their public work within a community (2006, 79). In many cases, my decision to include names and titles under these conditions allowed the study to highlight the richness of their personal relationships to the spaces under examination.

However, because I also did not want the study to negatively affect the professional image of any of its participants, I also used my own discretion in providing them with anonymity regarding their more critical reflections, for example opinions on colleagues, field sites or host institutions. Social scientist Kari Lancaster (2017)

<sup>54</sup> I applied for the second certificate of approval in January 2017 when it became clear that my interactions with publics at the British Museum and the Wellcome Collection might lead to me speaking to young people under the age of 18. In line with this, I undertook an enhanced DBS check and added a section to the study's participant info sheet and consent forms for young people. In the end, however, while I had informal chats with families, I chose only to interview individuals who had been deeply involved in the field sites as facilitators.



has described how the elements that make a piece of research ‘sensitive’ are deeply contextual, and must be subject to constant reflection and re-evaluation from the researcher. In each case where I masked a participant’s name and affiliation, I applied a pseudonym that involved the term “Anonymous” so that it was clear their identity had been omitted.

The ways that this anonymity actually worked in practice, however, differed based on the circumstances of each field site and its host institution. In the British Museum chapter, I masked the names, genders and titles of all 10 of the individuals that I had interviewed entirely, referring to each of them as ‘manager’, ‘facilitator’ or ‘collaborator’ according to their relations with the space (see Appendix 1.2). In the Tate and Wellcome Collection chapters, I used full names and titles only where applicable and where permission had been provided, and otherwise anonymised the personal details of participants. It is also important to point out here that in the case of all three field sites, those who were also members of institutional staff shared their thoughts in a personal capacity, and did not try to represent the views of their employer in any official way.

By “erring on the side of protecting participants from [...] harm” (Lancaster 2017, 100), I attempted to both allow for the richness of context provided by occasionally sharing the backgrounds of interview participants where it was helpful, while also ensuring that their anonymity was maintained where more sensitive insights had been made.

## **4.8 Data analysis process**

My approach to data analysis, like the rest of this research project, engaged with methods derived from ethnographic and action research methodologies. In line with my triangulation of the epistemological stances provided by the fields of cultural studies, anthropology, STS and cultural geography, meanwhile, the data was organised according to my focus on certain themes that address discourses of power, the social construction of language and tools, and the spatial organisation of social relations.

The data that I gathered during the fieldwork process included the following:

- Field notes from participant observation and action research interventions, taken during and after interactions, which took the form of handwritten notes in a notebook which explored my experiences, thoughts and conversations, which were later typed and organised thematically in a Word document;
- Interview data, in the form of audio recordings and transcripts;
- Questionnaire results, uploaded as images and encoded into NVivo;
- Photographs of the spaces during events and quiet periods.

The data analysis process itself began once my fieldwork notes, action research interventions and user questionnaires started to pile up, leading me to realise that it would not be enough to simply place this data in a document and expect it to come alive on its own. Action researcher Patrick Costello has explained how "there is a close relationship between the collection of action research data and its analysis" (2003, 60). In the case of interventions like the Digital Studio Remix archival website, my action research method also became its own useful data collection method, and gave me the chance to learn which interactions had been of most value to Digital Studio facilitators.

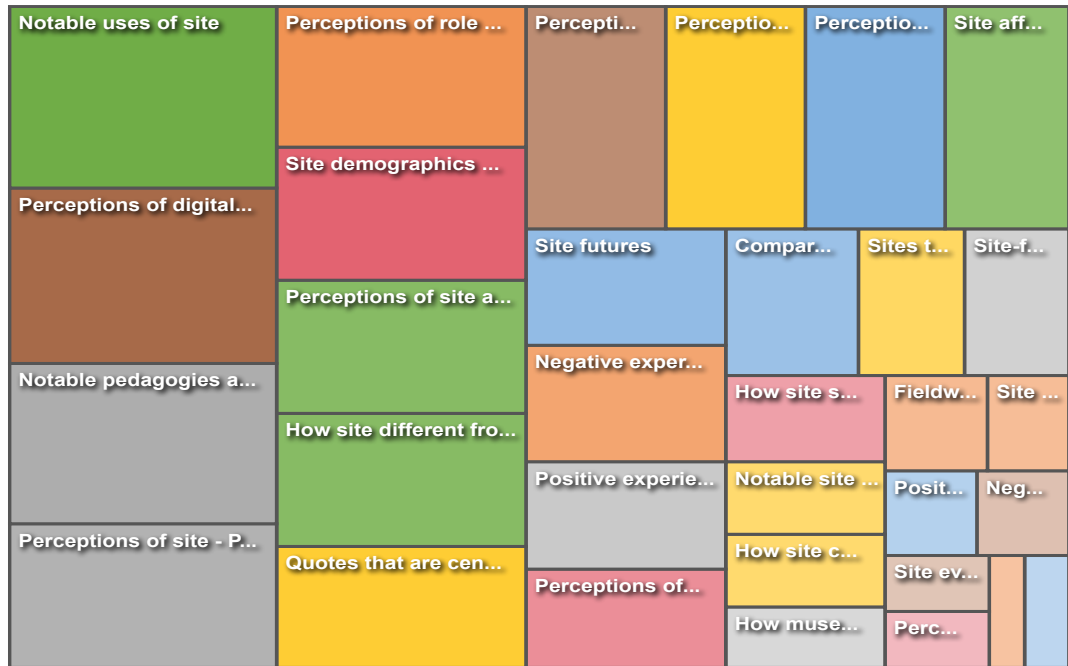
For other data such as fieldwork notes and user questionnaires, I adopted a framework suggested by action researcher Christine Macintyre for analysing diverse qualitative data: First, she suggests following themes, or "the consistent ideas that emerged"; second, "how often something occurred", such as the repetition of similar replies in a questionnaire; third, patterns or "the timing of occurrences" and how they are clustered; and fourth, trends or "the frequency of patterns" (2000 p 91). After each notable interaction with a field site, I typed my handwritten notes, and uploaded any site user questionnaires (as images, because some questionnaires had drawings and sketches on them instead of words) to a Word document so that I could start to organise their reflections according to coalescing themes, for example "discussions of power", "creative explorations" and "feedback on how site could work better". This process allowed me to start to pull out the first patterns that seemed to be emerging in the data.

Meanwhile, while I did not attempt to undertake a full discourse analysis (Adams 2017; Foucault 1981; Hall 1973), I did pay specific attention to instances where

language expressed institutional processes and knowledges, and moments where subjectivities seemed to have been either constructed through those knowledges, or resistant to them (Pickering 2008). Drawing from an institutional ethnographic framework, I also looked for the ways that institutional texts were reified and situated in context to the relations they precipitated, and how these discourses seemed to be disseminated through conversation (Tummons 2017, 150). For example, I looked at the ways that interview participants discussed the hierarchization of different kinds of staff roles, and the ways that the users of field sites portrayed their own relationships to host institutions. I then highlighted these themes and areas of frequency in the fieldwork notes document, and drew upon them in greater detail during the interviews.

The analysis of interviews ended up being the biggest job out of all the data gathered. The interviews resulted in over 65 hours of audio recordings, each of which needed to be transcribed. Despite their length, I chose to hand-transcribe each of them so that I could reacquaint myself with each conversation while highlighting key areas of to explore further as they came up. I also learned how to work with the data analysis software NVivo to organise transcriptions alongside the field notes, photos and action research interventions that I had already started to organise in the Word document (see Fig. 8). After combining this data, I encoded all outputs into 30 cross-cutting themes which ranged from “perceptions of work role” to “site demographics” and “how site compares to other sites”, applying a similarity approach to the text and images that helped me organise data into a loosely-defined categorical structure through a process of “decontextualising and recontextualising” it (Maxwell and Miller 2008, 468).

This process allowed me to start to build an understanding of the core concepts that were emerging from the conversations, action research interventions and interviews, and helped me identify which areas of inquiry required further exploration in subsequent interventions and interviews. I learned, for example, that the conversations I was having with site facilitators kept coming back to explorations of how their own subjectivities and relationships to host institutions were evolving by virtue of their interactions with the field sites.



*Fig. 6: A sample node frequency query from NVivo which visualises how many times the core themes encoded during the data analysis process have been mentioned across sites.*

## 4.9 Conclusion

In this chapter, I have described the research methodology I employed for this project and my rationale for working with it. This is an important discussion, because the mixed-method approach of “social exploration and protracted investigation” (Atkinson et al. 2007, 5) that I have adopted employs certain discursive mechanisms that have determined how I construct knowledges in this thesis based on my own subjectivity as its researcher. The chapter began with an examination of my epistemological stance, and the triangulation approach I utilised to combine theories and methods from across the disciplines of cultural studies, anthropology, STS and cultural geography. As illustrated in this chapter, this allowed this study to be enriched by the “multiple constructed realities” discussed by Seale (1999, 474) while also leading to it encountering many moments of complication, where I needed to forge a path through conflicting viewpoints to arrive at my own perspectives.

I followed this by exploring my construction of a mixed-method approach as researcher-in-residence at each field site, where I combined ethnographic and action research methodologies to both observe the experiences of participants, and

also co-create new ones together. I discussed how my data collection methods of participant observation, interviews, questionnaires and creative practice as action research were constructed from these methodologies, and outlined my rationale for selecting field sites and participants according to criteria that reflected the evolutions of the field itself. I then examined how the inherent bias of my positionality as this study's researcher both reinforced and resisted certain power relations, and concluded with a discussion of how these concerns related to the study's ethical considerations. Here, I took a specific look at how confidentiality has been negotiated regarding the 'expert' interviews of this study, and a summary of my data analysis process.

It is important to emphasise here that this process has not produced unalienable 'results', but instead a reflection on one of many possible explorations of knowledges, the contours of which were constructed by my own methods of analysis. Thus, while I have arrived at certain conclusions regarding the themes, patterns and frequencies that I observed, I am also conscious of Costello's point that "facts" which "appear to emerge from [...] research never speak for themselves" (2003, 61). Instead, they speak to the ways that the knowledges I have presented have been conceptualised, organised and disseminated according to the frameworks adopted by this thesis. Thus, my goal is to remain in "critical, reflexive relation to our own as well as others' practices of domination" (Haraway 1988, 579) by constructing *new* knowledges while conscious of their power. In the next three chapters, I will present my analysis of the data, starting with an exploration of the Samsung Digital Discovery Centre at the British Museum.

## 5. Samsung Digital Discovery Centre

## 5.1 Introduction

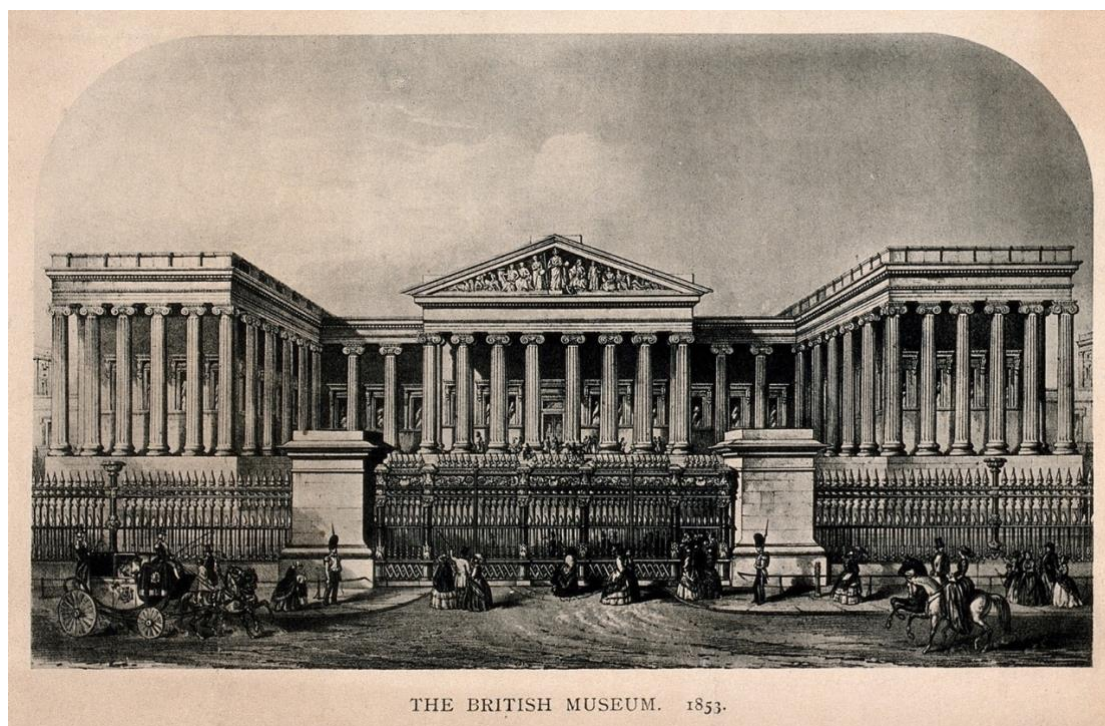
*“The idea of making and sharing is already a political one.”*

- David Gauntlett, 2013

This chapter is the first of three to work with qualitative data from the ethnographic and action research of this project to analyse how the spaces of a specific field site are produced through their imaginaries, relations and practices. The site of investigation examined by this chapter is the British Museum’s Samsung Digital Discovery Centre (referred to as the SDDC), a collections makerspace that at the time of observation was dependent on a partnership with an external technology company, Samsung Electronics.

To examine how the space of the SDDC was produced as a sponsored centre of digital making and learning, I will explore its circumstances in this chapter through seven themes. First, I will examine the legacies of the British Museum, in particular its colonial history and its negotiations around some of its contested artefacts. I will then discuss how the museum’s efforts to enable wider public access to its vast collections have extended to corporate sponsorship, taking a look at Samsung’s own philanthropic motivations in widening access, this time to its own suites of digital technologies. After introducing the SDDC, I will explore its technical affordances and programme, and provide a sampling of activities to illustrate how making-as-learning practices were employed on-site. I will then discuss my observations during the planning of Speculative Universes as a piece of action research in collaboration with SDDC facilitators. I will complete the chapter by exploring the particularities of the SDDC’s power relations with Samsung, as compared to its relationship with its host institution. In conclusion, I will argue that it was not the SDDC’s partnership with Samsung that influenced the contours of how it was produced, but instead the dominant discourses which were proliferated by the institutional apparatuses of the British Museum itself.

## 5.2 British Museum history: Power through knowledge



*Fig.1: Entrance to the British Museum in the 1800s (Wellcome Library 1853).*

The British Museum, grandfather of current-day heritage institutions, guardian of imperialist ‘power/knowledge’ (Foucault and Gordon 1980), was the first national public museum in the world. Its doors opened to the public in 1758, made possible from a donation of natural history artefacts offered to the British Parliament for £20,000 from the wealthy physician Sir Hans Sloane. Sloane had collected tens of thousands of curiosities through his travels and trading, and he wanted them to be situated within a museum that anyone, British or foreign, could browse for free.

This being the first time a museum in the U.K. would be truly open to publics of all backgrounds, however, the founding trustees of the British Museum were at first sceptical about the inclusion of lower social classes – especially servants, who “might offend” (Cavendish 2009, 3). Sloane’s concept of open access, too, was conceived with the needs of aristocrats, scholars and dignitaries in mind, not necessarily those of the working classes (Boissoneault 2017). So, it was deemed only practical that the museum’s first public visitors would require pre-approval, and would also need to be escorted through the collections by museum officers instead of exploring freely (Cavendish 2009, 4). Despite these limitations, the museum accepted 12,000 visitors in its first years alone, many of them eager for a first look at the varied curiosities on offer, from a shoe made of human skin to classical Roman statues to Egyptian mummies. A hundred years later, the British

Museum and its library had become a regular haunt of some of the world's most famous thinkers including Virginia Woolf and Karl Marx; in 1907, Vladimir Lenin (who often used the facilities himself under a pseudonym) proclaimed, "Let me tell you, there is no better library than the British Museum" (Henderson 2015, n.p.).

As the British Museum's founder, Sloane was in many ways a typical collector of his time. In Jamaica, he worked as a plantation doctor while collecting specimens such as skin and skulls from slaves (Delbourgo 2017). In the U.K., meanwhile, he was a prominent physician who was regularly consulted on matters of public health by the royal family. As discussed in Chapter 2, the connections between national museums, the slave trade and imperialist British hegemony during the Victorian era have already been widely examined (Delbourgo 2017; Bennett 2004; Hall 2005; Beurden 2018). Stuart Hall in particular has stated that: "The very notion of 'greatness' in Great Britain is inextricably bound up with its imperial destiny [...] for centuries, its wealth was underpinned, its urban development driven, its agriculture and industry revolutionized, its fortunes as a nation settled, its maritime and commercial hegemony secured, its thirst quenched, its teeth sweetened, its cloth spun, its food spiced, its carriages rubber-wheeled, its bodies adorned, through the imperial connection" (2005, 27).

The British Museum's association with the flows of capital and cultural hegemony that reinforced the slave trade in particular, and its use of artefacts to reflect this, is an area of difficulty for the museum, as seen during the U.K. government's commemoration of the abolition of the slave trade on 25 March 2007 that saw museums across the U.K. hosting exhibits exploring the slave trade. The historian Kumie Inose (2015, 65) has discussed how the tone of these exhibits (including that of the British Museum) was highly political, telling a "British Story" instead of "an African Story" that portrayed abolitionism as a core part of British national identity, while omitting how abolitionism had also reinforced imperialism<sup>55</sup>.

The British Museum's uses of artefacts acquired during periods of war, occupation and colonisation remain especially contentious. Egypt's Rosetta Stone has been

<sup>55</sup> "We must be cautious... of what is forgotten when there is a close relationship between national identity and the creed of anti-slavery in Britain today", Inose adds, explaining how the abolitionist movement of the early 1900s helped "justify the expansion of the British Empire in the late 19th and early 20th centuries" by channelling British superiority to other nations (2015, 63–65).



housed at the British Museum since 1802, when all treasures discovered by Napoleon's troops were required to be surrendered to the British as part of the Articles of Capitulation of Alexandria. Representatives of the Egyptian government have repeatedly asked for it to be returned since then, citing its removal as an act of "plundering by colonial oppressors" (Milmo 2009). In response, the museum stated that its collections must remain to fulfil its public purpose, but that it would "consider" other nations' requests for loans (Bhal 2009). It has since maintained what Jos van Beurden (Beurden 2018, 73) refers to as a "retentionist" agenda with regards to retaining its artefacts at any cost, while omitting information in their presentations that acknowledges their contested colonial origins.

'A history of the world in 100 objects', for example, is an influential 2010 exhibit built by the British Museum in partnership with BBC Radio 4, and its radio show, best-selling book and exhibits have been viewed by 1.8 million people around the world (British Museum 2018c). The book's depiction of the ancient statue of Tārā from Sri Lanka, written by then-British Museum director Neil MacGregor, asserted that "nothing is known about how and when the statue was found nor how it came" (MacGregor 2012, 298) to the museum, despite the historian Jeannette Greenfield having previously revealed that it had been presented to the British Museum in 1830 by the colonial soldier and governor of Ceylon, Sir Robert Brownrigg, and that it had been subsequently claimed by the Sri Lankan government in 1980, who still consider it "war booty" (Beurden 2018, 73; Kamardeen 2017; Greenfield 1996). While the BBC Radio 4 website has since been updated to mention Brownrigg's involvement (BBC 2018), the British Museum website continued to omit it at the time of writing (British Museum 2018a).

Despite (or perhaps, because of) what has been referred to as the British Museum's "looting problem" which makes it seem like a "cathedral" of colonial practice (Livingstone 2018), the museum attracted 5.9 million visitors in 2017 alone (ALVA 2018, n.p.), keeping it the nation's top attraction for overseas visitors for the 11th year in a row. Its collections now include 8,000,000 objects, with the stated aim to "hold for the benefit and education of humanity a collection representative of world cultures" (British Museum 2018c, 4). Most of the collections are housed in immense storerooms underneath the streets of London, with 4 million artefacts available for

viewing on a web-based repository<sup>56</sup>. The British Museum lends more of its artefacts to other institutions than any other museum in the world. In the next section of this chapter, I will explore how the British Museum has worked to provide different groups with other modes of access to its collections.

## 5.3 British Museum encounters Samsung Electronics

The British Museum has a long history of facilitating both public and hidden rooms for working with its artefacts that utilise the latest technologies of the time. In World Wars I and II, many pieces in its collection were secretly stored in underground Tube and railway tunnels to preserve their vitality during air raids; later, the museum opened studios and wet rooms for conservators to engage with artefacts in its cavernous basements<sup>57</sup>. Since the launch of the U.K.'s first graduate course for museum conservation in the 1950s, British Museum scientists have also been global leaders in working with specialist equipment to treat, conserve, render, date, evaluate and duplicate objects and their production, from hospital X-radiography machines to scanning electron microscopes (British Museum 2017a).

While scientific research has always been a major priority for the British Museum, its innovations have not been limited to conservation alone. As a non-governmental public body which must still acquire funding for its projects, the museum bridges its gaps by increasingly focusing on endeavours to acquire funding for research and exhibitions from corporate sponsors, who range from Air Korea to Goldman Sachs.

<sup>56</sup> Located at [https://www.britishmuseum.org/research/collection\\_online/search.aspx](https://www.britishmuseum.org/research/collection_online/search.aspx).

<sup>57</sup> 'Wet rooms' are ventilated environments customised for conservators to isolate spills and use noxious fumes. In 2015, many such spaces were combined to launch the museum's World Conservation and Exhibitions Centre. It is the first time in the museum's history that conservation staff were able to maintain and update its artefacts in natural light.



**Fig. 2: The British Museum Egyptian Room in the 1800s (Wellcome Collection 1844).**



**Fig. 3: Students painting in the Egyptian Room (Portable Antiquities Scheme 2011).**

Under a new Corporate Membership scheme launched in 2014, sponsoring companies were offered a variety of additional privileges, from behind-the-scenes access to exhibits, to exclusive opportunities to “entertain clients and staff” in the museum’s spaces outside of public access hours (British Museum 2015, 23).

Corporate sponsorship does not only affect the British Museum’s research and collections departments, however. It also makes a difference to the focus of its public access, and the ways that it enables participation. As a result, its choice of sponsors can lead to conflict. An example is the continued interventions of activist groups like Shell Out Sound, who oppose the sponsorship of British Museum exhibits by companies who engage in unethical practices such as the oil provider BP, who they say uses cultural gifts to project itself as a “good corporate citizen” (Busby 2019). In 2014, Shell Out Sounds took over the museum’s Great Court and asked visitors to participate in a live ‘BP Viking Funeral’ to protest BP’s sponsorship of the museum’s ‘Vikings: Life and Legend’ exhibit (Serafini 2018).

The British Museum’s 2008 annual review reveals a particularly busy year in public engagement and sponsorship. From 2007 to 2008, 200,000 schoolchildren visited the museum, 25% of them from overseas (British Museum 2008, 27). The museum’s learning department also redesigned its online resource packs on core areas of its curriculum such as Rome, Greece and Egypt, and its Paul Hamlyn Library saw 13,000 visitors per month. Meanwhile, various staff experiments with learning environments for creative participation had been occurring in a basement area underneath the Great Hall called the Clore Education Centre, which included arts and crafts studios, seminar rooms, the BP Lecture Theatre and the Ford Centre for Young Visitors. Around this time, a new space was added to the Clore Education basement in 2009 called the Samsung Digital Discovery Centre (SDDC). The launch of the SDDC was made possible through the confirmation of a 5-year partnership agreement with the Korean *chaebol*<sup>58</sup> conglomerate Samsung Electronics, the world’s largest maker of mobile phones with more than 200 regional subsidiaries (Velazco 2013), with the aim of collaboratively developing a suite of digital learning programmes for families and school children.

<sup>58</sup> Korean term for a family-run conglomerate company – in the case of Samsung, this also includes LG and Hyundai. Many *chaebols* are currently in their third generation of wealth accumulation (Chun 2017).

This partnership is part of a wider global Corporate Social Responsibility (CSR) campaign on the part of Samsung to support educational needs by offering tailored packages of their products to institutions and schools along with the funding to support their use, a form of philanthrocapitalism (Littler 2015) that helps enact the company's claim that "no other learning tool is more effective than technology" (Samsung 2017, n.p.). This mandate is executed through various kinds of digital learning schemes, such as 'Smart Schools' (where suites of Samsung products are installed in 3,000 schools around the world, including a hospital-based Smart School for young medical patients in Taiwan<sup>59</sup>); 'Digital Classrooms' (Samsung products<sup>60</sup> installed in 15 schools across the U.K.) and a mixture of funding and product donations aimed at other kinds of blended digital learning environments, such as the Science Museum's 'Digital Lab' and the Victoria and Albert Museum's 'Mobile Samsung Digital Classroom', the first site of its kind in the U.K. which was aimed at boosting digital skills for young people by "tak[ing] workshops out of the classroom and into the galleries" (Art Daily 2016, n.p.)<sup>61</sup>.

Here it is worth noting the origins of Samsung as a company, as this legacy affects its commitment to promoting branded digital learning experiences in public institutions like the British Museum. Samsung Electronics was founded in 1969 in South Korea as a subsidiary of the trading company Samsung Sanghoe by Lee Byung-Chull. With the help of Chull's six daughters and four sons, the Samsung *chaebol* slowly built up a reputation for exporting cheap, locally-produced consumer electronics (Velazco 2013). The company has historically been stronger on employee satisfaction and loyalty than some in its field, but it has also suffered from a damaged public image over corruption scandals and product safety issues, such as a finding in 2013 that it had delayed reporting a hydrofluoric gas leak at a Hwaseong chip plant until after an employee had died (Chun 2017). In the past five years, meanwhile, Samsung has increased its global CSR efforts. In 2016, Samsung announced it would "introduce technology where it previously has not existed" by installing "Solar Powered Internet Schools, Smart Schools and E-Learning

<sup>59</sup> From a press release: "Designed to create a motivating learning environment, this Smart School features TVs and tablets pre-installed with educational apps that allow children to learn in fun and engaging ways. In this way, hospitalized children are able to regain a sense of normalcy without falling behind in their studies" (Samsung 2017).

<sup>60</sup> Such as Samsung laptops, interactive whiteboards and tablets.

<sup>61</sup> 'Mobile Digital Classroom' affordances include tablets, laptops and a 'specially commissioned mobile classroom'.

Academies” in several African nations such as Kenya, Uganda, Ghana and Rwanda to reduce the number of out-of-school children by positioning “education as a seed of innovation” (Samsung 2016, n.p.). While Samsung’s use of CSR programmes that offer both capital and devices to help forward its vision of a better future is part of a long legacy of philanthrocapitalist engagements across many industries (as discussed in Chapter 2), the company also strives to ensure that the future it helps fund is both more digitally-focused and more entrepreneurial. By installing branded digital experiences that further these ideals, Samsung joins many other private donors in reinforcing the kind of socioeconomic system that it values.

The ambitions of the SDDC itself have certainly been influenced by its expanded technical affordances. Because of the vast array of digital equipment offered to its managers by Samsung, from experimental technologies like virtual reality (VR) headsets and new educational software, to more commonly-found digital tools such as tablets, audio recorders, phones and digital cameras, the SDDC was the most technologically-mediated of the collections makerspaces examined by this study. In 2015, the British Museum was one of the first museums in the world to integrate VR technologies into its learning programme, with a virtual tour of a Bronze Age site built from three-dimensional scans of artefacts that had been rendered into environments that looked like their original historical settings (Rae and Edwards 2016). The SDDC was also the only site in this study that remained entirely focused on digital learning experiences for young people under the age of 19 and their families, as befit its founding mandate (Haythornthwaite et al. 2016). Despite hosting over 51,000 young people from 5,000 schools across the U.K. in its first five years alone (Sabiescu and Charatzopoulou 2015), British Museum annual reports have stated that the SDDC plans to expand its outreach even further (British Museum 2018c). Workshops for school classes, for example, are now so popular that teachers must sign up far in advance to acquire a spot. Between 2016 and 2017, the SDDC increased its number of school sessions from two a week to two a day, offering its programmes to 4,000 students a week (British Museum 2017b).

Perhaps as a result of these shared successes, the relationship between the British Museum and Samsung appeared to have been predominantly positive. In my interactions with the SDDC, I soon realised that while the space could not feature digital technologies outside of those provided by Samsung, the exact employment of

Samsung devices was in fact determined not by Samsung itself, but instead by highly skilled site managers, who had been hired by the British Museum for their knowledge of digital learning in museums. Site Manager #1 explained that one of the most important tasks when they had joined the SDDC team had been to determine best practices for the space's next generation of digital tools usage. "I think we've been really lucky here," they said, "because part of our funding is that every so often we have what are called 'refreshes', where some of the tech has natural lifespans that end, and also new tech comes out, which is great... but really what we've found is it's not *what* tech you're using, it's *how* you're using it."

In Manager #1's first meeting as a member of staff, they had learned that during the SDDC's weekend sessions for families, an undesirable routine had settled in, marked by an increased tendency to take out one piece of new Samsung software and use it for everything. For example, they said, "there was a 'make a comic' software available, and almost every workshop had become about making a comic. They weren't really thinking about *why* they were using that approach to technology to understand that part of the collection. So now, instead, we just have one workshop called 'making a manga,' which is more appropriate for that learning." To help ensure future workshops used tools more thoughtfully, SDDC managers constructed a series of questions to determine the efficacy of each workshop's implementation of technologies, from "is the session related to the British Museum's collection?" to "is the technology being used in a clever way?". They also rebuilt curriculum to include co-learning between parents and children.

Ensuring innovations enriched the symbiosis between the SDDC's aim to provide educational opportunities for young people, and Samsung's motivation to showcase its new equipment in its funded sites, was another important priority. However, there were still moments where the specifics of this relationship remained unclear. Collaborator #1 described to me the how the decision to retire Samsung hardware was made not by the SDDC, but instead by Samsung. This made it difficult, they said, to predict which digital tools might go, and what to do with them when they were retired. "Recently, the SDDC was asked to remove one of its tech tables, but we don't really know what to do with old tech like that, so it's still sitting in an office somewhere. Samsung doesn't want it back either, because they don't want obsolete technology, so it's a bit of a weird moment [...] It's kind of like a ghost."

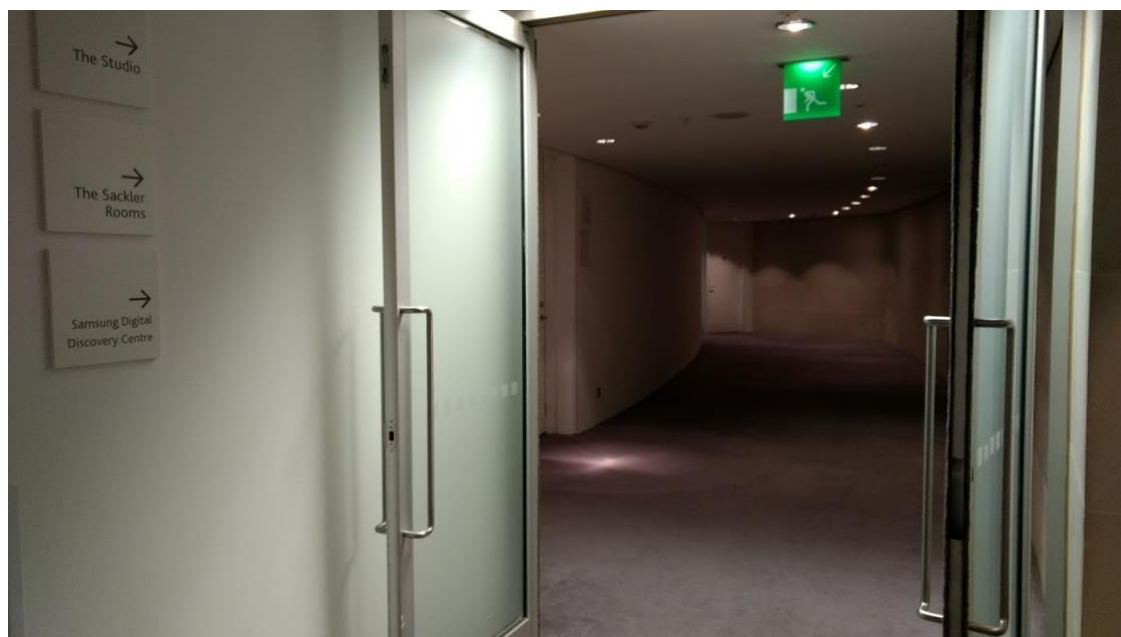
The strangest aspect of this, they said, was the fact that the table itself wasn't faulty – it was merely deemed to be out of date. Whether or not it remained useful for an existing SDDC workshop did not seem to matter. They wondered whether this was a “rivalry thing”, a worry that a competing technology company could see an old Samsung device being used, and presume the company was “kind of falling back. They've got a big name, after all [...] and they've got to uphold that name.”

Collaborator #2 was on another team at the British Museum that also worked with the SDDC on a regular basis. They shared a similar story about the perceived effects of competition between Samsung and other brands regarding the kinds of digital tools that could be used not only in the SDDC itself, but also across the British Museum: “I'm not sure how easy it is to get new Samsung screens, but I [have] wonder[ed] whether we could use different pieces of tech for different pop-ups. There's this other brand called NEC – and I know one of my predecessors actually scraped off the NEC logo due to this being a ‘Samsung Museum’, so there are far-reaching implications that the Samsung brand matters here.” They also cited experiencing moments of jealousy from other teams at the British Museum who were not able to access SDDC kit themselves, stating that “the museum, being a Samsung Museum, definitely gets certain benefits, but also causes conflict.”

Collaborator #2 was not the only member of staff to refer to the museum as a ‘Samsung Museum’. My informants were all keenly aware of the power unlocked by this kind of sponsorship, especially at an institution which is dependent on such patronage. Facilitator #1 explained it in practical terms: “In the end, it all comes down to funding really – who has it, and what they get to use it for. Unless it's for a digital thing that's already gotten its own form of funding, a museum this big is not going to prioritise it.” In the next section, I will start to explore exactly what it means to be a space in a museum that has been opened according to such an envied set of circumstances, finding that with privilege also comes very high expectations.

## **5.4 SDDC affordances and programming**





*Fig 4: Basement-level hallway leading to Samsung Centre. Photo by author, 2016. CC BY.*

The SDDC is managed by the Schools and Young Audiences section of the British Museum's Learning department. At the time of this study, its team included two site managers, two weekend supervisors, eight museum teachers for school sessions, and 12 weekend facilitators for family sessions, as well as student volunteers. Staff from other teams at the British Museum, from curators to A/V teams, also sometimes helped produce the SDDC through their own workshops.

The SDDC space itself did not inspire me on first sighting. Because it is situated down a dimly-lit hallway in a basement underneath the Great Court (see Fig.4), it is not at all clear that it is open to the public. It also does not benefit from any natural lighting. As a result of its hidden location, users of the SDDC usually needed to be led there, either as parts of a school group on weekdays ("I have been here twice; once with my class, now with my Mom!"), or invited as a family to check out a free workshop on a weekend ("The museum guides upstairs [in the Great Court] suggested we check out this room today"). No one I spoke to said they had happened upon it at random. Thus, the space was dependent on continued marketing and integration efforts on its behalf by other British Museum staff teams to ensure that its free programmes were broadcast to diverse publics.

Inside the SDDC, a modular set-up of movable tables, chairs and unmarked white cupboards made the room look a lot like a typical classroom, its austere

atmosphere reminiscent of a white cube<sup>62</sup> gallery space. Other than a presentation monitor, the diversity of its digital technologies was not immediately evident. The only trace of customization could usually be seen on a magnetic bulletin board (see Fig. 5) that facilitators used to personalise their workshops by putting up printed-out images of key artefacts. Other than small touches like these, there were no materials that made it look like a space for creativity. However, once the first workshop that I observed began, the site's initial sparseness gave way to an almost magical array of items drawn from cupboards, boxes and storage closets to inspire hands-on learning, from colourful jumbles of craft materials, to a rotating assortment of Samsung's newest devices like green screens and other equipment. There was even a Persian rug on offer, which was brought out for workshops with younger children; facilitators said it helped them get more comfortable.

"It really does feel white and cold in here sometimes," Facilitator #2 told me while I helped them set up for a session. "It often truly is freezing, too [laughter]. But the thing is, we make the most of it [...] even though there can often be a lot to clean up at the end because of this [laughter], we all want it to be a very creative, yet organised, space." Facilitators mentioned occasions where teachers had entered the SDDC for school sessions, looked around, and then conveyed disappointment that the room was not more integrated with the rest of the museum and its collections. "Some of them expect a tour of the exhibits to be included, even though the whole session may only be a few hours", Facilitator #3 said when we were informally discussing a session they had just facilitated, "but this just isn't possible in a place as busy as the British Museum is all the time. You've seen how it is upstairs!" Indeed, on a typical weekend the Great Court of the museum was a throbbing mass of humanity, all jostling to get around – tour guides, families, tourists, staff.

Despite such complaints, I also observed many instances where facilitators found creative work-arounds to the space's austere surroundings. "We can't let you paint on these pristine white walls," Manager #4 said to a group of very young students from a lower-income school on the outskirts of London during a schools session, "but instead, we're going to ask you to do something very special indeed... paint on some tablets and then publish your artwork online to share with friends!" The

<sup>62</sup> An aesthetic method popular in the early twentieth century museology that put an emphasis on neutrality over decoration in galleries, using plain white walls and fluorescent lighting to better frame artworks.

group responded enthusiastically; some children even screeched in excitement. Facilitators told me that other museums they had worked at did not typically have the same capabilities to innovate and explore in the way the SDDC could, because their digital learning programmes often had to be blended across many rooms, their activities pop-up or temporary, grabbing spare desks and whatever digital tools they could scrape together. “At the time that I was at [x museum] several years ago,” Manager #2 said, “there were some spaces who put things like ‘e-learning studios’ up where there were a number of computers, which is very useful if you’re using a computer, but there are a number of ways things can be digital that aren’t just digital. The computers were always stuck on the tables [...] and couldn’t be moved around. What I like about the way the SDDC works is you don’t need everything to be covered with tech all the time [...] instead, the tech is implemented and brought out depending on the needs of the workshop.”

Every workshop at the SDDC is provided for free, an feature that facilitators told me has elicited consistently positive user feedback. Its sessions for students are run during the academic year to correlate with core subjects required by the U.K. national curriculum, along with specifically-tailored sessions for students with Special Educational Needs (SEN). Families sessions are also provided every weekend for young people under the age of five, from six to 12, and in their teens. Topics explore a diverse set of themes aimed at inspiring users to engage with the Museum’s collections while learning how to use digital technologies, from exploring a new exhibition of Chinese artworks while creating a mobile app, to using photography taken in British Museum’s Egypt Room along with green screen co-creation to build an understanding of what daily life looked like in Ancient Egypt. The more free-flowing ‘Innovation Lab: Future Makers’ series, meanwhile, was launched in 2015 and invites families to the SDDC once a month to experiment with emergent digital tools and methods alongside external creative partners.

In a typical week, at least three free workshops are offered for schools, and one for families. It was a busy schedule to maintain, but facilitators were proud of it, because it reinforced their sense that “we are the most ambitious digital learning programme at any cultural institution in the U.K. as far as scale” <sup>63</sup>, a statement

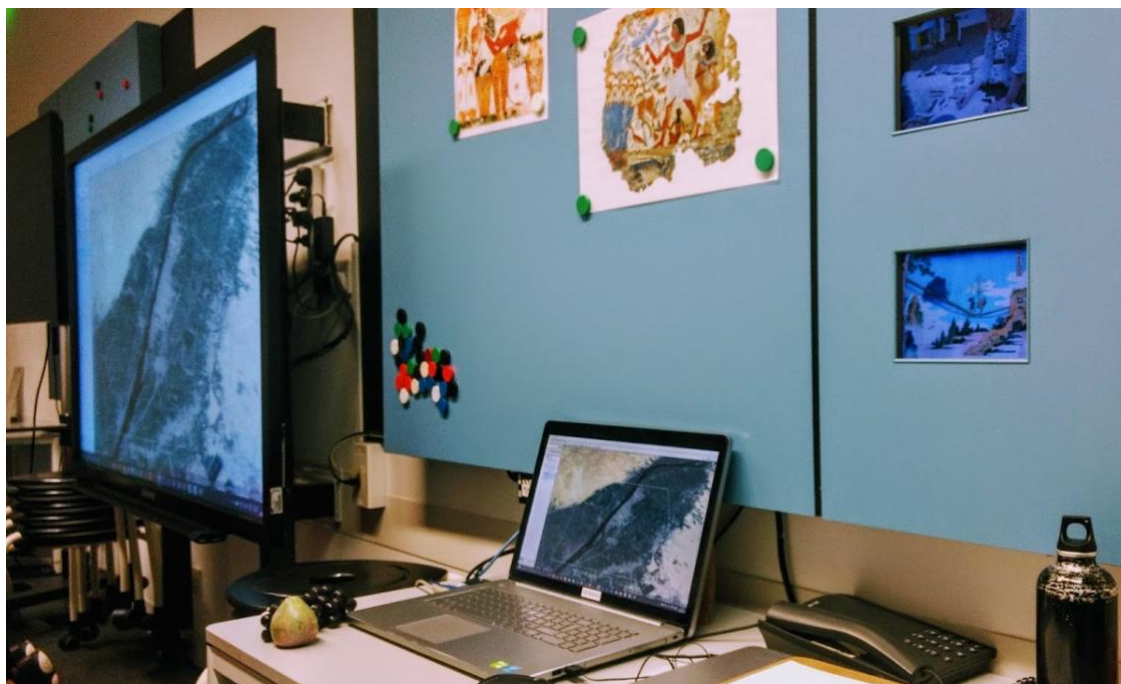
<sup>63</sup> Source: Manager #1.

reiterated across British Museum press releases and reports. SDDC managers told me that by reworking outdated sessions on a regular basis using lean business techniques and agile methodologies<sup>64</sup>, their aim was to ensure the SDDC remained ambitious not only in terms of scale, but also in terms of its practices. For the schools programme in particular, new sessions were carefully added on a yearly basis to correlate with updates to the U.K. national curriculum that integrate upcoming British Museum exhibits with Samsung tools. “I’m currently developing a self-led trail for school children,” Manager #1 explained, “and what I’m really doing for it is dressing up agile methods so I can watch how the children engage with the session, and then iterate on the trail every week to ensure they’re responding well. We’re always working to be more responsive.”

In a space that put this much emphasis on continual iteration and feedback, I had the sense that the SDDC’s users possessed more power to suggest changes than many of them realised. After a session, Facilitator #1 said that users “in large part dictate what we do here, how we act, what kinds of sessions we have... their needs are always the most important.” Facilitator #2 nodded at this, adding that “It’s not usually like this for adults in museums, usually much more ‘museum with the power, museum curates’, but in this room it’s all about learning together. We’re not the experts, we’re learning with them, and the technology is open and simple enough to learn that they really can feel like they learn alongside one another too.” Facilitator #4 told me that in their previous life as a traditional educator, “I was always respected. Here though... in this kind of learning environment, it’s not clear. You have to really work for that kind of respect.” These kinds of reflections led me to understand how the programming of a space like the SDDC can flow between structure and agency; while there were certain parameters and limits regarding the way the space was arranged and organised, the emphasis placed on iteration and responsiveness by its staff also ensured that it was able to evolve. In the next section, I will outline how the SDDC’s approaches worked in practice by discussing a sampling of typical events that I observed during my time there.

## 5.5 SDDC practices and events

<sup>64</sup> A set of software development methods rooted in iterative, collaborative development of an idea or product, where solutions are built across teams and frequently examined and adapted to new needs.



*Fig. 5: Bulletin board wall inside the Samsung Centre. Photo by author, 2016. CC BY.*

Unlike the other field sites examined by this study, the SDDC seemed to rarely be used as an ambient space for casual, self-led hanging out and making. The only time I did witness such practices was before or after staff were setting up for workshops. This was for two reasons: First, due to the sensitive nature of my observation occurring during sessions for school children, my time with the SDDC needed to be scheduled far in advance, when staff invited me to workshops that they had gotten permission for me to observe from the educator of the class. Second, I did not find the SDDC being used for the usual “hanging out, messing around, and geeking out” (Itō 2010, 1) that I would expect of a public space for digital making because it was so heavily programmed. As a result of this, my encounters with the SDDC were much more formal in tone than the other spaces.

When I asked SDDC facilitators and users about their favourite encounters in the space, they gave me many different kinds of answers – perhaps due to the tightly-packed programme. However, many of their favourite moments involved some aspect of co-creation. Facilitator #3 said their best sessions had been “the ones which make visitors reconsider what the museum and its collections are for. For example, asking visitors to consider that the museum is not just a space for objects.” Facilitator #4, meanwhile, liked seeing how the practices used in different kinds of sessions activated different interests – it meant they were never board on

the job. “The music for Africa one is for little kids,” they added, “and that’s really loud, or the green screen ones, those feel different and fun too. Sutton Hoo is good because they’re doing film. They’re able to get creative, their input is greater on that one. It’s enjoyable to watch them and see how they’re growing by doing this stuff.” Across all SDDC sessions, constructionist<sup>65</sup> pedagogies for hands-on learning were often evident, especially in the use of groupwork aimed at building a knowledge of the British Museum’s collections and research through making.

During ‘Science Investigators’, for example, a core 90-minute session offered at the SDDC for Key Stage 2 (KS2) students<sup>66</sup> which linked to STEM<sup>67</sup> aspects of the U.K. national curriculum, facilitators asked participants from a school in central London to sit in a circle on the Persian rug, and used a presentation monitor to lead them through basic techniques used by British Museum scientists to analyse ancient Egyptian and Greek artifacts. They also handed out examples of physical objects used in this period, from coins to wood carvings. The children appeared to be completely captivated throughout the process of knowledge acquisition, eager to answer questions before each other in order to display their mastery of the topic. During groupwork, Samsung tablets and phones (at the mention of “phone”, gasps of genuine excitement rippled across the room) were handed out to share so the students could build multimedia presentations using text, photos and drawings to display their learning. Other than the tablets, the mobiles and the handouts provided, there was only a light usage of digital tools – yet the session’s remit to examine scientific tool usage seemed to provide enough motivation for the students to get involved. It was evident that ensuring students learned about Samsung tools was a secondary goal to them learning about British Museum artefacts *through* those tools. I also noticed the students were instructed to use free apps like Pic Collage on the tablets. When asked about this, the facilitators said they thought it was so things could feel “more egalitarian,” since the children could easily download the apps elsewhere if they wanted to use them again. Despite this,

<sup>65</sup> By this, I refer to the ‘learning-by-making’ model of education inspired by the work of Seymour Papert and Idit Harel (1991) which as discussed in Chapter 2, has also helped inspire practices at the other field sites of this study. This model is rooted in participatory, experiential learning methods, and based in group discovery through the creation of tangible objects; teaching is facilitated rather than lectured, and collaboration is often student-lead.

<sup>66</sup> Term used for school programmes for students aged 7-11 across England and Wales.

<sup>67</sup> Term used for courses in Science, Technology, Engineering and Mathematics.

during my time with the SDDC there were rarely any discussions about the ideologies of using ‘open’ software.

Another SDDC session that I observed which was also directed at KS2-aged students was the 90-minute ‘Decoding Ancient Egyptian Tomb Paintings’, which was facilitated by Manager #3. Because it correlated to history and computing sections of the national curriculum, it was often requested by educators. In this workshop, British Museum artefacts from Egypt were used to examine ancient Egyptian beliefs about death and the afterlife through core visual themes, followed by groupwork culminating in the co-creation of a digital collage. The session started with a look into how ancient Egyptians viewed the afterlife using concepts the students could easily discuss, from eating to family to hobbies. Manager #3 then told the students with an air of suspense that they would be “doing some real time travelling to see what it really looked like back then... and have a think about what you’ve seen.” Unveiling a large projector, they played a 3D rendered video tour of the tomb of ancient Egyptian pharaoh Nebamun, where colours had been applied to the tomb’s artworks to render what it had looked like when built.

Manager #3 told me they had joined the British Museum many years previously as a volunteer in order to get closer to the collections. They had stayed on because they really loved sharing lesser-known areas of the collections with others. After the tomb tour, a green screen was unfurled for groups of 3-4 students to create their own ancient Egyptian tomb collages with. Laughing, they took turns placing themselves in front of the green screen for a photo that depicted them doing their favourite activities, from swimming to cooking, eating to travelling. Each group then used a mixture of software provided on tablets and mobile phones to combine the green screen images with backgrounds and create their own customized ancient Egyptian tomb murals. Throughout the session, the students were intent on their tasks, collaborative but focused. The energy in the room was also much quieter and more serious than the other KS2 sessions I had observed.

This led me to understand that school participants engaged with the SDDC’s digital affordances differently depending on the level of access to digital devices they were usually afforded at school and at home. When I asked Manager #3 why the class had been so much more obedient during the workshop than other classes,

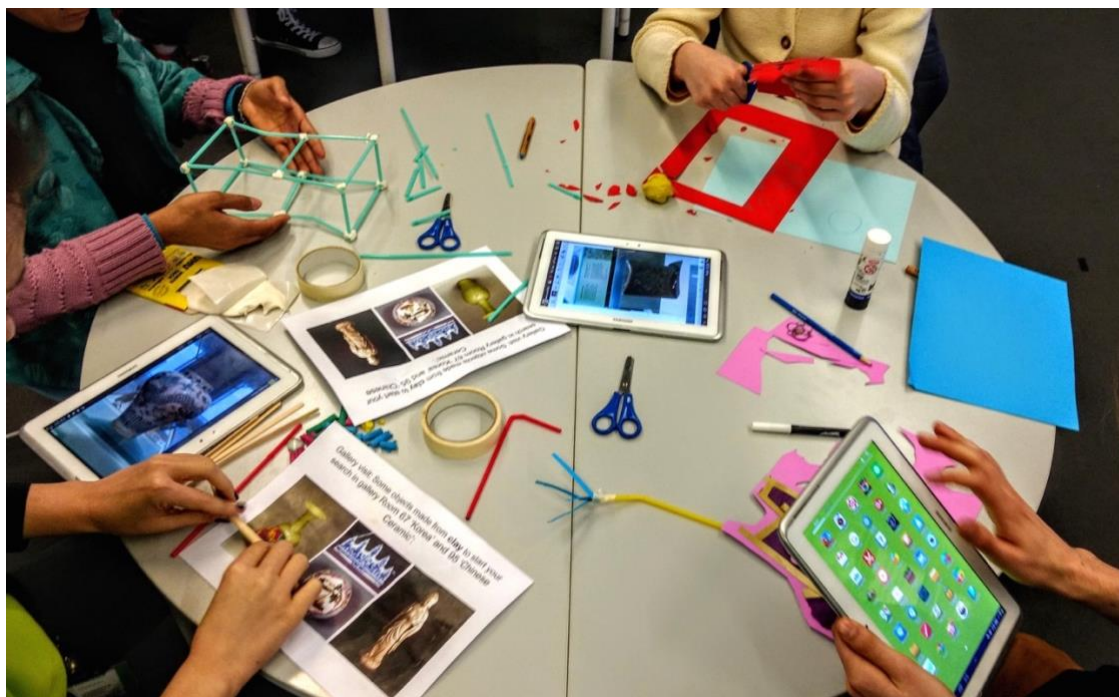
they said they were known as “a ‘good’ school”, which suggested to me that this was a school whose pupils, through their greater levels of privilege, had more access to these kinds of digital tools than many of the other groups who had come through recently. Facilitator #4 discussed how such stratifications manifested themselves not only in the ways students engaged with the space, but also teachers: “Some of them walk in here, and you’d think they’d never had an understanding of a mobile phone before, while others can jump right in with the kids. Even the kids, some kids have used PicCollage, or Photo Layers, and others have no idea.” They attributed this to a lack of standardised training for educators in digital learning pedagogies, and said they felt it was “entirely unfair” that some schools received the support necessary to engage with digital technologies while others did not.

Like other parts of the SDDC programme, I noticed that Samsung devices had again been deployed in the Egyptian workshop to assist in learning, not to showcase digital technologies for their own sake. As Harel and Papert found while exploring the efficacy of constructionist models in the learning process, sometimes it is through simple creative activities that echo widely-understood rituals from childhood, such as “building and playing with castles of sand, families of dolls, houses of Lego, and collections of cards” that a specific kind of “learning-richness” can be facilitated which enables digital learning on learners’ own terms, without an explicit use of devices (1991, 4). SDDC staff also made concerted efforts to welcome users of varying skill levels in other ways. While leading me through the SDDC’s programme options that had been tailored to Special Educational Needs (SEN) students, for example, Manager #1 told me that sometimes it could be the students’ first time entering a museum at all. To remain sensitive to this, they explained, “it’s really about being flexible in this room, understanding what the teacher is hoping the students will get out of it, so for some, just helping them know where to go for the different things they want to see, or how to behave in public, things that we take for granted, sometimes that can be a real learning goal.”

These observations illustrated how the programming of the SDDC offered digital learning experiences around the museum’s collection for users with a wide variety of needs. In the next section, I will discuss SDDC efforts to share the museum’s artefacts with diverse user groups in further depth, by outlining a digital making workshop that I planned with SDDC managers as a piece of action research.



## 5.6 ‘Speculative Universes’ action research



*Fig. 6: Making alien artworks at Speculative Universes. Photo by author, 2016. CC BY.*

As part of my collaboration with the SDDC, I was asked if I wanted to plan a two-session weekend workshop for the monthly ‘Future Makers: Innovation Lab’ series for families, which typically focused on testing out new tools and experimental methods in the space. As discussed in more depth in Chapter 4, I agreed to build the curriculum for a workshop called ‘Speculative Universes’, which consisted of a set of blended digital making activities aimed at inspiring participants to engage with the British Museum’s Korean pottery exhibit through a speculative design approach that combined science fiction and material speculation. Because the workshop was facilitated by three SDDC facilitators, my intervention took the form of curriculum development instead of direct event facilitation. This allowed me to play my usual observational role during the sessions by distributing questionnaires, chatting with users and staff before and after, and taking photos and notes. In this section, I will focus on some of my findings from the process of planning it and interacting with users and staff.



*Figs. 7, 8: Co-creating alien art at Speculative Universes. Photos by author, 2016. CC BY.*

My first piece of learning from this intervention was that the process of planning and delivering a workshop in collaboration with the SDDC was in large part defined by the regimented and efficient systems that had already been set up by its staff. Unlike the activity planning processes of the other field sites of this study, which coalesced in a variety of ways depending on the goals of the actors involved, SDDC staff had built a set of tailored mechanisms for proposing, scripting,

scheduling and unlocking the resources necessary to deliver workshops in the SDDC space. The process of finalising the ‘script’ for a workshop, for example, was done in the same way every time by either a Site Manager or a Team Lead, using templates that had been finessed over the several years that the space had been in operation. It was then delivered to SDDC facilitator teams, who followed it step by step during the workshops, with a few personal modifications.

By participating in this process, I started to understand exactly what Manager #1 had meant when they said SDDC staff employed agile development methods, which I had typically encountered before only when working in mixed teams at Mozilla to develop software. Agile development is a way of approaching a project that maximises responsiveness and modularity to ensure all steps of its process (for example the design of a digital product from prototype to launch) become more streamlined and efficient over time (Serrador and Pinto 2015). This enables a collaborative project like the SDDC’s workshop development process to become a well-oiled machine. I could also see how this process codified not only discourses of agility and responsiveness amongst the space’s facilitators, but also the hierarchies of the British Museum itself. By ensuring that workshops were planned by team leads, and then delivered by facilitators, there were few possibilities for junior staff to change the scripts for the sessions that defined their relations with users, other than during the internal updating sessions mentioned previously. As an external collaborator, I was offered more freedom to propose the structure of the Speculative Universes workshop in my own way. This revealed how the peripherality of my ‘insider/outsider’ subjectivity as researcher affected both my own interactions with the space, and also ever-so-slightly adjusted SDDC rituals.

Despite the restrictions I observed, SDDC staff involved in the Speculative Universes workshop discussed how flexible they felt the Future Makers series was in comparison to the regularly scheduled weekday sessions for school children. As Facilitator #2 put it: “Innovation Lab slots help us experiment with new approaches, new tools, new ways”. Another area of contingency with the Future Makers series was that because it was free and occurred on a drop-in basis, participation was unpredictable. In the two Speculative Universes sessions, for example, only seven families had shown up. The atmosphere of the space during the Speculative Universes sessions had thus been quieter than expected.

This led me to my second research observation from the sessions, which regarded issues of user access and diversity in the space. The main characteristic that united the seven families who joined the workshop was the confident manner with which they engaged with the SDDC's digital affordances. Unlike the weekday sessions for school children, who came from schools across the U.K. and displayed variable levels of excitement about the tools on offer, the children who engaged in *Speculative Universes* picked up the tablets, phones and other tools with a blasé and casual air. I soon realised this was a result of what Pierre Bourdieu (1984) might refer to as their cultural privilege or “distinction” – they were all fortunate enough to be repeat participants at digital making workshops at museums in London. When I asked the families how they would compare the SDDC to other spaces for making like it, for example, each family responded with another space they had already been to. None said it was their first time in a museum, or that they had travelled far, except for one family who came from New York City and engaged regularly with museums there. One mother told me her family spent every weekend rotating between free activities at museums across London. “I really want them to be able to take advantage of the culture here,” she said. “Plus, they just love it.”

This finding was in line with the experiences of the SDDC staff whom I spoke to after the session about it. While the majority of those who engage with the British Museum's exhibits each year are foreign visitors (British Museum 2018c), it did not feel the same in the Samsung Centre, Facilitator #2 said, whose regular participants were generally much more local, the kinds of “people who come over and over, people who have heard about the space through their schools, kids who have been during class and come back.” Facilitator #1 nodded at this, adding: “This kind of thing is really above my pay grade,<sup>68</sup> but I do think the kinds of families who come into this room on weekends are the kinds who come into museums already [...] I feel like the real question is, who is confident to come into galleries and museums in general today?” By virtue of their repeat participation in an event series focused on experimenting with new approaches, tools and pedagogies, the

<sup>68</sup> This kind of hesitation was a common response to questions about individual perceptions and observations directed at British Museum staff who were not in a managerial role.

feedback of these users was very important to SDDC staff, placing them in the privileged position of helping determine the SDDC's future direction.

When I asked these users what they thought of the SDDC as a space for making, they responded cautiously, with responses like “it is fine” and “good for groupwork”. However, when they were asked to co-create the ‘alien artwork’ at the end of the sessions, their personal creativities really seemed to come alive, and they more readily performed the roles of aliens envisioning their own kind of aesthetics for the exhibit. When I asked them in the questionnaires afterward what they would call the space if they could rename it, they suggested titles that fit the thematic focus of the session, such as “Space Lab” and “Alien Den”. As discerning participants, they also commented that the space would be much better if it had natural light, because it felt “a bit dark and cold” otherwise. “It feels like there is potential”, a parent with a background in education told me on their way out, “but at the moment this room feels far too quiet and formal to be envisioned as a place for actual *fun*. I do see what you’re trying to do here, though.”

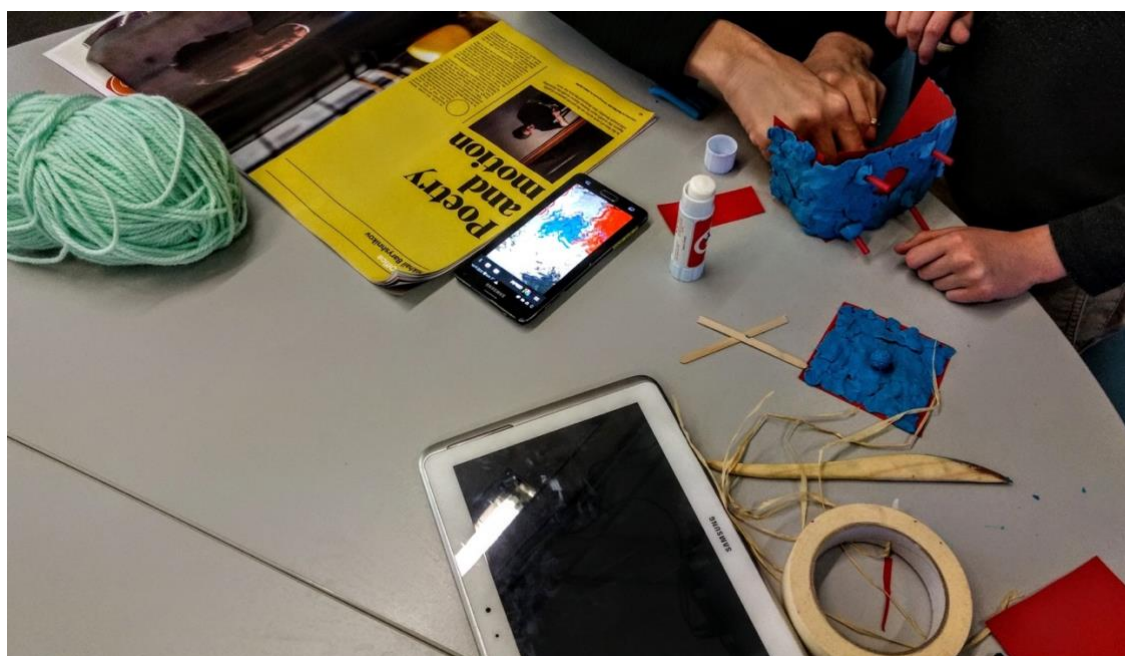
These conversations allowed me to arrive at a third set of observations regarding the possibilities, and also the limitations, of how the space of the SDDC could be produced differently according to the evolving motivations of facilitators and users. For example, despite its explicit use of maker practices, its obstructed location and ambitious public engagement deliverables (necessitating a very tightly scheduled weekly programme) meant that the SDDC could not necessarily be enacted as an ambient environment for making and tinkering like the other spaces observed in this study. A primary focus of Speculative Universes, therefore, had been to inspire more casual interactions between SDDC users through co-creation activities. When I asked facilitators what they thought about that goal as we cleaned up after the sessions, they said it felt “quite crazy and creative as an idea”, that it had “surprised the parents into making weird things”, and that it felt “relaxed”. Facilitator #1 said they liked “how it didn’t have to be based on a specific outcome this time, so people could really get creative.” Facilitator #2 reflected, meanwhile, how “in many sessions here, the kids just make things on their own, and then wander back upstairs [to the museum’s Great Court] when done... there isn’t a group cohesion in the end.” Experiments aside, it was clear that SDDC staff would continue to innovate around how the space was enacted based not only on these



kinds of reflections, but also on the evolving requirements of British Museum deliverables, and the SDDC's repeat users.

These kinds of interactions with the SDDC during the action research process helped me to start to understand just how deeply the space was affected by its relations with the internal management structures of British Museum staff, its interactions with perennial users during its weekend programme, and the requirements imbued by its location and deliverables. In the next section, I will discuss another relationship that affected the SDDC, but not necessarily in the ways I had imagined: Its partnership with Samsung.

## 5.7 SDDC's relations with Samsung



*Fig. 9: Tools used during Speculative Universes workshop. Photo by author, 2016. CC BY.*

Because it was funded by Samsung, the SDDC's technological affordances were essential to the way it is enacted, meaning that under an ontogenetic spatial frame it can be perceived as a "coded space" (Kitchin and Dodge 2011), or a space that is continually remade according to its relations with assemblages of digital technologies. However, while it was certainly true that the SDDC needed to utilise digital technologies in order to be produced as a space within the British Museum, I also found that the power to determine the specifics of these engagements lied not in the hands of Samsung, but instead in those of British Museum staff themselves. In my conversations with facilitators and managers, it was repeatedly stressed

that the main motivation in planning and iterating on SDDC programmes was not to showcase the newest bits of technical kit available, but instead to provide creative ways for many different kinds of users to learn and make with the British Museum's collections. This meant that in many of the workshops I observed, digital tools were viewed as one of many players in the creative learning process, rather than its featured event (see Fig. 9).

SDDC managers in particular noted the value of the space's trained facilitators, who knew how to introduce new devices carefully. "Excellent facilitation and careful framing of an activity trumps having the latest technologies," Manager #3 said. "It's important to use the latest technology and experiment with its use, in order to keep the programme from stagnating. However, relying solely on it to the exclusion of existing technology is foolish [...] some of the SDDC's most popular sessions are those that have been around in one form or another for a number of years." Manager #2, meanwhile, explained how they had learned that regardless of how advanced a new digital tool was, its use was ultimately limited to the technical knowledge of facilitators, who first needed to feel comfortable with it. As a result, "finding the cleverest use of a technology" had become "much more important than [using] the technology in and of itself."

Despite these careful approaches, the SDDC's younger users in particular, especially those who arrived in school groups, displayed a consistently high level of enthusiasm when digital technologies of any kind were introduced. Facilitator #3 explained to me how before they bring school groups down the hallway of the British Museum basement and into the SDDC, they make sure to talk to them outside and explain that there will be technologies in the space. At that point, they said, the energy level often hits its peak. "They get so excited once they know there's going to be technology [...] as far as what it is, I'm not actually sure that it even matters anymore at that point," they said, laughing. "Just the idea they're going to work with technology – that's the big hook. And I used to be a teacher, and it was the same with a boring ICT lab too. The kids just loved it.<sup>69</sup>"

<sup>69</sup> "They really like tablets," they continued, "but [they also love] the film tech, when they get to personally be a part of the things you're creating [...] It's about finding a way to communicate with the objects and with the past, which I think is quite a difficult thing for individuals to do [...] if it's not their main interest. Finding those anchor points [...] absolutely, it's about finding that hook."

Before drawing up a plan for a new session, Manager #1 said they spent a lot of time first looking through the latest software and tools that Samsung had made recently available in order to find the most appropriate options that would resonate for different kinds of learners. Part of the SDDC's power when it came to its youngest and least experienced learners, they said, was in enabling that kind of excitement – but while they wanted sessions to feel fun and exciting, they also wanted to avoid a “tech for the sake of tech situation”. A device did not need to be new, they said, to feel exciting to its users. They recalled a period, for example, where the device that had excited students the most was a little Samsung camera, which they described as “basically like phones, without being able to make phone calls. They hadn't seen them before, so they just loved them, even though they weren't really any different from phones. I think Samsung has discontinued them now, but the kids didn't even care.”

When it came to Samsung's more experimental offerings, there were other limitations to implementation. Regarding VR<sup>70</sup> technologies, which were still not readily available at the time of research, the equipment itself, while available, could only be tested by users over the age of 13 due to health and safety concerns. “It's really annoying,” Site Manager #1 said. “I get that it's still because it's so new, but it really limits what museums like us can do with the possibilities of that. I wouldn't be surprised if all tech companies started investing in research so people can use VR equipment when they're younger... but for now, we can only use it for teenagers [...] wasted opportunities.” The facilitators I spoke to were proud of their efforts to get around such limitations, by experimenting with other kinds of new approaches that sometimes transcended the space's location entirely.

An example of this was an increase in staff experiments with roaming or ‘blended learning’ activities that occurred not only in the SDDC, but instead in the museum's bustling Great Court and galleries. “We've just got to take things to peoples' interests, and to where they actually are, more in the future,” Manager #1 emphasised. Staff explained to me that these kinds of experiments would allow, for example, foreign visitors to engage more readily with digital learning activities. “Is [the reason they don't come in] because the Samsung Centre's handouts aren't

<sup>70</sup> Virtual Reality



really offered in other languages,” Manager #4 mused, “or is it something else? I do wonder how we can better access groups who are newer to London, or who don’t even live in London at all [...] more roaming access, more roaming activities, now that would be good.” This suggestion was echoed across conversations I had with both users and facilitators during my time with the SDDC, and it had been more recently implemented with great success. “What makes it really fun working up there,” Facilitator #2 said, “is we get to wear bright shirts, sit at a bright desk... and that brings a very different energy than in here.” Upstairs, they added, everyone who walked into the museum got a chance to play and make things with the collections – even if they didn’t share a common language.

The thoughtfulness with which I observed SDDC staff engaging with Samsung devices – and the apparent freedom they were provided to experiment without strings attached by Samsung – revealed to me a space that while constituted out of its relations with digital technologies, was also constituted out of its relations with other key actors. The actors that were central to its production were not necessarily Samsung executives, but instead SDDC staff (and their visions) and users (and their feedback). There is another actor, however, whose motivations were an especially influential part of these interactions. In the next section, I will discuss the SDDC’s relationship to the British Museum itself.

## **5.8 SDDC’s relations with the British Museum**

In this section, I will explore the complexities of the SDDC’s interactions with the British Museum as its host institution, and in particular the British Museum’s relationship with digital technologies. Despite the aforementioned efforts of SDDC staff to experiment with innovations that allowed its activities to be launched in other spaces across the museum, the British Museum’s policy when it came to uses of digital technologies seemed to be one of separation. In 2000, for example, a redesign of the British Museum involved the creation of the Clore Education Centre and other participatory spaces in the basements underneath the Great Court (British Museum 2016). This allowed staff to start to experiment with what a ‘digital classroom’ might look like before the Samsung partnership emerged. Even at that time, however, staff informed me that there had been a general sense

amongst them that digital learning efforts were literally and metaphorically siloed from the rest of the museum's activities.



*Fig. 10: A school group heads into the SDDC basement. Photo by author, 2016. CC BY.*

These perceptions seemed to originate from the understanding that unlike other large public museums in London such as the V&A (who has full-time digital curators as well as digital learning and programme teams), the British Museum did not at the time of writing attempt to blend staff proficient in creative applications of digital technologies across its many teams. Instead, staff with these kinds of skills were typically found on the same team, focused on specific deliverables from digital publishing to conservation to A/V. This organisation of institutional relations meant that despite the SDDC's deployment of powerful new making-as-learning approaches for British Museum engagement, there was still a feeling amongst my informants that the museum was too unwieldy and resource-limited to conceptualise how these methods could be more widely integrated.

As discussed earlier in this chapter, the British Museum has always been a hub of institutional – and sometimes, state – power, as manifested in its retentionist strategies and display of contentious artefacts. It reinforces this dominance largely through internal mechanisms of power/knowledge, which Foucault has described as emerging through the production and circulation of an “economy of discourse”

(1980, 93). This economy of discourse can be seen in the immense influence of the museum's traditional routines and rituals. Informants discussed their frustration at the continued power of these routines, explaining the blockages they encountered when trying to enable change across departments by using phrases like "old ways of thinking" and "old ways of doing" to describe internal relations. I also sensed that staff had been informed that in speaking to me, the British Museum brand needed to be protected at all costs, with almost all informants requesting anonymity before speaking more candidly.

"I'm here because I enjoy the work," Collaborator #1 said. "But some people live on the fact that it's the British Museum. They get power mad. That certainly has an effect on getting things done, on changing attitudes, and on innovating." They felt that some of this could be explained by observing the museum's method of encouraging competition for internal resources amongst teams. "Now, this is me really speaking my mind... but this museum, because it's so big, every department has a sort of stakeholder [...] so if you go to the Greek and Roman Gallery, there the curators have ownership over that gallery [...] so they do design of the space, and they maintain it personally, and they have to bring in their own funding or compete for internal funding for it. But this means that if there is a [...] piece of technology that dies somewhere, they have to pay out of their own pocket to fix it [...] It's a devolution of power really."

Thus, despite the SDDC providing a potentially viable model for more collaborative object-oriented interactions with digital technologies across teams through experimental and agile approaches to programme development, the British Museum's maintenance of its own traditional cultural subjectivity seemed to obstruct such possibilities rather than highlight them. While the exhibitions-focused discourse of the museum's annual reviews has typically displayed visitor figures for the SDDC, the reports have provided publics with very few mentions of the specifics of its programme since it opened, or how it has been innovatively developed and iterated upon based on user experiences. In its 2017 Annual Report, for example, the British Museum devotes several pages to detailing other research, conservation, curatorial and community initiatives, but only one paragraph to the SDDC, stating that it increased its sessions to reach a "record 4,000 primary pupils" without discussing any of its practices (British Museum 2017c, 22).

Manager #1 explained that a possible reason for this was a “quantity versus quality” issue. “It’s just such a big museum,” they said. “We’ve got 1,000 people who work here. And within the Schools team we have 250,000 visitors a year, 5,000 of which are Samsung visitors. So it’s quite small, comparatively. Families make up 30% of our visitors... so that is 2 million annually [out of] like, 10,000. Which is huge for facilitated sessions, but not really on the scale of the museum. So can we facilitate organisational change in that setting? I don’t know.” They also explained their reluctance to try to broadcast the SDDC’s lessons more widely, their feeling that it would be futile to try because of the differences of scale experienced by other teams: “Everyone across the museum who has worked with us is impressed with the space, like curators or designers, but I don’t know [what our impact is] other than colloquial moments. [We do have data] in terms of our day to day learning about what we do, and how we impact how audiences think about collections [but] we just use it to reflect on our own practices [...] And I feel like we could do more to share what we learn as well. We are such a reflexive practice, always trying to improve, but that doesn’t really leave our team.”

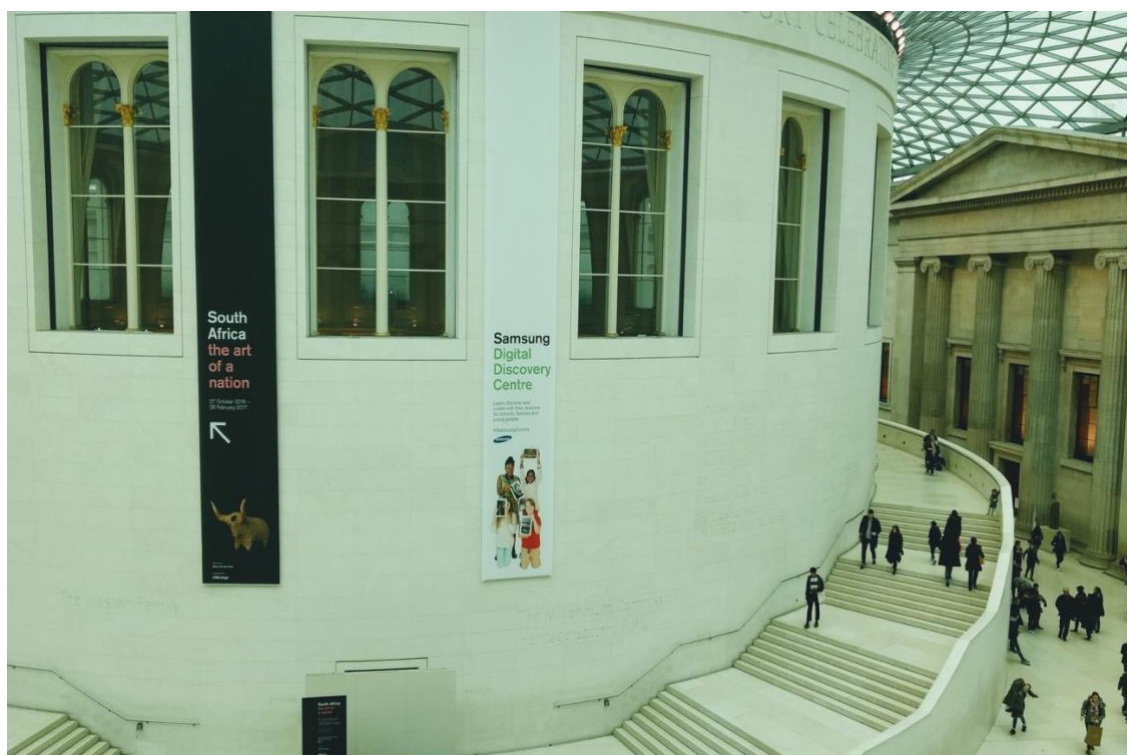
Another reason for a lack of institutional change suggested by informants was what was perceived as a “tech-later attitude”, as Collaborator #2 put it, on the part of the British Museum. “The digital strategy here is just insanely behind,” Collaborator #1 said. “There’s no money for it; trying to change how the museum and such is funded would just be crazy. That’s why the SDDC exists, because they were like we need something new here, so let’s just do a partnership.” A lot of this inertia, they believed, resulted from the internal hierarchies that were maintained by the institution itself. “If you try and change a thing here, people will tell you it’s a great idea until it gets to a certain stage, high up, 10 or 12 different managers later... then what happens is it starts encroaching on their power. And museums are all about power. No one is paid well. So it’s all about the prestige of an idea.” When asked whether they felt the SDDC could potentially challenge those ways of working, they remained skeptical. “Agile, open technologies are a change of culture, and that’s a real issue for this place. It’s traditional [...] It’s a very structural, rigid system and has been for years. How do you make that organizational change through rooms like this? In many cases, you can’t. The power structure here is so diluted, with the upper echelons so removed.” When I asked a group of facilitators

whether they felt the SDDC might inspire these upper echelons to experiment with more blended learning approaches across the museum, they only laughed, saying they suspected many of them had never even entered the basement.

This being said, there was evidence that the SDDC's creative approaches to digital technologies were starting to be noticed. In its most recent Annual Review, for example, the British Museum stated that the SDDC helped it win the 2017 'Leading Cultural Destinations Award for Best Digital Museum Experience'. The report then proceeded to discuss the SDDC over six paragraphs of the report, outlining in greater depth than in previous reports how the SDDC's programming "enable[s] the BM to run one of the UK's busiest museum programmes for families throughout the year" (British Museum 2018b, 25). Manager #2, meanwhile, reflected on the value of internal advocacy efforts that worked to include British Museum staff themselves in the SDDC's programmes. "So we have done staff breakfast talks and things like that, making ourselves available on the Great Court [...] and not only hav[ing] external people visiting, but also getting internal people coming down with their families. Loads of the staff of the museum have checked in. So a lot of it is just making people aware, and making sure they feel invited in." They also explained with a real sense of pride how they were working for the first time with a team of curators in another department to help them envision applications of digital technologies for a new gallery space that would soon be opened at the museum. "It's been really lovely," they said, "because their work is usually doing a,b,c and this is d, e, f... so that's exciting. The more we do that together, the more things can happen."

In a public institution like the British Museum that puts high value on curated public experiences that reflect its internal power relations (once colonial artefacts, now exhibits sponsored by corporate partners), perhaps the most transformative moments are quiet ones like these, which happen behind-the-scenes between different groups of staff, and without much fanfare. By enabling new kinds of collaboration, where internal resources like digital skills and expertise are shared openly between teams instead of competed for, 'new ways of doing' become possible that supplant the old. Perhaps it then becomes possible for the approaches of spaces like the SDDC to finally start to transcend their spatial bounds.

## 5.8 Conclusion



*Fig. 11: Samsung banner, British Museum Great Court. Photo by author, 2016. CC BY.*

My aim in spending time with the British Museum’s Samsung Digital Discovery Centre was to build an in-depth understanding of the unique circumstances of a collections makerspace that was dependent on an external partnership with a technology company, while at the same time situated within the space of an influential public museum. I explored themes related to the SDDC’s relations in particular, which ranged from the British Museum’s history and legacies, to the SDDC’s origins and flows of capital, to SDDC programming and practices, and finally the SDDC’s interactions with Samsung and with the museum itself.

In conclusion, my research findings in this chapter suggest that it was not Samsung’s sponsorship of the SDDC that defined how it was produced as a space, but instead the hegemonic traditions and hierarchies imposed by the power/knowledge of the British Museum itself, as seen through its “manifold relations of power” (Foucault and Gordon 1980, 93). While the Samsung relationship certainly had a few strings attached, one being that the SDDC needed to utilise Samsung-branded digital technologies, the company’s substantial presence in the museum was far less restrictive to the visions and plans of SDDC facilitators than I had assumed it would be. On the contrary, the SDDC’s relations

with Samsung appeared to open up many new doors of opportunity for its staff, providing them with a real mandate – along with the necessary tools and resources, a luxury in an increasingly competitive funding environment as illustrated in Chapter 2 – to experiment with new modes of engagement with the British Museum’s collections. As I learned while planning the Speculative Universes workshop, the ways the SDDC were enacted were defined in large part by the regimented agile development processes that had been built by its staff to organise their own activities; the feedback of its discerning and repeat users; and the requirements that had been imbued by its own ambitious deliverables.

While the SDDC’s facilitators and users did have the power to produce and iterate on the space according to their own imaginaries, I also observed how the SDDC remained beholden to the goodwill of a host institution that remained largely ambivalent towards digital technologies, and at times disseminated conflicting discourses through its own repetitions of power/knowledge that seemed to discount their utility. It was evident, for example, that the provision of funding for a staff team who could focus their attentions entirely on a digital learning space like the SDDC had emerged not from the museum itself, but instead from the philanthrocapitalist motives of Samsung as its external corporate sponsor. Partnerships of this kind have been criticised for diverting attention away from the failings of late-stage capitalism by encouraging free enterprise, entrepreneurialism and cuts to public funding through a ‘coercive’ generosity that geographers Iain Hay and Samantha Muller have argued only occurs “under certain conditions” (2014, 636). In the case of Samsung and SDDC staff, however, the conditions of the relationship seemed to have been emerged from a real sense of like-mindedness, with both groups of actors aspiring to enable new cultural engagements through uses of digital tools for their own reasons. This symbiosis provided SDDC facilitators with the freedom to experiment with Samsung technologies on their own terms, in ways that directly applied to the evolving needs of SDDC users. The greatest impact of the SDDC space on the British Museum itself, therefore, can perhaps be found in the ways that these experiments have challenged the museum’s own reinforcement of competition and enterprise between its own staff teams, by suggesting new and more collaborative ways of interacting.

When the second round of Samsung's partnership with the British Museum reaches completion in late 2019, my informants said that they hoped very much that it would be renewed, because the SDDC was reaching more learners of diverse backgrounds than ever before – and there was always more to be done. Of particular promise to the SDDC's future were the roaming digital learning activities that transcend its space entirely, which SDDC staff were experimenting with to provide wider access to other kinds of users – as well as early plans for initiatives that saw the SDDC collaborating with smaller museums in the U.K. who do not have funding for their own digital making programmes. "I don't think museums today want to be seen as dusty rooms with manuscripts," Collaborator #2 reflected. "They want to be seen as a bright glass building with tablet[s] you can play with... because that's basically what learning is today [...] it's about a collaborative effort of sharing knowledge, participating, learning together."

As a result, despite its implicit reinforcement of the flows of capital and commerce that increasingly influence museums through their partnerships with external companies, the Samsung Digital Discovery Centre still carries the power to transform the British Museum's old ways by offering its staff and visitors tangible examples of new ones. Much like a science lab, my research has found that the SDDC's experiments in creative digital learning and agile development can inspire widespread transformations across the museum itself – if it stops to listen.



## 6. Taylor Digital Studio and Tate Exchange

### 6.1 Introduction

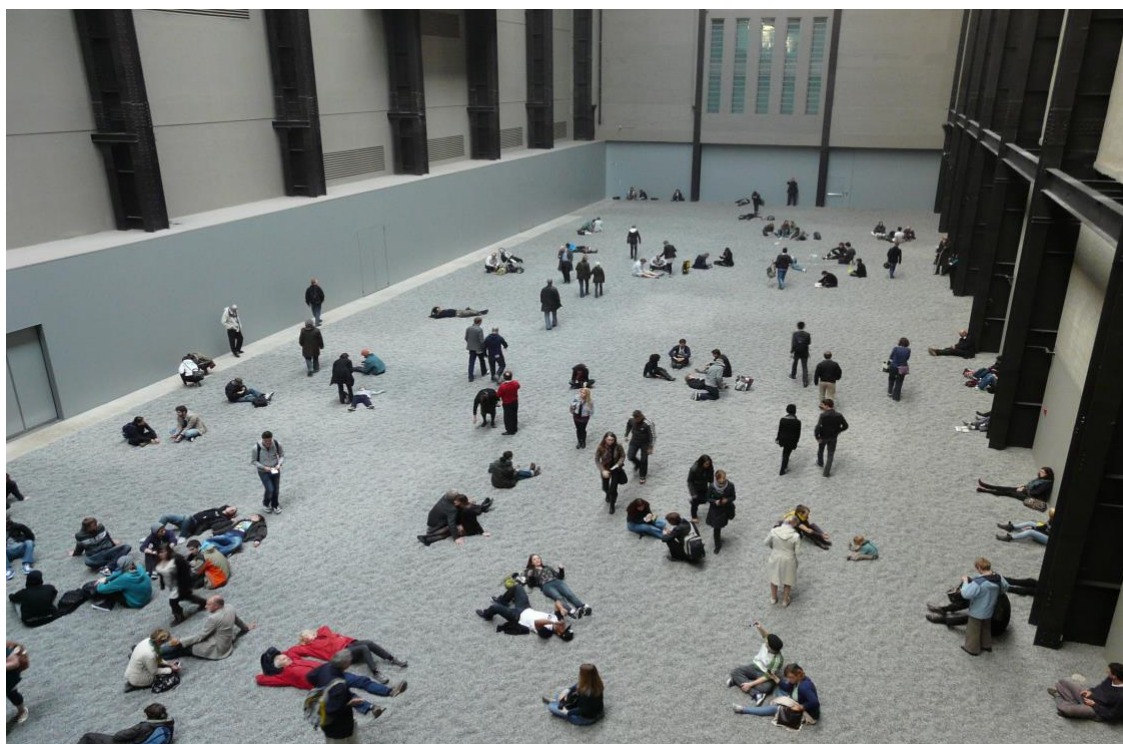
*“As makerspaces are incorporated into the fabric of museums, museums must make a fundamental shift in approach that not only allows for, but also fosters, elements of community practice.”*

- Lisa Brahms et al, 2016

This chapter is first and foremost an exploration of one of the U.K.'s first collections makerspaces, the Taylor Digital Studio at the Tate Britain. It is also an examination of what happened when another experimental space, Tate Exchange, was opened at Tate Modern, a neighbouring gallery within the same institution. While I observed the Digital Studio as a space that was continually enacted as a collections makerspace due to its technical affordances and mandate, Tate Exchange's limited technical affordances meant that it was only occasionally enacted as such. Despite this, Tate Exchange was the better resourced of the two spaces when it came to both dedicated staff time and institutional attention. In this chapter, I will explore the nuances of these kinds of interspace negotiations, and how they are associated with evolving power-geometries (Massey 1993) of institutional agency and access.

The chapter is organised as follows. I will begin with a brief examination of Tate's history, and the funded spaces it uses to promote public engagement in the arts. I will then explore the space of the Digital Studio, with reference to its programming, its practices, its relations between users and facilitators, and its impacts. This will be followed by an examination of the emergence of Tate Exchange, and its encounters with the Digital Studio. The chapter will then address the impacts of both spaces on institutional power relations, as demonstrated in the relations between the spaces and Tate, and between the spaces and their users. I will conclude the chapter with a discussion of the three main findings of these inquiries.

## 6.2 Tate history: Agency through capital



*Fig. 1: Ai Weiwei's 'sunflower seeds' intervention, Tate Modern Turbine Hall (Pycock 2010).*

As one of London's oldest and most visited<sup>71</sup> public art institutions, Tate has experimented with new kinds of spaces since the first Tate gallery opened in 1897 on the marshy site of the infamous<sup>72</sup> Millbank Penitentiary. The creation of this building (now called Tate Britain) was funded by the sugar mogul Henry Tate, who donated his personal collection to the nation on the condition that it would be housed in a public gallery dedicated to British art (Tate 2017b). Tate then expanded to include Tate Liverpool in 1988, Tate St Ives in 1993, and its second London gallery at Tate Modern in 2000, the latter focusing on international contemporary and modern art.

Tate's success at attracting capital has been essential to the creation and maintenance of its spaces. Tate Modern's Turbine Hall, for example (see Fig. 12) is a refurbished power station bought by Tate in 1994, and its programming tries to reinforce Tate's "reputation of access and inclusion" (Dean, Donnellan, and Pratt

<sup>71</sup> Over 8 million people visited Tate galleries in 2017 alone (Tate 2018a).

<sup>72</sup> The Millbank Penitentiary was known for almost becoming the site of Jeremy Bentham's Panopticon, and also for its swampy conditions, which when combined with the poor diets of its inmates, lead to various disease outbreaks that necessitated evacuation in the 1800s (McRorie Higgins 2006).

2010, 81). The architects of the Turbine Hall conceived of it as “something that literally attracts people, a public plaza” (Harvie 2009, 206). True to these aims, the space drew 5.2 million visitors in its first year alone (Tate Archive 2008, n.p.). Jen Harvie has discussed how the extent of Tate’s influence in drawing private sponsorship in particular can be seen in the “almost equal public/private funding” of £134.5 million that went towards the Turbine Hall’s purchase and renovation (2009, 201). Its programming was sponsored for 12 years by the consumer goods company Unilever, and has since been sponsored by Hyundai Motor, who in 2014 offered Tate an “undisclosed seven-figure sum” (Furness 2014, n.p.).

In 2016, the Tate Modern was expanded to include a new wing called Switch House, attracting 11 more ‘Corporate Members’ as its sponsors, each of whom were offered “unrivalled spaces for events and entertaining in the new Tate” (Tate 2016b, 46). During the £260m refurbishments of this new wing, the title of ‘Switch House’ was replaced with ‘Blavatnik Building’ after the billionaire oligarch Len Blavatnik made one of the largest donations in Tate’s history (Ellis-Petersen 2017, n.p.). Such support comes with its own complications, however, as seen in the high-profile protests against the sponsorship of gas company BP at Tate Modern examined in Chapter 2.

Another set of complications can be seen in the uneven relations that emerge when experimental spaces are opened according to different funding schemes at neighbouring galleries – each of which, like the Turbine Hall, aim to enable new modes of public participation. While Tate has long been a proponent of creative implementations of digital technologies (as its first commissioned piece of net art by Mongrel Media’s Graham Harwood illustrated in Chapter 2), the Taylor Digital Studio is Tate’s first dedicated space for digital learning practices. The Studio was envisioned as part of a large-scale refurbishment of Tate Britain in 2013, with a set amount of funding from Tate’s capital grant<sup>73</sup> and also from the Taylor family, who sponsor various kinds of educational programmes around the world<sup>74</sup>. Tate Exchange, meanwhile, opened at Tate Modern three years later as part of the 2016 Switch House extension. Its sponsors included the Freeland Foundation, the Paul

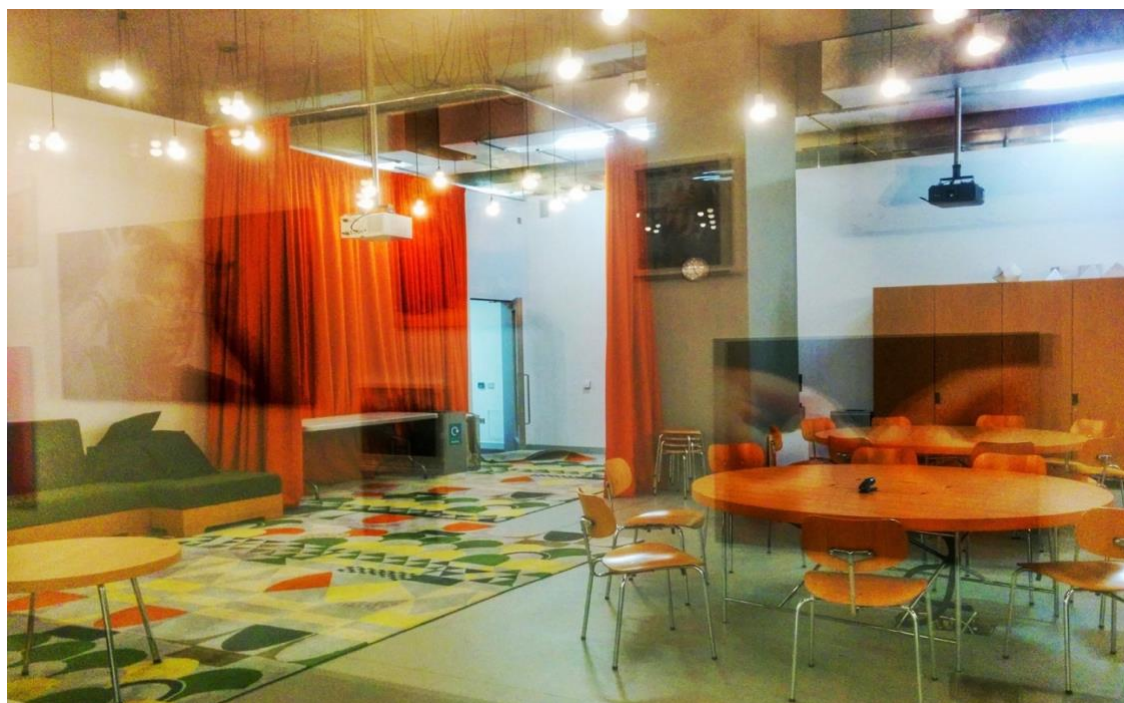
<sup>73</sup> Part of a Grant in Aid from the UK Parliament, which is made up of a revenue grant to support operations, a capital expenditure grant to support maintenance of fixed assets, and a capital grant which, combined with sponsorships and gifts from private donors, is used to fund new building work (Tate 2014a).

<sup>74</sup> Details can be found at <https://ttff.org/>

Hamlyn Foundation, Tate's Patrons, and members of the 60 arts organisations, community groups, schools and companies called 'Associates' who also signed up to the Tate Exchange ethos (Tate 2018a, 12, 124). A substantial amount of public funds<sup>75</sup> were additionally donated to Tate Exchange when it opened, which the media scholar Eleonora Belfiore (2016) has stated came in response to continued concerns about uneven museum engagement amongst U.K. residents according to levels of socioeconomic privilege, as discussed in this thesis's introduction.

The origin tales of the Digital Studio and Tate Exchange are important, because like the sponsored space of the Turbine Hall, their relations are perforated by flows of capital, which are manifested through a "distinctive historical geography" (Harvey 1989, 1) which has both enabled them to exist, and which continues to articulate the level of institutional resources that are devoted to their production. This also relates to the amount of privilege and power that is accorded to each space within the ecosystem of Tate itself. In the next section, I will start to explore these relations by introducing the space of the Taylor Digital Studio in particular.

### 6.3 Digital Studio affordances and programming



*Fig. 2: Side view of Taylor Digital Studio, 2016. Photo by author, CC-BY.*

<sup>75</sup> Including £50m from the Department for Digital, Media, Culture and Sport, £7m from the Greater London Authority, and £1m from Southwark Council (Belfiore 2016).

The Taylor Digital Studio was first imagined during a large-scale refurbishment of the oldest parts of the Tate Britain building from 2011 to 2013 as part of the 20-year ‘Millbank Project’ (Tate 2013). It was placed in a space that already existed, which was situated behind the museum’s ticket desk and held Tate’s archive library. The space’s new digitally-focused layout, which included a computer lab area, a lounge area, a retractable curtain for film screenings, and wired-up round tables attached to the floor, was designed by an architectural firm in collaboration with Tate staff, with the aim of inspiring new interactions with Tate Britain’s collections by adding “a creative digital dimension to our existing learning programmes” (Tate 2014b, n.p.). Its technical affordances, meanwhile, proudly described at the time as “state-of-the-art digital equipment” (Tate 2013, n.p.), included desktop and laptop Macs and PCs attached to a long table, a LAN (local area network) for data storage, an Apple TV, Mac Mini and projector to screen digital content, an industrial printer and the capabilities to install software like the Adobe creative suite independently from Tate’s centrally controlled institutional network.

Rebecca Sinker, Tate’s Digital Learning Convener, was formative in the Digital Studio’s early development, and continued to supervise its daily operations alongside Digital Studio Manager Luca Damiani during my time there. She explained to me how planning the Studio had been a natural extension of work she had already been engaged in at Tate more broadly to bridge “what Learning was doing and what the digital teams were doing at the Tate. Before that, many in digital were only speaking to learning when they needed to put something online. But things needed to be changed [...] our question therefore [in Digital Learning] is what are the affordances of digital technology that other platforms don’t do? We are very much based on working collaboratively [...] with many audiences, using media arts practices [...] Tate didn’t really have those collaborative structures at the time, so a lot of what I did early on in this role was be a negotiator, diplomat, setting up structures to collaborate [...] learn from each other’s skillsets, to network much more open ways of working within a big, disparate institution” (interview 25/01/17).

Before starting with Tate, Rebecca worked in media arts in the 1990s, where she had experienced first-hand the possibilities of bringing together “creative ecologies”

of artists, programmers and musicians for projects with a “participatory aspect [...] to work collaboratively and help groups connect”. For example, “I was part of a net-art project connecting Canada, the U.K. and Hungary I think using IRC and Mosaic in 1994... those were the days [laughter]. So the possibilities of doing things like that at that time, exploring [...] the politics of what net art was about – collaboration, communication across the network – in a way that ultimately got drowned out by corporations... there was a moment. That was very inspiring for me.”

Rebecca explained that while planning the Digital Studio, her team had made several trips to other sites for making in the U.K., in particular sites that would fall under the egalitarian first-wave of shared machine shops discussed in Chapter 2, to “understand how they were set up, what their aims were, what their constituencies were [...] what we could borrow and use here.” Rebecca had been inspired by Access Space in Sheffield, for example, because of its “very grassroots kind of community”, the way it tried to “make uses of technology available to the widest range of people, using those who are highly skilled to support those who are almost entirely unskilled” and its focus on “opening up access”. She also observed how the anthropologist Mizuko Ito’s HOMAGO framework<sup>76</sup> (Hanging Out, Messing Around, Geeking Out) was applied in these spaces. “If you want to bring in young people who aren’t a part of these media labs already,” she found, “you just need to make it the kind of place they want to hang out, much like shopping malls. Warm, casual [...] then once they’re there, you introduce them in low-level ways to interactive technologies they actually want to use... get them skilled up to the point where they can have agency... then ‘geeking out’ is next, once they’re hooked on filmmaking, photoshop, sound technology... *then* you offer a much more concentrated space.”

These kinds of findings were important, because under the Millbank Project the Digital Studio had received funding from the Taylor Family Foundation to support its creation as the first digital space of its kind at Tate. Dan Crompton, Tate’s A/V manager, told me how Tate staff collaborated across teams to determine its

<sup>76</sup> This framework emerged from an influential and collaborative publication on digital practices amongst young people by Ito and her colleagues (Itō 2010) which introduced the HOMAGO framework as a model for user engagement and the creation of new learning software which understood young people as digital innovators.

technical affordances: "The funding given by Taylor was very generous," he said, "but it was not infinite [...] so we had to figure out what would work for that space together [...] Over time a technology becomes obsolete, so we wanted a space that wasn't dependent on completely restripping, a space that was modular [...] looking at the size and shape, the budgets of the Taylor Studio, its possibilities for making, a 3D printer was just one way of looking at that [...] focusing on the virtual space was more important [...] There's a whole spectrum of digital making practices that don't need to involve high tech making" (interview 27/02/17). As the planning continued, it also became evident there would not be enough budget to provide a full-time member of staff to manage the space. "That in itself created an interesting question," Rebecca said, "of how do we create a programme without programme funding, which led us to find ways to weave other teams in to do a lot of it with us. That involved [...] lots of fancy footwork, to make budget go a very long way."

As a result of these circumstances, the Digital Studio had the smallest dedicated staff team of any of the spaces I worked with in this study. Its programming was planned by Luca and Rebecca, both of whom only worked part-time. As a result, they often needed to collaborate with many other facilitators (from Tate staff to external practitioners) to keep the space running. Luca explained that this involved "loads of participation [...] a lot of bridging between teams. This is a constant challenge. Learning how to deal with different people with different digital backgrounds [...] learning facilitators, artists, technologists, curators, we all have to debate things before they can really work ... this is how we've built a community" (interview 03/02/17). As a result of this way of working, peer production became not only central to the programming of the Digital Studio, but also a core part of how it worked as a space. In the next section, I will explore this further by examining how the Studio's practices manifested during events.

## 6.4 Digital Studio practices and events





*Fig. 3: Meme-making workshop in the Digital Studio, 2016. Photo by author, CC-BY.*

As mentioned in the foreword to this thesis, I first encountered the Digital Studio before my PhD started. My interaction with it as researcher-in-residence, however, began with the acquisition of data for the Digital Studio Remix archive website as my first piece of action research. This project, which was explored in more depth in Chapter 4, gave me the chance to be introduced to 50 facilitators who had been involved in 35 of the Studio's most notable events. I asked 21 of these individuals if I could conduct expert interviews with them about the space, from which I received many of the core insights of this chapter. At the same time, I also participant-observed 5 public-facing and 5 staff-facing events. This provided me with a wide overview of typical Digital Studio practices, from remixing to designing, testing to debating, and playing to planning. It also helped me understand the centrality of peer production to how the space was enacted.

I learned from Studio managers that the space's experimentation with peer production practices had begun with the 'soft launch' period of its first year, which included inviting teams across the Tate, from curators to conservators, to facilitate their own events in the space. "Every time we did anything," Rebecca said, "we'd ask people about their experiences [...] and then at the end of the first 6 months, we realised this is always how we have to work in here [...] everything must be



reflected, iterated, tried with colleagues, asking the public [...] so it has become a live testing space. The *modus operandi* has become the pedagogy for the entire space itself.” By encouraging Digital Studio facilitators to continue using the space in experimental and collaborative ways, its managers were both able to address its lack of dedicated staff resource, and learn where its strengths were as a space.

It soon became clear that events which involved both a confident facilitator and hands-on making and learning activities worked well, such as remixing artworks from the Tate collection using a variety of digital tools. Examples included Soapbox, a blogging and social media skills meetup for people over the age of 60, and a ‘Selfie School’ that was part of the Late at Tate series curated by Tate Collectives, a leadership programme for young people aged 15-25 who curated events at Tate for other young people to “create, experience and engage” (Tate 2017d, n.p.). In the sold-out course ‘Art in the Age of Digital Drift<sup>77</sup>’ which I observed over six weeks in the spring of 2016, curator Helen Kaplinsky and Furtherfield co-founder Ruth Catlow asked how modes of viewing and producing art were evolving as a result of networked digital cultures, engaging participants in hands-on group activities like the ‘Sociality Machine’, a weekly invitation to test out discussion topics related to ownership and play using a variety of digital tools.

Other kinds of events did not work so well, like a ‘research drop-in’ for the public to use the row of desktop Macs and PCs for personal projects which was both understaffed and underattended, suggesting it was not enough to merely open a new space in a site of cultural power like Tate, and expect people to feel confident enough to just come in and use it. “I always, in accordance with funding stipulations, have wanted this to be open to the widest variety of audiences ever,” Rebecca reflected, “but in my own background as an artist practitioner and educator, I’ve learned that you don’t just open the doors and expect the community to come to you. You must build relationships, build trust. And we just didn’t have the staff for that. So, we had to set up collaborations. And it’s taken a while. It’s been slow. But we have built connections [...] and we’re working hard to work with artists who aren’t exclusively white and male [...] to show a more diverse set of creative faces. That way audiences can think ‘Oh, I see myself in that face.’”

<sup>77</sup> Located at <https://www.tate.org.uk/whats-on/tate-britain/course/art-age-digital-drift>.

This meant that while most of the Digital Studio's programming did attempt to involve some aspect of digital making and learning, there was otherwise quite a variance to how its events were imagined and facilitated – a flexibility encouraged by Digital Studio staff. This diversity is illustrated in my ethnographic field notes:

*“Prep for Digital Makers workshop, October 21, 2016: The group (artist Gary Stewart, his sons, Tate Learning staff and Tate Collective teen volunteers), spending several hours setting up a hodge-podge green screen... ‘We didn’t have the funding for a permanent one, but the bonus is we get to make this one ourselves!’ Lots of laughter during informal making-based gatherings like this, music on, lights dimmed, everyone casual. ‘We’re always rough and ready here, aren’t we?’ More laughter, more messing around to try to make it work. Gary teaching how to use the tech, so all can help facilitate together on the day.”*

*“Loud at Tate, November 12, 2016: Free day of workshops and performances curated by Tate Collectives. People already filling Tate Britain’s galleries for other kinds of entertainments – ie a hip hop group performing in the main hall, a button making activity in the main atrium – but those gatherings don’t seem to be much related to Tate collections – more like Tate as venue hire. Meanwhile in the TDS there is now an activity that is actually focused on reflecting on the Tate as a place, a ‘3D animation workshop’ where a set of digital moulds are being remixed and then placed virtually into different rooms of the gallery as artefacts. Hands-on, young people both facilitators and participants. Atmosphere quiet, concentrated.*

*“Late at Tate, December 2, 2016: “Meme-making workshop – using iMacs to find images, printing them out, remixing them. Hands-on, creative. Room full, busy, people laughing, cutting, making things on all surfaces. By far the most engaged room at event, but again not very well sign-posted, so many won’t find it. You’d have to leave the much busier main floor of Tate, then see the small sign and be ready to explore... two-step engagement. Facilitator says he worried no one would come and get involved because of this, but it has still been busy. Says a participant: “I feel like I can make my own meme in here, but I didn’t feel engaged like this anywhere else I saw tonight. The rest of the rooms made me feel like I didn’t know enough about art to participate. I do know about memes – but I wouldn’t say I’m an expert on art. And*

*you don't need to know about art to make memes. You just need to know about MEMES [laughter] – and that [...] makes the doing more fun.”*

*“Digital Studio R&D / research day, January 20, 2017 (facilitators: Luca and I): Many Tate staff coming through today, working on the iMacs, discussing things, hanging out, using the big printer. Feels like a coworking space, friendly, happy. Music in background, displayed on projector, Bob Dillon albums on Youtube. Technical tests in one corner, a workshop being planned in another. Luca welcoming everyone who comes in. Shows importance not only of having someone around who understands how to use the digital tools offered by the space (ie how to turn on audio, use projector, upload to network), but who can also act as a casual point of contact, bringing together a network of other users who then feel welcomed.”*

Rebecca used the term ‘shape-shifter’ to portray her and Luca’s roles in keeping the space open to multiple needs and aims, and this also seemed an apt way of describing the Digital Studio’s own evolving subjectivity. As a shape-shifter, the space wore many faces. It could feel vibrant one day, and like an empty husk the next when not produced by a facilitator who was confident enough to maximise its affordances. It could even feel secure. The term ‘safe space’ was used more than once to describe it by both facilitators and users, a quality those I spoke to said was essential to ensuring more hesitant users felt welcomed – not only to enter Tate Britain, but also to try experimenting with digital tools for the first time. Kat Box, who produced the Tate Kids programme, had facilitated many different kinds of activities in the Studio. She described it as “a bit magical”, like a magician hiding a trick. “It sometimes feels public and other times quite private [...] if it took on a different title, that too would really change things [...] it’s not so messy and out in the open like other spaces for making” (interview 14/10/16).

During a painting course run by a soft-spoken external creative practitioner in the spring of 2017, for example, I observed users working with iPads to create their own paintings in the style of the artist David Hockney in almost full silence. In response to the environment, instead of chatting and making alongside them as I usually would during such events, I opted to gather data on their “impressionistic accounts” (Gaver, Dunne, and Pacenti 1999, 5) through user questionnaires, as described in Chapter 4. “How does this room feel to you?” one of my questions

asked. “A bit sterile, no sense of either a class or a community,” the first participant answered. “Ample space here, but furniture layout divisive.” Another participant wrote: “An effort to make it warmer and friendlier would be nice. Don’t tell the teacher” with a wink. A third participant added, “it’s nothing but an empty space... I don’t know what to say.” Other responses included words like “calm”, “spacious”, “dry”, “studious”, “peaceful” and “airless”. “Why aren’t there materials out, or work on the walls for us to see?” someone asked. “I’d like more proof other people have made things here, too.” These responses revealed the importance of the Studio’s spatial organisation, and the relational space enacted by its facilitators, to the ways its users experienced its lived space on a practical level.

In contrast, during the weekly ‘research drop-in day’ that I sometimes helped Luca facilitate on Fridays, the Studio was transformed into a friendly and casual co-working environment, with Tate curators, learning staff and external collaborators coming through to use its digital tools and chat with us, and technical staff coming by to test equipment while music videos on Youtube were streamed on the projector. At other times, the Studio acted as an extension of other Tate Britain spaces during large public events. At a Loud at Tate event I engaged with in the autumn of 2016, a free day of workshops and performances were organised across the Tate Britain by the Tate Collectives youth group, including button-making activities and a live hip hop performance in the museum’s main hall. These engagements were combined with a drop-in 3D animation workshop in the Digital Studio, where young people were encouraged to remix digital objects and then place them into a virtual environment of the Tate Britain as if they were its featured artworks. During events like this, the Studio’s digital affordances really seemed to shine, because the space was able to offer Tate publics with more embedded experiences where they could not only observe Tate artworks, but also create their own.

Jen Aarvold, who had recently been promoted to the Tate Digital team when I interviewed her but had previously managed the Tate Collectives group for many years, also discussed the “very uplifting and inspiring energy” of the Studio. “I have always been really adamant that people should be allowed to bring drinks into the space when it’s an over 18 event at night, because I want people to see it as social. So we had *tonnes* of risk assessing conversations about ‘what if that drink spills on

a mac', but in the end I've been really impressed with the fact that no one has been destructive, and people have been respectful, and I think it is because it is a really beautiful space that people are just excited to be in, and grateful about. Maybe I'm being naïve, but it's been a few years now, and it's been good to see."

My second action research project with Tate was the planning and facilitation of the Spacehacker<sup>78</sup> activity for the Studio's Digital Artist Show and Tell event in the autumn of 2016. This allowed me to try producing the Studio myself. As my first attempt at working with Gaver et al's 'cultural probes' method, I wanted to incite "unexpected" and even "surreal" ideas (1999, 25) about the space from participants, who ranged from casual passers-by to Tate staff and featured artists. As discussed in Chapter 4, this activity provided me with an early prototype<sup>79</sup> for the creative activities I would later run at the other spaces. The 'space spirits' who participated dubbed themselves a variety of creative monikers, from "Sparky" to 'The Sassy Spirit' to "Moon Protector XIX". They shared many different reasons for coming by the Studio that day, from "boredom" to "I wanted to take a selfie" to "just passing through", describing the space as "fun, colourful", "warm", "free to be", "friendly" and "big and wide, with walls that come at you." While the responses I received were less instrumental than I had hoped in gathering insightful perceptions during public events, they did help me start to understand that the 'space' of the sites I was working with was defined more by their social practice as relational and lived spaces (as viewed through the interactions and imaginaries of those who engaged with them) than any other factor.

As these scenarios demonstrate, the intentional flexibility of the Digital Studio meant that the space wore many different kinds of faces depending on how it was facilitated by those who peer produced it through their efforts, some of which were more successful at engaging users than others. In the next section, I will discuss how the experimental way in which the space was produced affected not only its programming, but also the relations of its facilitators and users.

<sup>78</sup> Located at <http://space-hacker.tumblr.com>.

<sup>79</sup> A preliminary visual model used to help develop a design or product.

## 6.5 Digital Studio relations and their impacts



*Fig. 4: Poster for meme-making workshop at the Digital Studio. Photo by author, CC-BY.*

The making and learning practices of the Digital Studio did not only produce digital artefacts. On the contrary, I observed that in many cases, these outputs were the least impactful part of people's engagements with the space. Instead, what seemed to matter the most to the users and facilitators I spoke to was the *process* of making they had been able to engage with in the space, and the relationships they had built. In this section, I will work with interview data from facilitators of the Digital Studio to outline three impacts of the space with respect to the relations of its users: First, its expansion of museum access for harder-to-reach audiences; second, its encouragement of creative subjectivities amongst its users; and third, its encouragement of creative subjectivities amongst Tate staff who engaged with it. I will then reflect on some of the limitations of the Digital Studio model, where its visions were not able to translate into reality.

The first manifestation of Digital Studio relations that its facilitators expressed feeling pride in regarded the ways it had widened access to the Tate Britain for publics who might not have engaged with the museum otherwise, including younger patrons and local diaspora communities who lived near the museum but rarely entered it – two key target groups for Tate itself (Tate 2018a). Cristina

Locateli was a PhD researcher who had facilitated the Wandering Ruins<sup>80</sup> project in collaboration with Tate as part of the Art Maps initiative, which used digital tools to engage participants in place-making. She said the Studio had been especially effective as an entry point to the Tate Britain for participants during these sessions. “Obviously the galleries are, in a way, very distracting,” she explained, “And because we were working with very specific types of publics like schools, elderly people, migrant women, we just didn’t want that distraction. So I feel the Studio gave us the focus we needed to [do things like] test the application on a mobile phone [...] that containment of place and mind that we needed to learn and discuss together.”

Several other facilitators I spoke to cited similar experiences of seeing new users engaging with the Digital Studio who had never entered the Tate before. Luisa Ulyett, a curator on Tate’s public programmes team, discussed this with reference to an international art exchange programme: “We did Skype sessions with kids in India and the US, and a lot of feedback we got from kids who participated here, who were from [age] 9-15, they said that they never thought of the Tate before as a space for them, or that anything they’d produce here could actually be seen as art. So there’s something special about the Digital Studio in that way, that it supports access and openness” (interview 18/11/16). Kat also felt that the Studio had been able to reach unexpected audiences like these “because it really reorientates what Tate is. The question of art comes later, but is not the first thing in here, and I think that’s quite exciting.” In her own workshops, for example: “When we have 20 spaces, we put 10 online, and leave 10 drop-in because [...] we also want to partner with local organisations [...] and that’s been a slowly, slowly trickle effect that’s started to matter. We’re doing a workshop in 2 weeks’ time, and based on evaluations with the kids, over half have never been to the Tate Britain before.”

As manager of the Tate Collectives youth group for many years, Jen had facilitated many of the Digital Studio’s most notable workshops with a similar aim to enable more diverse engagement. “I’ve done a tonne of research on the people whose work we grab from online participatory things, and then invite into the gallery,” she said, “and almost none of them have been into the Tate before. That showcase

<sup>80</sup> Located at <https://www.tate.org.uk/whats-on/tate-britain/course/wandering-ruins-workshop>.

element is really important. It brings in people who would not engage otherwise, or see themselves as artists. So I think seeing beyond ourselves as a ‘centre for excellence’ and as more of a ‘centre for everyone’, we’ll invite in unexpected and future artists as well as expected ones [...] And that’s what is powerful. They know they partly shaped it.”

This sense of being able to ‘shape it’ was especially valuable when it came to inviting younger users to Tate. Leyla Tahir had just taken over Jen’s role managing Tate Collectives when I interviewed her, and her relationship with Tate had started seven years previously when she had joined Tate Collectives as a youth participant. She described the significance of encouraging creative subjectivities amongst younger users in particular: “I think having a space like the Digital Studio, where you’ve got lots of resources, lots of kit, for young people that’s a much more native environment, it feels intuitive [...] So it’s such a luxury to have this space. And if you think about what a gallery is *usually* like... quite stuffy, quite serious [while] this space is quite chilled out, quite relaxing, it’s so refreshing. It’s been such an asset for the young groups I’ve worked with” (interview 25/11/16).

Rachel Noel was an assistant curator with Tate’s public programmes team who also helped with Tate Collectives. She said that Tate Britain had “kind of struggled” to entice new participants to join the Collective from at-risk partnership groups in particular. Young people could be held back, she explained, by pre-conceived notions of Tate being an elitist, “not for them” institution. “So to get them here, when we finally do succeed in getting them to join, and then bring them into a boardroom... it’s just like crushing a little balloon. So this space came at a really important time. They feel ownership over it [...] it allows us to interact in a completely chilled-out social sense.” (interview 11/11/16). These reflections again emphasise the importance of the spatial organisation of the Studio and the motives of its facilitators, both to its social practice and the experiences of its users.

For the facilitators I spoke to, broadening access to Tate collections in the Digital Studio was not only about getting new kinds of users through the doors of Tate Britain, but also about activating their ‘latent’ creativity by fostering creative subjectivities amongst them. As discussed earlier by Rebecca, these activations were typically implemented through the kinds of hands-on pedagogies that Paper,



Harel (1991) and others like Ito (2010) have variably referred to as ‘learning-by-making’. “Becoming a producer is a key point to leave people with that I love when I run sessions [...] telling people they can be artists today,” Luca explained. “It’s so empowering. I feel that it gives the space a special kind of possibility, whether young people, elders, special educational needs [...] but I also see it when I do sessions with people from other galleries who are professionals. I can see how excited they are to be able to make things.”

Another way this subjectivity was encouraged was by infusing the open flexibilities of the Studio into its relations, so users could feel the agency to creatively experiment in their own ways. Emilie Giles was a digital maker who had facilitated one of the Studio’s first workshops<sup>81</sup> for publics in 2014, where participants had sewed their own objects inspired by Tate’s folk art exhibition by working with e-textile technologies. She preferred to hold workshops in institutions that already understood the value of creative social practice, she said, because “I think kids are so tested these days in normal school already... I’ve been to workshops where the kids are making roman pottery, and the teachers kind of comment that their work isn’t good enough [...] so in a digital making space, a lot more creativity is allowed and facilitated” (interview 06/02/17). By encouraging a variety of digital making and learning interactions with Tate Britain collections instead of a one-size-fits-all approach, reflections like this show how the Studio’s flexibility affected the practices of its users.

The greatest impact of the Digital Studio, however, could be observed in the ways its representational spaces<sup>82</sup> affected the constitution of relations amongst Tate staff themselves. Where the Studio was perceived as a space for experimentation and openness, staff could be seen modelling their own practices to reflect these qualities. Facilitator #6 explained how they felt liberated from the usual institutional controls at the Studio: “Pretty much all of the digital activities we do start from the collection, so being based at Tate Britain is actually quite brilliant, because most of the artworks are out of copyright, so we have so much great art to work with. Glitching them, breaking the code, making animated gifs... because we

<sup>81</sup> Located at <https://www.tate.org.uk/whats-on/tate-britain/make-it-events-young-makers/make-it-hand-made-digital>.

<sup>82</sup> As depicted in Chapter 3, representational space focuses on the ways a space is depicted through knowledge production.

have the ability to [...] use that material quite widely, it has been really fun, and hasn't felt like an awkward jar to have the site in an old and stuffy environment; it's felt emancipatory, re-interpretive, a bit subversive. We wouldn't be able to do it with the majority of artworks at the Tate Modern, because they're still in copyright. Here, we're more free".

Even members of staff who had typically avoided digital technologies explained to me how the knowledges they had gained in the Studio had started to filter down into their interactions with their audiences. Anna Marie Gray worked on Tate's Schools and Teachers team, and had organised a Tate summer school programme which was based in the Studio. "We don't tend to use the Studio as much as other teams," she said, "mostly because we're not very *good* at technology [laughter]... many of us would say we are technophobes, and quite analogue people... but when we do use it [the TDS], the results are quite well-received [...] Luca has been really good at supporting people like me who know nothing about technology [...] and it's his expertise and knowledge that really can help us feel comfortable. Hopefully then that comfort filters down into different audience groups, who can then themselves feel confident" (interview 18/11/16). John McNeill worked on the Tate Collection Care team, a group of conservators who maintained Tate artworks. He described to me how they had used the space for their own kinds of hands-on activities, like testing new paints and conservation materials, because the "lighting in here is even better than in the actual Conservation Studio". He had also noticed how his team's encounters with the space had started to change the nature of their relations: "If I was to describe why our department values this room, it's the potential for connectivity amongst all our participants. So they're not just staring forward at a screen; they're interacting with a workshop leader and each other on new interfaces. That is really important [...] that encourages, or really you could say, forces, people to interact more with each other" (interview 18/11/16).

These kinds of experiences had also inspired many of the Tate staff I interviewed to advocate for more implementations of creative digital practices – not only in their own work, but also across Tate. Helen Cooper, for example, worked on Tate's partnerships team and said she was a 'late-adopter' of the Studio, describing herself as "not really digital enough". Despite this, she had started to organise her own sessions in the space, which included professional development workshops

aimed at high-level museum professionals from other institutions, who were invited ‘hack the museum’ by engaging in remix and glitching activities using out-of-copyright works from the collection that helped them learn how to use open source software like Inkscape<sup>83</sup>. These sessions had gotten great feedback, she told me, many of whom had never done anything like it before. “We’re all so frustrated with old interfaces, webpages, ways of working at the Tate,” she said, “so I really wanted to do some thinking, and some hacking, to think how we can share some of our visual stuff in a visual way... I think the way Luca and people like him facilitate that kind of workshop, it’s so dynamic and inspiring. We all need so much more of it (interview 14/12/1). Jen reflected on how before the Studio opened, “my role in digital was really focused only on online experiences. Having the space really changed that. It facilitated a merger between departments – Digital and Learning – that has been such an amazing catalyst for us collaborating. The value of that space just internally, even before we integrate audiences into it, has been really overwhelming actually. Before the Digital Studio, we didn’t programme any digital in the Tate. If we did, it was like ‘let’s roll out the iPads], so [...] having the space for it, it really validates that”. Insights like these illustrate how the Studio’s encouragement of digital practices, and the ways these practices impacted upon institutional staff, had effects that reached beyond the space itself.

There were, however, limits to the influence of the Studio’s experimentations. I found that while facilitators and users who regularly engaged with it had many positive things to say about it as expressed previously, the Studio was not necessarily regarded with such enthusiasm by everyone – especially those who had only engaged with it a few times. Despite its clarity of intention regarding its digital making and learning focus, and the general sense amongst more embedded facilitators that it could deliver on this, the Studio’s visions for itself did not always translate well.

The first issue when it came to articulating the Studio’s identity more widely regarded how difficult the space could be to access, even within Tate Britain itself. Facilitators described its location as “off the beaten track”, “disenfranchising” and “full of barriers”. Because it was not situated in a more prominent part of the

<sup>83</sup> Vector editing software that provides an open source alternative to Adobe InDesign and Illustrator.

museum where everyone could feel welcomed to drop in, it could feel secretive. “I just walked around the corner thinking this would be a bathroom,” a new user said at the Digital Artist Show and Tell event. “I never expected it to be a colourful room full of fun activities, not in my wildest dreams!” The irony of a space for open collaboration being hidden behind several closed (and often locked) doors was lost on no one. Rebecca described how the Studio’s location could be limiting to its social practice in more ways than one. “It’s always about so much more than just opening the door. It’s about trust building [...] you have to first [get them to] come *into* a building that already has all sorts of inhibitors, architecturally [...] and we really can’t remove the Studio from these surrounding infrastructures.”

Other moments of confusion regarding the Digital Studio’s identity seemed to emerge from the very shape-shifting flexibilities that were a strength in other contexts. Some facilitators I spoke to admitted that the Studio’s many parallel interpretations of what was meant by the ‘digital’ could be overwhelming. Facilitator #4 discussed how the Digital Studio name itself still scared some Tate staff away. “‘Digital’ for a lot of people – internally and externally – freaks them out... they think if they don’t know how to code, they can’t do digital making. So there’s an interesting power-play there. There are people who, when they move into this kind of space, don’t feel like the expert anymore, and I think that scares them. So many of them – curators for example – don’t even enter this space at all. And I think that’s a shame.” Collaborator #1 was a digital maker who had been invited to participate in a few Digital Studio workshops based on their expertise. “I am personally not sure what kind of entity the Digital Studio at Tate actually is,” they reflected. “Is it public-facing in other events that aren’t like the private ones I’ve been a part of? That’s unclear. I think a museum first and foremost is the space, so it surrounds you. The Digital Studio as such [...] has never to me made the impression of a space that is open to everyone and anyone [...] I can imagine it to be a flexible space, but when I imagine a space for *learning*, I think of something super open, on the main floor ... not tucked away near the wardrobe”. Facilitator #2, who was not employed by Tate but had facilitated various Studio events, said they believed that many of the Studio’s lost-in-translation moments would have been ameliorated if it was not always so understaffed. “The Studio managers have had to become way more than was possibly overseen when hired,” they said, “so I

think they are often locked away in the office behind. And that means the Studio really becomes just four walls and some computers”.

For other facilitators, the limitations of the Digital Studio’s digital affordances themselves meant that the space could not be *enough* of a shapeshifter. Its row of desktop iMacs and PCs, for example, were described to me as “redundant”, “outdated”, “problematic” and “like a computer lab”. Its immovable, wired-up tables attached to the floor also conflicted with the modularity of its practices. Ruth Catlow from Furtherfield, who while facilitating the ‘Art in the Age of Digital Drift’ course had also served as the Digital Studio’s artist-in-residence from 2016-17, described why: “The space itself is quite theatrical, which enables you to do some things. I do wish it was more flexible, I really wanted to move it around a lot [...] that was the most frustrating thing. You can model social relations by just having people in the space together... but when the tables in the space are stuck, you can’t. It’s probably not a big thing for anyone but me, but I always think it’s pretty powerful to be able to change the way people are in relation to each other... it helps them re-understand a digital space. How [else] do you model digital space within a space?” Despite these concerns, she reflected that “I think what they are doing there, is they are building *capacity* to do [digital] things; they are building [...] new understandings with their own institution, and I think to me that seems to be the really critical thing.” (interview 05/07/16).

These experiences demonstrate how many contesting ‘senses of place’ (Massey 1993) can be overlapped onto a space of experimentation to build the constellation of experiences that constitute its identity. While the Digital Studio’s core facilitators endeavoured to maintain its sense of openness and freedom, which they felt was key to how it needed to be represented within Tate at large, this was not necessarily how it was understood, especially by less-embedded users and facilitators. By continuing to shape-shift despite the limitations of its location and affordances, however, the Studio’s multitude of digital approaches meant it remained open to new interpretations. The possibility to extend the experiments of the Studio on an even broader scale, in a space with much greater capacity, would soon be offered by the new Tate Exchange at Tate Modern. In the next section, I will discuss the high-profile launch of this new space, and how its introduction to Tate caused a new set of interspace relations to emerge.

## 6.6 Digital Studio encounters Tate Exchange

The launch of Tate Exchange in 2016 marked an important shift in the way Tate perceived of itself and its audiences, signifying its sense of the increased institutional value of the kinds of participatory practices introduced by the Digital Studio. Tate Exchange was initially imagined as an ‘open experiment’ which would be situated across all four Tate galleries in the U.K., along with a dedicated space at the new Tate Modern Blavatnik building in London. The idea was that each of these expressions would be shaped by Tate visitors. In its first year, Tate Exchange and Tate Liverpool spaces hosted over 200 events, which explored art and society in contexts ranging from exclusion to migration to identity. Some were facilitated by Tate teams, others by the artists and 60 ‘Associate’ partners who helped fund and produce Tate Exchange, and 100,000 people participated, 41% of whom were under the age of 25 (Cutler 2018, n.p.; Tate 2017e, n.p.).



*Fig.5: Tate Exchange during an Associate workshop<sup>84</sup> (Tallis Photography 2017).*

<sup>84</sup> Located at <https://www.tate.org.uk/whats-on/tate-modern/tate-exchange/workshop/everybody-should-have-their-own-art-gallery>.

By its second year, Tate Exchange's spatial articulation as a cross-Tate project had been revised, and it had become situated almost entirely in the Tate Modern space, with a much smaller space offered as part of one of Tate Liverpool's galleries. At the Tate Modern, the Tate Exchange takes up an entire floor, other than a small partition devoted to staff offices and a greenroom for event facilitators. Tate's Director of Learning and Research, Anna Cutler, has stated that: "[W]e required space in which discussion and 'messy' activity could take place and where the values could be made real, where risks could be taken and where openness would be evident [...] Initially, [it] was planned as divided rooms, but [...] over time the taking down of walls became an obvious and essential need" (2018, n.p.). Reflecting on the first year of the Tate Modern space, she claimed its stated goal of 'talking and making' became core features of every one of its projects: "Sometimes there were discussions or debates taking place; at other times the focus was on making, from tiny objects, to large scale architectural forms. There was dancing, writing, talking, designing, testing, watching, playing" (2018, n.p.). Some of this consistency of practice came down to the space's robust resourcing in accordance with the considerable flows of capital that had brought it into being, which unlike the Digital Studio allowed it to hire a dedicated staff team. By regularly working on-site alongside the facilitators of its events, Tate Exchange's staff also helped maintain its open ethos.

While Tate promotional materials (c.f. Tate 2017e) depicted Tate Exchange's spatial shifts as resulting from a seamless process based on user feedback, I encountered a much more complicated set of negotiations. During the time I spent at the Tate Modern, the Tate Exchange space seemed to be, like the Digital Studio, continually re-constituted out of the practices of many actors. In the case of Tate Exchange, however, the space's identity was determined not only by its users as claimed, but also (and in some cases, especially) those of its 60 Associate partners and the various staff teams at Tate (from public programming to curatorial to Tate Exchange) who felt a sense of responsibility over how it was enacted.

These internal politics also manifested in the relations that emerged between the Digital Studio and Tate Exchange. One of the ways in which Digital Studio facilitators attempted to negotiate a symbiotic relationship between the two spaces was by proposing the Studio as a 'digital campus' that could be used by the Tate

Exchange Associates for more intimate digital workshops. This was suggested because at the time of this study, Tate Exchange had a very minimal technical set-up, so to produce its events it often had to borrow equipment like speakers and projectors from other Tate spaces, or have it brought in by Associate partners. As discussed by Cutler (2018, n.p.), who stated that “the digital space was not as generative a frame as we had envisaged”, this limited the extent to which Tate Exchange could be enacted as a collections makerspace.

The Digital Maker series was one such manifestation of the Tate Exchange as a collections makerspace. Its workshops were facilitated at Tate Exchange in 2017 by students at the University of Arts London (one of Tate Exchange’s Associate groups). Luca and other core Digital Studio facilitators were also involved in producing the events, and provided significant guidance throughout the planning process. During the week-long workshop entitled ‘Virtually Real Environments<sup>85</sup>’ which I participant-observed in March 2017, Tate Exchange was organised into various hands-on stations aimed at exploring concepts around virtual and physical space through engagements with VR equipment, making and craft areas and performances, including a ‘Digital Maker Base Camp’ to envision how to “turn digital overload into a positive and creative force” (Tate 2017f, n.p.).

I used a simplified version of my user questionnaires throughout the week to gather spur-of-the-moment insights from the event’s facilitators and members of the public who dropped in. 15 individuals wrote or sketched anonymous responses to the questionnaires on paper, and another 10 preferred to have a quick chat with me instead. They stated that the space felt “lively, loud and extremely laid-back”, and “on the corporate side of things, but hopeful”, “frantic”, and “intense (full of movement)”. They described creating a variety of artefacts, from “a kinetic sculptures, but with limitations due to health and safety” to “a new kind of VR prototype” to “nothing, I’ve just been watching a talk on re-animating materiality through sound”. When asked to reflect on how the space worked for digital participation, they were broadly enthusiastic, saying they had “never seen a space work with digital like this before”, that they found it “hopeful” and “important”, and that they liked how “it helped you see other people’s work to engage with”.

<sup>85</sup> Located at <https://www.tate.org.uk/whats-on/tate-modern/tate-exchange/workshop/digital-making-art-school/virtually-real-environments>.



They also said, however, that the space “could have been more inviting” and that it was “hard to know where to jump in.” Only a few of the people I spoke to at the event, meanwhile, said they had heard of the Digital Studio at Tate Britain.

Another occasion that I observed where Tate Exchange had been enacted as a collections makerspace was Art:Work<sup>86</sup>, a four-day technology lab dedicated to “the power and politics of making in an age of digital labour” (Tate 2017a, n.p.) that I helped plan and facilitate as a piece of action research. This workshop was entirely produced by Tate Digital Learning, and the facilitators they had invited. As discussed in Chapter 4, the process of helping curate this workshop and plan its various participatory ‘zones’ gave me the opportunity to build an understanding of how the relations between Digital Studio and Tate Exchange facilitators were articulated during collaborative projects. One of the activities that I co-produced was a ‘flow map’ of the Tate Exchange space (Chapter 4, fig.4) which asked participants to reflect how they had moved through its zones during Art:Work.

This intervention enabled me to observe how user understandings of Tate Exchange were not linked only to their direct experiences of its ‘material space’ (Lefebvre [1974] 1991)<sup>87</sup>, but also to how they perceived it more cohesively. While most participants had not chosen to linger in its quiet zones, for example, they expressed pleasure that these “chillspaces”, as one participant put it, were on offer. Many participants also stated that they had ended up spending much more time in zones where they had made personal connections or had good conversations than in the zones that were more appropriate to their personal interests or background. This finding correlates with data from Sarah Davies’ study of user motivations at other kinds of third- and fourth-wave makerspaces in the U.S., which found key correlations between the ways people connected with and imagined spaces to the ways that the spaces were used (2018). By reflecting on these kinds of relations, I was able to understand how the space-making of Tate Exchange, like that of the Digital Studio, was dependent on how its facilitators and users chose to imagine and enact it, and the digitally-mediated assemblages they helped activate.

<sup>86</sup> Located at <https://www.tate.org.uk/whats-on/tate-modern/tate-exchange/workshop/artwork>.

<sup>87</sup> As described in Chapter 3, the material space frame refers to the everyday experiences, routines and practices that determine our mundane and (often unobserved) experiences of the spatial organisation of society.

Rebecca and Luca were both hopeful about the possibilities of the ‘digital campus’ model as a way to bring about more collaborations of these kinds between the two spaces. “To be able to have a space where you can try stuff out in a way that would not be too intrusive in the rest of the gallery, or to spend more time on things, is important,” Rebecca said, “[...] just as in a university you might do science over here, and a library over there... [where] it’s all part of the same.” Luca, meanwhile, questioned the need for boundaries between the spaces to begin with: “Something I’d push more is the fact that we [the Digital Studio] are not just Tate Britain based, or we don’t have to be... I feel the collaboration needs to be stronger, that’s a good thing, we need to cross it more between these spaces. We all want to build new platforms for young people to come and test things out, learn together [...] and share digital practices.”

Despite the efforts of Digital Studio facilitators to build this sense of symbiosis between the two spaces, Tate seemed reluctant to operationalise such a relationship more practically. During the course of my interviews with facilitators who worked across both spaces, they increasingly said they were being encouraged to use Tate Exchange for public activities instead of the Studio. Various reasons were suggested for this. They discussed, for example, a lack of enthusiasm amongst Tate Exchange’s 60 Associates to use the Studio because it did not “seem to be really understood yet as a resource” (Facilitator #8). “So they’ll be bringing all the kit and setting up there,” Facilitator #9 said, “even though we do have this space here at Tate Britain [...] which is a shame [...] it’s as if it’s a bit neglected”. Other facilitators hinted that Tate Exchange might eventually use its internal influence to acquire digital affordances of its own. “I think if they got an incredibly rich funder,” Facilitator #7 said, “and were able to get digital tech over there, they’d likely jump at it, and then the use of this space [the Digital Studio] would come into question”.

Another reason for the increased hesitation of some staff to use the Digital Studio in lieu of Tate Exchange seemed to relate to institutional pressures to reach ever wider audiences. Facilitator #10, who worked in public programming for Tate, confided that in strategic plans for upcoming exhibits, they had not been “encouraged to programme in here [the Digital Studio] very much anymore”. The reason for this, they believed, came down to the fact that many teams like theirs

had increasingly ambitious public engagement targets that needed to be delivered. Thus, while large-scale events at Tate Exchange were perceived as practical, they said, smaller digital workshops were deemed “not very profitable” and too “materials heavy”.

This focus on delivering numbers can also be observed in Tate’s annual reports, which broadcast to publics and funders the activities deemed central to its subjectivity. An analysis of reports from 2015 to 2018 reveals that while a “pioneering” (Tate 2018a, 120) Tate Exchange is discussed a total of 17 times, along with prominently-placed photos from its workshops, and statistics<sup>88</sup> that laud its public reach, the Digital Studio is not even mentioned once (Tate 2016b, 2017e, 2018a). Between 2017 and 2018, meanwhile, Tate Modern attracted five times<sup>89</sup> more visitors than Tate Britain. As illustrated in Chapters 1 and 2, this instrumentalisation of public participation, where engagement targets are associated with the delivery of funds, and programmes that deliver bigger numbers are prioritised, is by no means distinctive to Tate alone.

This being said, an institution’s prioritisation of experiences that display quantifiable impact over more in-depth encounters affects more than just its public discourse. In the case of Tate, I observed that these relations also affected how its experimental spaces were understood and articulated by Tate staff themselves. “The Tate Exchange definitely gets much more visibility than the Digital Studio,” Facilitator #4 told me. “At the first Exchange event, all the board of directors came around, and they were so amazed. It’s as if they didn’t even know we have been doing these things already for years [in the Studio]. In collaboration. In DIY ways [...] They were saying ‘you should do more’. And we had to say, we have been! We have always been co-producing. And we just had an exhibit with [external partner x], and you didn’t even show it on your communications outlets.” Encounters like these suggested to me that Tate, consciously or not, was deprioritising the Digital Studio with reference to the seemingly more impressive Tate Exchange, despite the fact that *both* spaces displayed evidence of being pioneers in arts participation

<sup>88</sup> Regarding the launch of Tate Exchange’s second year with a clay workshop facilitated by the artist Clare Twomey: “Almost 5,000 visitors took part in producing objects in clay over two weeks” (Tate 2018a, 43).

<sup>89</sup> Tate Modern: 5,708,648 visitors; Tate Britain: 1,548,497 (Tate 2018a).

through their own avenues of public engagement – and, in the Studio’s case, had already been for some time.

Despite Tate’s prioritisation of Tate Exchange, it did not seem to me that the Digital Studio was going to be abandoned anytime soon. By virtue of its shape-shifting, it continued to evolve during the time I was at Tate, and in my last few conversations with facilitators I even started to observe a resurgence of affection for the space, especially regarding what was referred to as its ‘intimacy’. “Tate Exchange definitely is a space for experimentation and all,” Rachel explained regarding Tate Collectives planning, “but [...] we’re really committed to Late at Tate still happening here at Tate Britain [...] This gallery feels to me like a space for *young* Londoners, and so this is a space for young people to get a digital perspective on British art [...] It’s a local place here.” The Studio’s lower profile also provided facilitators opportunities for more tangential explorations of new practices and tools that might be harder to rationalise in Tate’s higher-profile spaces. “What we do is an experimental luxury”, Rebecca said. “To deliver the most digital to the most people is for the digital team, but to discuss what that means politically is us.”

The facilitators I spoke to also seemed to be conscious, however, of the risk of the Studio becoming more elite by virtue of this intimacy, a trap that many other kinds of digitally-mediated spaces have fallen into (Bassett 1999). One of the suggestions I heard many times over, in a similar vein to my observations of the Samsung Centre, was a desire to find new ways for the Studio to transcend its own infrastructures by collaborating more with other galleries across Tate, and spaces at other cultural institutions. “I don’t want this room [the Digital Studio] to be a secret little club for repeat users having a great experience and no one else,” Jen said. “I want us to always find more ways to open it up [...] We’ve had a lot of other museums come to us to ask how to integrate digital. And some of them seem to think that if they don’t have our kit, and our facilitates, and our infrastructures, they shouldn’t bother. I don’t think digital should be separate, it should be infused across everything.” Luca had been developing similar ideas: “What I want to know is, how do we build digital learning *across* sites? [...] For example, what would a mobile studio look like? [...] I feel that the next step is getting out. Getting out with our experience, out with our tech, sharing it with others. Creating outside.”

This motivation to ‘create outside’ of the Studio, and diffuse its practices into other kinds of institutional spaces, was shared by the facilitators I spoke to at both Tate and the British Museum. It also brings a core aim of this research to the forefront – to examine not only the relations between Tate Exchange and Tate Britain, but also between both spaces and the institutional apparatus of Tate itself. In the final section of this chapter, I will discuss my observations of these interspace interactions more widely, with a focus on how the negotiations between Tate and its spaces of experimentation were associated with institutional power relations.

## **6.8 The power, and limits, of digital experimentation**

A central area of inquiry that I found myself returning to many times while working with Tate regarded the role played by its experimental spaces in addressing institutional asymmetries of power. I observed many moments where Tate actively encouraged the more subversive practices that occurred within the bounds of these spaces, from hacking prominent artworks to hosting ‘digital hijackings<sup>90</sup>’ of its galleries. What I wanted to know more about, however, was whether these acts of allowing were merely another manifestation of the institutionalism of subversion that museums – especially those devoted to contemporary art like the Tate Modern, according to Serafini (2018) and Raunig/Ray (2009) – have already long been engaged in, or whether there was something more transformative going on. What did the lived space of Tate Exchange and the Digital Studio offer the dreams and imaginaries of their users, I wondered, that the surrounding infrastructures of Tate’s galleries – cutting-edge though they sometimes were – did not?

<sup>90</sup> ‘Digital Hijackers’ was the title of the Digital Studio’s first public workshop in November of 2013, which encouraged visitors to “drop in and join us to hijack, remix and animate our online collection of British Art”.



*Fig. 6: A 3D animation workshop during Loud Tate: Shift<sup>91</sup> (Digital Studio Remix 2016).*

For many of the Tate staff I spoke to in particular, ‘freedom’ was one of the most-used terms to describe their relations within Tate’s experimental spaces. At the Studio, for example, facilitators and users alike had more freedom to create, upload and disseminate digital artefacts across the web than Tate staff were typically given. This arose from the fact that like many other institutions of its size as described by DiMaggio and Powell (2000), Tate was engaged in a process of ‘structuration’<sup>92</sup> during my time there, which included the consolidation of control over its digital presences to display a more unified public image. I observed various occasions where websites and other digital assets were taken off the web from projects that did not adhere to Tate design guidelines. Tate staff were also increasingly discouraged from setting up digital media outlets on their own without first receiving official approval. This caused frustration amongst the staff I spoke to who desired to work more flexibly. “We can’t get anywhere near the main Tate social media channels,” Facilitator #3 said, “whereas at somewhere else smaller, you would. Too many people are competing for the limelight. Large organisations, that’s their complexity. They want to curate their ‘voice’. But aren’t they supposed to be there to have a conversation? There is a lot of control over things here, like

<sup>91</sup> Located at <https://www.tate.org.uk/whats-on/tate-britain/festival/bp-loud-tate-shift>.

<sup>92</sup> The process by which an institution defines its field of practice in relation to that of other institutions.

computer interfaces or back-end communication channels, that you wouldn't expect." This reflection illustrates a contradiction at the heart of institutional structuration. By centralising control over its digital assets, Tate risked alienating key members of staff who had helped foster its more innovative digital practices.

In association with this finding, the introduction of deliberately experimental spaces like Tate Exchange and the Digital Studio can be understood as a pragmatic move on Tate's part to address these kinds of tensions. "It feels like institutions need to have those systems of power," Luca said, "and yet they also need to provide places where that can be opened up, where people can be more free. Or else innovation can't happen." By enabling 'freer' digital co-creation to occur within the boundaries of dedicated spaces that both staff and publics can engage with, large institutions like Tate benefit by encouraging new practices and tools to be tested at smaller scale, and with less risk.

Tate's partitioning of its experimental spaces did not mean that the institution itself remained unaffected by their experiments. On the contrary, as discussed in the previous section, the motivation shared by many of the facilitators I spoke to was to actively ensure that the practices of these spaces expanded outside of the limits of their own infrastructures, and into other kinds of environments. Rebecca and Jen both described how they had witnessed gradual changes within Tate since the Digital Studio had opened in 2009. "I think this place has been synonymous with collaborative working-and-sharing practice from the beginning," Rebecca said, "and there are now enough people at different departments who understand the open way we work, that they are maybe helping inspire other departments. Helping the museum be more collaborative and open when the departmental structure and the architecture does not support that is an ongoing project." Other facilitators like Jen said they had never seen "nearly as much digital making at other museums as there is here [...] it's exciting the Tate takes that seriously."

These shifts of perception express how power can be transferred from an institution to its staff and publics – and they can be seen not only in changes within Tate's relations, but also in the shifting relations between the spaces' facilitators and users. Sarah Horrocks was director of the London Connected Learning Centre, one of Tate Exchange's Associate groups who organised a

workshop<sup>93</sup> in the space for schoolchildren in 2017. She explained that her team's encounters with Tate Exchange had impacted their knowledge of how to approach young peoples' engagement with the arts: "Going to Tate, using that space, thinking about the fact it's in a gallery, a museum, thinking about how we encourage children to respond to art and then think more collaboratively, that's helped us modify our own work. And because we're really schools focused, we tend to work in that really *schooly* way, where people come on a particular time to do a particular thing. But what was great about Exchange is the kids had a lot more freedom, and they absolutely made the relationship between the spaces, and they were really clear about where they were [...] they didn't see the gallery bit as going to another place [...] For them, that's just what happens when you go to a gallery – you see art, you make art" (interview 29/03/17).

The Digital Studio facilitators I spoke to also discussed how they had witnessed shifts in power relations between the museum and its publics. For Kat, the space's greatest impact had been in providing evidence of what could happen when users were provided with the creative license to act as more than just consumers of fine art. "This space does have an ability to take over," she said, "and by that I mean [it can] take back agency for people, to make stuff themselves, to feel like makers. So if anyone has power here, I would say *it's the space itself* – I know how weird that sounds, but it's true. Bringing people in who are maybe scared of this world, sharing it with them. Tate is big [...] But rooms like this, they help give unexpected sources power." Jen, meanwhile, reflected that she had certainly seen "hacks of power" in the Studio, especially during public events run by young people that brought in new audiences. When I asked her if these events had subverted power relations between Tate and its publics, however, she responded cautiously. "You have to take calculated risks," she said. "In terms of power, and hierarchy, it's very important for us to be very realistic about who we are. We are an art gallery. We are in an old museum. We need to not try and trick ourselves too much [...] and cleverly integrate digital and making and hacking into that without [...] start[ing] so far away from it that it becomes meaningless to both parties [...] because it can't just be about a digital hub in a building."

<sup>93</sup> Located at <https://www.tate.org.uk/whats-on/tate-modern/tate-exchange/workshop/city-spaces>.



Jen's point that the Digital Studio would have less impact if it diverged too far from Tate's core aims is important, because it reflects the level of nuance that is required to ensure experimental spaces introduce their innovations to host institutions with a sense of care, in ways that are understandable and useful, both to users and institutions. Only then, it seems, is sustainable organisational change possible. Cutler (2018, n.p.) has described how this kind of nuance was essential to Tate Exchange in particular, because "the dynamics between the institution and programme often live in tension, particularly when change is taking place, and many questions arise about the ability of an institution to be involved in forming a critique that implicates itself." This being said, she also expressed the belief that "the deliberative process [of Tate Exchange] has been transformative. It has made a difference to institutional values [...] that implies a new balance between a presupposed historical position of authority with that of standing equally among 'all' others" (2018, n.p.). It is in this practice of standing 'equally among all', rather than according to the power-geometries that have all too often defined interactions between museums and their publics, that the impacts of experimental spaces like Tate Exchange and the Digital Studio are at their most powerful.

## 6.9 Conclusion

In this chapter, I analysed data from participant observation at a variety of gatherings, questionnaires and informal chats with space users, interviews with facilitators and collaborators, and action research to explore how two case study sites, Taylor Digital Studio and Tate Exchange, worked. I also examined how these spaces interacted with each other, and how they interacted with Tate itself, taking a particular look at how their practices impacted – and yet were also limited by – institutional power relations.

This allowed me to arrive at three main findings. My first finding in this chapter was that the material conditions of collections makerspaces matter. Their infrastructures and technical affordances, and the amount of attention and resourcing they receive from their hosts, both limits and enhances their impact. These conditions affect the extent to which they can have an impact their users, and also ow much their practices can impact those of institutions. In the case of the Digital Studio, the space was limited by a lack of funding for full-time staff, its

location in a lesser-used part of one of Tate's older museums, and the limited acknowledgement of its achievements on an wider institutional level – but it was also able to challenge these kinds of limitations by working more collaboratively, openly and flexibly. The Studio also benefitted from focusing its co-creation activities on Tate Britain's vast collection of out-of-copyright works. In this way, it provided much inspiration for those who had engaged with it several times.

The space of Tate Exchange, meanwhile, opened with greater public fanfare and more resources in terms of dedicated staff time and institutional attention. It also benefitted from an entire floor at Tate Modern, which was centrally located in one of London's most heavily visited museums. Its limited in-house technical affordances, however, meant that it could not be enacted as an 'ontogenetic space' through the processes of transduction<sup>94</sup> (Kitchin and Dodge 2011) as frequently as the Digital Studio. Despite these limitations, Tate Exchange's impacts were clearly articulated in terms of numbers through the door (emphasised in its prominent mentions in Tate's annual reports) and also in the depth of engagement it enabled amongst its users.

My second main finding in this chapter was that the introduction of the Tate Exchange as an alternative site of experimental participation to that of the more digitally-focused Digital Studio brought about a specific set of interspace relations within Tate, which both complicated and enhanced the way the Digital Studio itself was produced. As the smaller and less publicised space of the two, I found that the Studio needed to continue to act as a shape-shifter in order to stay in symbiosis with the needs of its facilitators and users, and those of its younger sister space.

The third finding of this chapter is that experimental spaces have started to impact the power-geometries of agency and access (Massey 1993) of Tate itself, both in terms of how it interacts with its publics, and also how it interacts with its own members of staff. By affecting the subjectivities of those who engaged with them, the Digital Studio and Tate Exchange have started to shift power relations by transferring agency from the power/knowledge apparatuses of the Tate as an

<sup>94</sup> As discussed in Chapter 3, transduction is defined in this thesis as the making-anew of a spatial domain through the reiterative practices of human and technological assemblages, which constitute both the way a space is produced, and the conditions under which it can be continually re-made (Dodge and Kitchin 2005, 162).

institution to its publics and its staff. This was evidenced in how the users and facilitators I spoke to articulated their own emerging subjectivities as digital makers – a process which affected both how they perceived of Tate, and also how they interacted with it.

As has also been discussed, there are limits to the impacts of these spaces, as seen in how they can be unevenly perceived by users and facilitators alike. They are also limited by their own temporalities, which shift dynamics and potentials over time according to evolving and difficult-to-predict flows of capital and influence. However, in open workshops like that of the Digital Studio, where classical works of art long associated with the dominance of a society's more elite groups are remixed for the first time by young people who might never have entered the Tate Britain before, opportunities abound – to challenge old ways of doing things, and even more importantly to transform the logics and discourses that made those ways dominant in the first place. By supporting the experiments of spaces like the Studio and Tate Exchange, Tate's galleries can help to ensure their collections remain salient for new generations.

## 7. Wellcome Collection Reading Room

### 7.1 Introduction

*"The division between the hidden space of the museum in which knowledge is produced [...] and the public spaces in which it is offered for passive consumption, produces a monologic discourse dominated by the authoritative cultural voice of the museum".*

- Tony Bennett, *The Birth of the Museum*, p.108

This chapter discusses the Reading Room at the Wellcome Collection museum in London as a space which both challenges, and constitutes, my definition in this thesis of what a collections makerspace can be. This means that I will both work *with* my initial definition of collections makerspaces as digitally-mediated public spaces with creative tools and facilitators who help users make and learn with a cultural collection, while also moving *beyond* this definition to discuss the possibilities of temporally-bounded collections makerspaces which are only enacted as such on occasion. As a hybrid space that is always open to its publics in an aim

to “challenge how we all think and feel about health” (Wellcome Collection 2018, n.p.), the Reading Room is continually enacted as a library and a gallery, and only sometimes enacted as a collections makerspace. It has also evolved from a closed environment for knowledge acquisition amongst elites to an open one, which is co-produced by librarians, curators and publics alike.

This chapter will proceed as follows. I will begin with a short history of the Wellcome Collection, the influence of its access to capital and the imaginaries of its benefactor Henry Wellcome, who envisioned the Reading Room as a hybrid space from its earliest iterations. I will then discuss the circumstances of the Reading Room in its current form by examining its affordances, its ‘wunderkammer’ curatorial style and its public programming. This will be followed with an examination of how the Reading Room was produced through its everyday practices and events. I will conclude the chapter with a relational analysis of the space, discussing its effects on other kinds of spaces at the Wellcome Collection, on interactions between staff, and on staff-user relations. In doing so, I will explain how my encounters with the Reading Room have added nuance to my understanding of the possibilities of collections makerspaces.

## **7.2. Wellcome Collection history: Exploration through investment**



*Fig. 1: The Wellcome Collection building under construction (Wellcome Trust 1931).*

The Wellcome Collection was established in 1932 as the Wellcome Building by the pharmacist, philanthropist and collector Sir Henry Wellcome, whose legacy remains a strong influence on the current-day institution. As an individual, Wellcome has been referred to as “passionate” (Adamopoulou and Solomon 2016, 51) and “obsessed” (Launer 2017, 507), with an almost supernatural level of energy that left him preoccupied by a diverse array of eccentric endeavours, including the collection of curiosities from around the world. Like the British Museum’s equally wealthy founder Hans Sloane, Wellcome was often found collecting artefacts abroad, and his fortune provided him with the “means to indulge his obsession [of collecting archaeological and ethnographic oddities] on an almost industrial scale” (Gould 2007, 9)<sup>95</sup>. By the late 1920s, Wellcome was spending more on acquisitions than the British Museum; by the 1930s he had amassed over five times the artefacts of the Louvre (Launer 2017). By his death, what is now known as the ‘Wellcome Collection’ consisted of an immense number of artefacts that not only explored medicine, but also other aspects of culture and the human body that included torture instruments, sex toys, weapons and even samples of human hair.

<sup>95</sup> Wellcome’s time spent collecting artefacts from around the world was only somewhat limited by an unhappy marriage with the much younger interior designer Syrie, who “detested” his collections (Menon 2012).

The majority of these artefacts were either sold or put into storage until 2003, when the 'Medicine Man' exhibition was launched at the British Museum in *Wunderkammer* or “wonder room” style, a method of curating objects not according to the dominant taxonomies of the time, but instead according to their level of possible intrigue for viewers. The ‘Medicine Man’ exhibit was re-launched in the Wellcome building itself in 2007, where it continues to be hosted on a permanent basis as an homage to the eccentric curatorial interests of its benefactor (Adamopoulou and Solomon 2016).

The current-day Wellcome Collection actually constitutes several different collections, which include archives and manuscripts on the history of medicine, printed medical works and scientific literatures, an ‘Art Collection’ of over 250,000 works, an ‘Asian Collection’ with works in over 40 languages, and a ‘Moving Image and Sound Collection’ (Wellcome Library 2017a, n.p.). There is also Henry Wellcome’s personal collection of historical medical and ethnographic items, a closed collection of around 117,000 items on long-term loan at the Science Museum, some of which are featured in the Medicine Man exhibit. Together, these collections span over 30,000 years, and include an estimated 2.5 million items<sup>96</sup>. In addition, the Wellcome Collection also includes the ‘Wellcome Library’, a hub for the study of medical history with 750,000 books, journals and other publications, and ‘Wellcome Images’, an extensive image repository of 40,000 images from biomedical and clinical sciences (Wellcome Library 2017a, n.p.).

The Wellcome Collection’s capacity to maintain, manage and curate these vast collections on a daily basis is made possible by the institution’s continued access to an equally vast internal endowment, a privilege experienced by very few cultural institutions in the U.K. This has been made possible through a long process of gradual acquisition and investment by the Wellcome Trust, which carries a £25.9 billion investment profile<sup>97</sup> that funds the Wellcome Collection’s activities. When Henry Wellcome died in 1936, he bequeathed all the shares of his company (amounting to about £3 million) to the creation of a new trust for medical research called the Wellcome Group. From the 1950s to 1980s, the Wellcome Group developed breakthrough drugs like the antiviral medication Zovirax, and by 1986,

<sup>96</sup> This statistic was provided to me by Wellcome Collection librarian Elayne Hodgson by email in 2016.

<sup>97</sup> As of 30 September 2018 (Wellcome Trust 2018).

the Trust had started to float the proceeds of its shares to further diversify its assets, which allowed it to increase its charitable donations and grants by a large margin (Wellcome Trust 2018).

This continued access to internal capital means the Wellcome Collection as an institution is able to invest not only in profit-focused initiatives, but also those that are more exploratory. The current-day Wellcome Trust (as Wellcome Group is now called) has become so influential that Wikipedia lists it as the world's second wealthiest charitable foundation after the Bill & Melinda Gates Foundation (Wikipedia 2018). The Trust describes itself as “politically and financially independent” (Wellcome Trust 2017, n.p.), and states that it invests the majority of the income from its investment portfolio on funding schemes that support 14,000 individuals in 70 countries. The kinds of projects that the Trust funds vary in remit, but all share a general focus on public health and well-being<sup>98</sup>. The Reading Room is one such project. In the next section, I will discuss how the Reading Room was imagined and constructed, and the hybridisation of library and museum functions that define it.

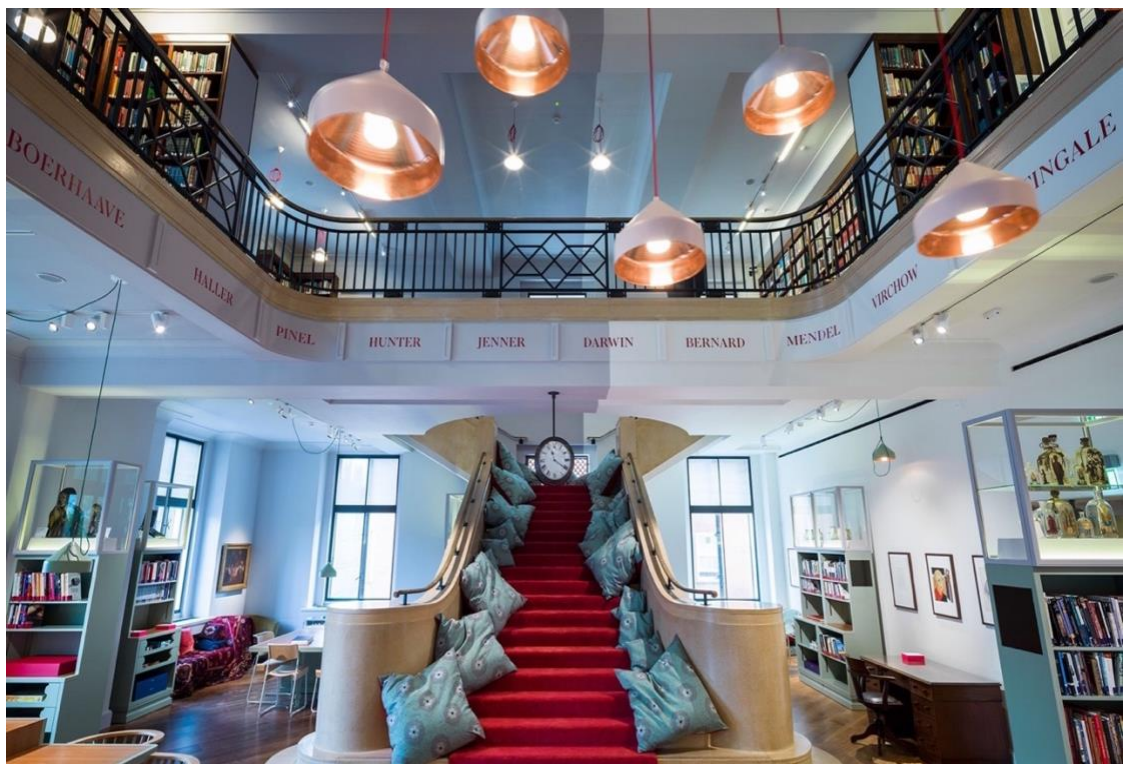
## 7.3 A Reading Room for the Wellcome Collection

The Reading Room was first constructed by Henry Wellcome to augment his personal library. He imagined it as a grand ‘hall of statuary,’ with marble busts and totem poles that would add grandeur to his then-sprawling personal museum. While these library and museum spaces remained private during Wellcome's lifetime, he wanted them to eventually be combined into a public resource. He tested out this vision in 1913 by launching his first public exhibition of select artefacts from his museum collection, and in the 1920s he started hiring professional librarians to manage his library collection and make it available for the use of selected scholars (Wellcome Library 2017b).

<sup>98</sup> The Trust has also stated that it aims to spend £5 billion more in the next five years to support a broader spectrum of ideas, from medical innovation to public policy and the humanities (Wellcome Trust 2017).



*Fig. 2: Back wall of Reading Room, before staircase (Wellcome Trust 1962).*



*Fig. 3: Back wall of redesigned Reading Room, with staircase (Wellcome Trust 2016).*



After Wellcome's death, his library collection was opened to the public in 1962 as the 'Wellcome Historical Medical Library', a place for "solitary, scholarly study" that was "crammed with bookcases and card catalogues" (Arnold and Chaplin 2014, viii). This library, which sits alongside the current-day Reading Room and is now simply called the Wellcome Library, is free for anyone to use, and sees over 40,000 visitors a year (Cook 2016). In 2007, Wellcome's library and museum collections were unified as the 'Wellcome Collection'. At this time, the Reading Room still looked very much like a typical reading room for solitary study. After an extensive £17.5 million re-development aimed at meeting future visitor demands, however, the Wellcome Collection was relaunched in 2014 as a set of "bigger, bolder, braver" (Cook 2016, 16) spaces that provided opportunities for more collaborative engagements with the collections. These included a revamped library, cafés, museum exhibits, event spaces and an ambitious 'new' Reading Room designed by architectural firm Wilkinson Eyre that featured both library and museum artefacts in an explicitly participatory environment.

This 2014 iteration of the Reading Room was the space that I encountered during my fieldwork with the Wellcome Collection. The Reading Room's relaunch had more recently been accompanied by a series of internal shifts within the Wellcome Collection itself, which meant that once-separate departments who managed the institution's museum and library functions had been brought together into the same team for the first time<sup>99</sup>. This meant that the space of the Reading Room was collaboratively facilitated by two groups of individuals: First, Wellcome Collection staff who came from both curatorial and library backgrounds, along with staff who focused on visitor engagement; and second, external collaborators and members of the public who joined them to run events in the space.

A Wellcome Collection report in 2017 which accompanied this consolidation stated that it had been motivated by data which revealed that despite increased numbers of visitors participating in the institution's free exhibits and cafés, a large portion of its vast museum and library collections remained undiscovered or difficult to access, with "only a small group visit[ing] us in order to engage deeply with our

<sup>99</sup> Staff informed me that Wellcome Collection's public programming, museum collections, digital assets and library collections had been managed by separate departments for many years before being combined in 2017.

collections” (Robertson et al. 2017, 3). By merging artefacts and approaches from Wellcome’s different collections, it was hoped that the “experimental exhibition-making” of a reimagined Reading Room would inspire a “rekindled excitement about the value that libraries bring to our lives”, in the words of Head of Public Programmes Ken Arnold and Head of Wellcome Library Simon Chaplin (2014, viii).

Events Officer Valerie Brown, who had helped envision the current iteration of the Reading Room and continued to facilitate the space on a daily basis, explained to me that “we wanted to actively encourage people not only to read and explore, but also to discuss, to look, to touch, to share, to deeply engage. We knew we had an audience who wanted to be more deeply involved, we knew we wanted to consult them and have a lot of content that came from them” (interview 17/02/17). By combining the in-depth engagements of the Wellcome Library with a new round of invitations to engage with Wellcome collections through hands-on learning, making and discussion (using the kinds of participatory tactics also employed by many other cultural institutions in their second wave of developments as outlined in Chapter 2), the central imaginary of a hybridised Reading Room was that it would provide Wellcome Collection staff with new opportunities to experiment with public participation. In the next section, I will start to analyse how these initial visions of the Reading Room translated into its lived realities, by taking a particular look at its affordances and its public programming.

## **7.4 Reading Room affordances and programming**

My experience of entering the Reading Room for the first time was one of surprise – primarily because the Reading Room, like the other sites featured in this thesis, is not necessarily easy to find. The space is nestled on the quiet third floor of the bustling building where the Wellcome Collection museum and its free public exhibits are situated in London’s Bloomsbury neighbourhood. This upper-floor location means that to access the Reading Room for the first time, members of the public must first feel adventurous enough to roam beyond the cafés and exhibits of the building’s main floor and the additional exhibits of its second floor. Upon negotiating this infrastructural hurdle, I encountered a welcoming multi-use space filled with comfortable tables, reclining chairs and even pillows for browsing with

that positioned the space as a library, a gallery and a public meeting grounds, its doorway emblazoned with the prompts to “look, touch, read, collect [and] talk”.



*Fig. 4: Main view of the Reading Room after its 2014 redesign (Burnsc10 2015).*

These prompts to participate manifested themselves in various ways throughout the space, from signs that provided books and artefacts from the collections for interacting with, to invitations to engage with hands-on activities and art installations (see Fig. 4). Its users were continually invited, both through written suggestions and also by the space’s facilitators, to engage creatively with these offerings, from joining written public discussions and sketches left on bulletin boards, to sketching their portraits on a specialised drawing table with provided materials, to discussing or making things that relate to particular aspects of the collections. Like the other collections makerspaces featured in this thesis, there were very few digital affordances on offer at first glance, other than an interactive ‘operating table’ that could be used to explore and unwrap different digital objects related to the human body, such as an Egyptian mummy. Unlike the spaces of the Taylor Digital Studio and Samsung Centre, however, there was very little technical equipment available on-site at all, meaning that in a similar way to Tate

Exchange, the Reading Room was only occasionally enacted as a digitally-mediated collections makerspace or what Dodge and Kitchin (2005) would call ‘ontogenetic’.

I found that the focus of the Reading Room, instead, was to evoke making and learning through the use of other kinds of material affordances, which were perhaps most appropriately described as pre-digital<sup>100</sup> objects. I learned from facilitators of the space that 1,000 books and 100 artefacts from the collection were featured in it at any one time for users to interact with on a revolving basis. These items were associated with 10 different thematic areas which are organised into ‘zones’ of activity: Alchemy, Body, Breath, Face, Faith, Food, Lives, Mind, Pain and Travel. To inspire hands-on engagement around these concepts, each zone featured a combination of what were referred to by facilitators as ‘nontouchables’ (such as the ‘Closing Neural Tube Dress’ by Helen and Kate Storey, which illustrates the early stage of embryonic development through a red fur-based sculpture); ‘interactives’ (from vintage stereoscopes to board games); and ‘consumables’ (from recipe cards and bookmarks to take away, to postcards which once filled out were mailed by staff once a week) (Cook 2016; Vigour 2016).

The facilitators whom I spoke to discussed how this way of organising artefacts had been inspired by the *Wunderkammer*<sup>101</sup> or ‘wonder cabinet’ style of curation employed in the Medicine Man exhibit<sup>102</sup>. Wunderkammers originated with the world’s first recorded museums<sup>103</sup>, built by members of the aristocracy in 16<sup>th</sup> and 17<sup>th</sup> century Europe to display exotic and difficult-to-categorise personal collections in ways that incited reflection and contemplation. One of the most famous examples of a historical Wunderkammer can be found in the 17<sup>th</sup> century ‘Musci Wormiani Historia’ of the physician and naturalist Ole Worm, a medical professor at Copenhagen University who accumulated fantastical specimens from exotic locales between 1620 and 1654 that ranged from narwhal tusks to dangling

<sup>100</sup> Here I refer to objects that precede the advent of digital technologies like computers; this does not preclude objects that use discrete binary numbers to operate, such as clocks or radiology equipment, both of which are also parts of the collection.

<sup>101</sup> In German, Wunderkammer translates to “wonder room”, and it is also referred to sometimes as ‘Kunstkammer’ or “art room”, and ‘Kunstkabinett’ or “wonder cabinet”.

<sup>102</sup> As described previously, this is a permanent exhibit at the Wellcome Collection which displays many of the strangest and most memorable items collected by Henry Wellcome during his lifetime. Its objects are arranged according to theme and type, and are presented along with a variety of commentaries to “show that one object can mean many different things, and tell many different stories” (Wellcome Collection 2018).

<sup>103</sup> One of the first recorded definitions of the word ‘museum’ can be found in the text *Dr. Samuel Johnson’s Dictionary* in 1744, who describes it as “a Repository of learned Curiosities” (Alexander 1995, 3).

crocodiles to automated clocks. These repositories featured rare finds from archaeological and ethnographic sources gathered while trading, colonising and pillaging, from the remains of fantastical beasts to shrunken heads and intricate sculptures (Lasser 2014).

The Wunderkammers of the 16<sup>th</sup> and 17<sup>th</sup> century were typically utilised as a way for elites to reinforce their ‘divine’ right to rule for the observance of other elites, and there was little interest in opening up them up for public use (Alexander 1995). However, it was common for collectors to collaborate with others (as seen in the activities of Sir Hans Sloane and Henry Wellcome alike) to ensure their Wunderkammers were regularly updated with new rarities from colonies abroad – a relationship that reinforced the seeming ‘rightness’ and ‘civilisation’ of European empires and the corresponding ‘savagery’ of plundered cultures, as Stuart Hall (2005), Virginie Spenlé (2011) and Philip Hoare (2014) have all described.

Where I observed the Reading Room diverging from historical Wunderkammers was in both its aims, and also its modes, of engagement. By opening up the once-hidden artefacts of Wellcome’s vast collections to publics, the ‘wonder room’ curatorial style was used as a way of inciting not only the consumption of intriguing artefacts, but also the production of new knowledges around and with them. Valerie explained that one of her favourite artefacts featured in the space was a reproduction of the Ripley Scroll, one of six scrolls in the Wellcome Collection that dates from the 1500s. “Normally,” she said, “this kind of thing would be in the Rare Materials Room... it’s just so fragile, that getting it out to look at would be quite a challenge, and then only a few would be able to actually do that. So I just love that this room allows it to be out there for everyone to see and touch.”

In many ways, the Reading Room’s programming as a Wunderkammer can be viewed as a natural extension of the ‘lived spaces’ (Lefebvre [1974] 1991) constructed by web users to navigate digitally-mediated environments. Areti Adamopoulou and Esther Solomon (2016) have described the parallels between the free associations of Wunderkammers and the ways that some people arrange knowledges on the web, by curating their own personal wonder rooms on blogs and webpages displaying curious and beloved digital acquisitions. In the next section, I will draw more directly from participant-observation and interview data from my



time with the Reading Room to add more nuance to these observations of it as a contemporary Wunderkammer, by examining the many kinds of interactions that happened in the space. This will illustrate how the Reading Room is a space that is produced not only through material affordances, but also (and more importantly) through the ‘relational space’ of its carefully cultivated open practices.

## 7.5 Reading Room practices and events



*Fig. 5: A zine-making workshop is facilitated in the Reading Room (Camden50 2015).*

In my time with the Reading Room, I witnessed many moments where facilitators invited free association and participation not only through the space’s artefacts, but also by experimenting with various approaches that they had constructed to both incite and model active participation within the space by “be[ing] there”, but “never too obvious” (Facilitator #4). This lack of explicit restrictions on user behaviours both enhanced facilitator and user enjoyment of the space, and also caused some moments of tension, where differing expectations about ‘ideal’ ways of working could emerge. I will describe both effects of the Reading Room’s openness to interpretation in this section.

For facilitators, a primary motivation in being ‘never too obvious’ was to ensure newer users felt welcomed in the space. “I think you can usually spot those people who are really unsure,” Valerie explained, “thinking can I even come in here? [...] The Visitor Experience staff here, the Reading Room teams who are invigilating the space, they are central to that [...] sometimes I go in there, and even I can’t find them. They’re really not evident. But they really are looking out for those people [...] It’s important to not jump in too quick, but also not to leave it too long... so there’s really a lot of... hmm... *looking* [laughter], you know? Feeling it out, figuring out what people would prefer, all of it so they can feel welcome.” It was also important, she added, that “people should feel comfortable *not* engaging if they didn’t want to, or not engaging in a way that we might understand, so someone might pick up a book and sit there for 3 hours, they might doze, they might hear one of our conversations happening from the periphery, and then want to move over to that area, and get more engaged... and that’s how the space was really designed. I’m very aware that the different strands of activity have a lot of effects on people in the space. Modelling behaviour *motivates* behaviour.”

The freedom to engage (and also to not engage) with the space’s diverse offerings meant that during my time spent with the Reading Room, it rarely felt like the same kind of space for two days in a row. Some of these fluctuations emerged from the evolving flows of users who happened to come into the space during the public exhibits and associated events that happened on the main floors of the Wellcome Collection building. Other moments of variation, meanwhile, originated from the rotating menu of public events that were hosted within the Reading Room itself, from hands-on workshops to informal discussions, which made up the Open Platform series, the Object-Archive series and the Artist-Lead series.

These events, which occurred on an irregular basis, were central to how the Reading Room was produced as a space, and also an important measure of its health as an ecosystem, each drawing in a mix of regular and new participants. While Object-Archive and Artist-Lead events were typically facilitated by staff facilitators or paid collaborators, Open Platform events could be facilitated by anyone (from Reading Room users to members of the public), as long as the activity related to the Wellcome Collection itself. Other than a sign in the main floor café,

most events were typically only announced a few minutes prior to starting<sup>104</sup>, so that people would be encouraged to stumble upon them in “moments of happenstance” as one facilitator put it. To ensure Open Platform events in particular were open to anyone, Valerie sat in the Reading Room at a pre-scheduled time once a week to make herself available for people to come and discuss their ideas. She explained how that her aim in setting up the series had been to enable surprise: “We knew we had an established live programme downstairs [...] and the café gets very popular, and it all gets booked very quickly... so it seemed important to me to have a place where things were hands-on, but also weren’t bookable, and where we could surprise our audience. The pop-up approach means you could be sitting in the café, with everything booked out, and then five minutes later you could be sitting next to an expert, having a conversation. That’s an important philosophical point – but what I also didn’t want was for the space to get overrun, so you lose that depth of engagement with the audience... so when people don’t know in advance, when it’s a pop-up, it’s more the people who are in there at the time. It also means that I don’t have to sign everything up months in advance like usual; I can sit there in the space and someone can come up to me and say ‘I want to do this’ and I can say ‘yes, let’s do it in a few weeks.’”

During an Open Platform session called ‘Let’s talk about blindness’ that I observed in May of 2017, for example, the activity focused on the John Hull book *Notes on Blindness* which was part of the Wellcome Collection. This session was co-facilitated by Valerie and Aidan, who worked at the Wellcome Collection and was visually impaired. While the event was being announced downstairs, Valerie and Aidan reserved a group of comfortable reclining chairs in the centre of the Reading Room which were typically used for events of this kind. A sign was put up next to the chairs explaining what the discussion was about, so that others could join if they wanted to. Participants filtered in slowly, one by one, until about 5 minutes after the hour when the group numbered nine. A few participants left silently once the session began, allowing new participants to take their seats.

<sup>104</sup> On Sunday June 11th 2016, for example, the following event was announced from the Wellcome Collection’s main floor reception desk: “Dear visitors, in 5 minutes there will be a drop-in event in the Reading Room on Level 2. Show off what’s inside yourself by creating a personalised brooch or pin that represents your unique human experience. Join maker Chris Webb to design, draw or stitch badges that embody your bodily experiences; a dodgy tummy or heart murmur could be the inspiration for a fashionable accessory! That’s creating badges that embody your bodily experiences in the Reading Room in 5 minutes’ time.”



Valerie introduced herself and me, asking if it was acceptable that I jot down notes for this study (like all of my observations in the Reading Room, I avoided the use of recording equipment in order to allow interactions to flow more naturally). All heads nodded, some a bit shyly. Participants included a young international student who said it was her first time ever at the Wellcome Collection. She had just come to take a look at the exhibits, she said, and was “blown away that a room like this can even exist in a place like London”. An illustrator explained she had joined the activity her work “looks at different ways to see”.

Another participant said that she also had problems with both her sight and her hearing, and she did freelance work creating audio recordings for others who had similar impairments. The last participant I spoke to described how she was a regular user of the Reading Room. “This is my favourite room, I think, in London,” she said, “and maybe that I’ve ever been to... it’s just brilliant.” As the group talked animatedly, several other intrigued users of the Reading Room came over to observe, to loiter and even just to whisper nearby while watching. There was a perceptible sense of curiosity, of “can I join them?”. The casual way in which the activity was facilitated, and the open body language of its participants, who regularly welcomed in newcomers, illustrated to me the value of open public spaces like this in cities, where people of all kinds feel the agency to join in and contribute.

The Object-Archive series also focused on unexpected moments of happenstance – but in this case, the goal was to enrich interdepartmental collaboration amongst Wellcome Collection staff who came to it from different backgrounds, and between staff and users of the space. Events in this series, such as a ‘LGBTQ zine club’ that invited participants to browse through self-published magazines from Wellcome collections and then create their own, often brought staff members together to work as a team for the first time. The Reading Room’s Artist-Lead series, meanwhile, invited creative practitioners to come into the space and make unexpected uses of its physical infrastructures, “just to see how it all unfolds” as Valerie explained. In September of 2017, for example, I observed choreographer Sivian Rubinstein spending a week in the room engaging in conversations with users about dyslexia and creativity. She then created a solo piece from these interactions, which was performed live at the end of the week for anyone who happened to be in the Reading Room at the time.

Several of the facilitators and users I spoke cited the serialization of these kinds of events as being important to their experience of the space; a few users told me they came by the Reading Room daily or weekly just to see what kinds of events might emerge. I also observed many other kinds of ambient gatherings in the space that had clearly not been planned in collaboration with Reading Room facilitators at all. Wellcome Librarian Loesja Vigour, who had started working with the Wellcome Collection during masters-level research and had since become one of its core facilitators, described to me how she had recently seen lots of life-drawing sessions occur in the space that had been planned and delivered by users themselves. “They’ll meet every Wednesday at 1:00 or whenever,” she said, “and they’ll use the central space where all the sofas are, with a perfect plinth in the middle for somebody to stand, with that quickfire drawing with 60 seconds and they change pose. And they’ll use props and things. They seem very professional. They know what they are doing in here. And that’s really cool, because obviously those guys have decided privately they’ll do that, but I’ve seen other people who aren’t involved join too, like kids pulled into the vortex of the group activity [...] That’s what the Reading Room should be about really” (interview 14/03/17).

Wellcome Librarian Nicola Cook, who had also started working with the institution as a master’s student and ended up becoming a Reading Room facilitator in addition to working in the Wellcome Library, discussed other moments where users had utilised the space for events, like language tutorials, that did not engage with its artefacts. “We had a lecturer bring in his whole seminar group,” she said, “and they just sat in the corner and talked about what they wanted to talk about [...] and I kind of like these little ways people own the room to do exactly what they want, [because] that means it truly does feel like an open public space, and I think if we had rules on the wall to limit them, it wouldn’t be happening. I do think it’s to our benefit [...] It’s a bit like a *lizard*, the Reading Room. It’s cold-blooded. It thrives on the warmth of others” (interview 14/03/17).

This comment on the value of the Reading Room’s flexibility reflects how important it was that it remained accessible to diverse groups in order to retain its ‘warmth’ – a core concern for the facilitators I spoke to. They discussed observational studies they had run to determine the needs of different kinds of users, and occasions

where they had avoided turning people away, no matter their background. The Creative Investigation Project, for example, was a study on Reading Room user behaviours which was facilitated by the Wellcome Collection's Operations team in 2015 in partnership with visitor experience strategists Davies and Heath. To investigate how different kinds of people experienced the space in different ways, a series of creative evaluation techniques were used, from feedback cards to "post-it note takeovers" of key artworks, to training with front-of-house staff to undertake basic observational practices as "staff ethnographers" (Vigour 2016, 42).

Other conclusions that had been made about the needs of different user types came from staff experiences of facilitating the space on a daily basis. "I think we are always very wary of turning people away entirely," Valerie said. "It depends on the behaviour really, and how it impacts on other visitors, rather than the person themselves. I can think of a couple of people who are regular visitors who clearly don't have homes for example, and that's just fine. In a way, I sort of think how nice that they do use it. I'd like to think that it's an open building for all. But it's just about keeping that balance so no one's actions predominate, or take over. Equilibrium is important". One of her favourite memories, she added, had been "when we had a choreographer come in who is disabled, and the session was about them accessing the floor and rolling around outside of wheelchairs [...] People just chanced upon it, and ended up having some quite powerful conversations about how to use the space [...] There are certain things you need to put in place for some people, in advance, so you can ensure they too really can make use of it [and] I think everyone really gains from having those conversations."

I also observed that there were certain unwritten rules which seemed to complicate the space's claims of being open to all kinds of user practices. These rules, while not explicitly stated, seemed to be understood amongst the core facilitators of the space who were also Wellcome staff. Even amongst this group, however, I found incongruencies in how the rules were interpreted and enforced. One rule, for example, discouraged engagements with "wet crafts" (e.g. making activities that involved glue, paint and other 'messy' materials), or bringing food and drink in the space, due to the Reading Room's proximity to rare books and artefacts.

The facilitators I spoke to relayed conflicting views about the utility of these unwritten rules. Facilitator #5, for example, had issues with what they described as the seemingly arbitrary nature of certain rules, for example the space's electrical outlets only being allowed to be used at certain times (which, I was told, was for 'health and safety' reasons), saying that they felt that these kinds of limits could "sit quite uncomfortably" with the space's open aims. "You're free," they said, "but not really. It is such a great space on paper for socialising, and talking about things, and doing things. But there's also stuff you can't make [...] There are do's and don'ts. And people don't necessarily know what those are."

Facilitator #3, meanwhile, shared the story of the Closing Neural Tube Dress by Helen and Kate Storey, which in their understanding had gone from being a hands-on artefact available for anyone to play with, to something that was "nontouchable". They explained: "The thing is, it was meant to be tugged on, moved around, manipulated, touched by many people.... it was supposed to be very tactile [...] a kind of lo-fi interactive thing. It was meant to break the typical museum rules by allowing people to put their hands on it. But then the 'do not touch' sign came on it, and even I am not quite sure why. It's shrouded in mystery. So even amongst us, the rules are unclear... they change... they are sometimes strange. So this piece is now not being used for its purpose. How do we ensure people aren't restricted in their other freedoms, if some areas have barriers and some do not? [...] Where do we draw the line?"

These reflections illustrate how even a space for explicitly open experimentation can end up disseminating its own kinds of intangible rules and regulations. In the community-run makerspaces of first to third-wave shared machine shops described in Chapter 2, this kind of governance has typically taken the form of public lists of community bylaws and rules, which, as described by Annika Richterich (2016), are collectively-managed and therefore continually renegotiated. In the institutional bounds of the Reading Room, however, the space's rules were unwritten, and therefore unclear to anyone who was not a core facilitator. This lack of clarity resulted in both users and facilitators describing the space as 'free', while also expressing uncertainties regarding the extent of those freedoms.

I also witnessed various occasions where users themselves engaged in acts of self-discipline which controlled the freedoms of others. One way in which I saw users regulate the space to make its environment more like that of a typical library was through the act of ‘shushing’, or instructing those around them to be quieter. Facilitator #4 discussed how they too often saw this kind of policing: “Some people do assume this is meant to be a totally silent place to work [...] and we’ve had people even advertise that, say on their blogs it’s a place for studying [...] one of the very high-ups in the museum even got shushed by a participant. I’ve been also shushed quite aggressively, told not to talk in here, and I’ve had to explain actually it’s fine. A lot of people think this space is what they feel it is, and they want to shut it down.... others want to open it up.”

Another set of limitations regarded user engagements with digitally-mediated practices. Like those of the Tate Exchange space, events that featured digital (as opposed to craft-based) making in the Reading Room needed to acquire those tools from elsewhere because of the space’s limited technical affordances. This meant that it could only be enacted as a collections makerspace when an event’s facilitators had external access to technical equipment.

Users who chose to use the space to work in alone on their laptops, meanwhile, were typically discouraged from engaging in this practice in the afternoons and evenings, when public events and other modes of participation were offered. Facilitators explained these “purposefully low-tech” (Facilitator #2) motives as a way of maintaining the space’s atmosphere: “I have thought about [changing the laptop limitation], certainly,” Valerie said, “but I do think the balance of the space would change [...] it would become like just another café where people work silently and alone on their computers. We want things to be more versatile than that. So we give people wifi for an hour. And we find a lot of them in here in the morning, using laptops. It’s a great space for that, it’s fine, it’s a morning routine. But then when my events [the Open Platform series] start in the afternoon, they disrupt all that [here, she smiled a sly smile]. And the good thing is you get a completely different ambience.” Solomon Szekir-Papasavva, a Wellcome staff librarian who had helped facilitate the Reading Room since it had reopened, felt that these restrictions maintained its the space’s collaborative energy, because of the ways that its user behaviours “dictate the mood and expectation of newcomers.

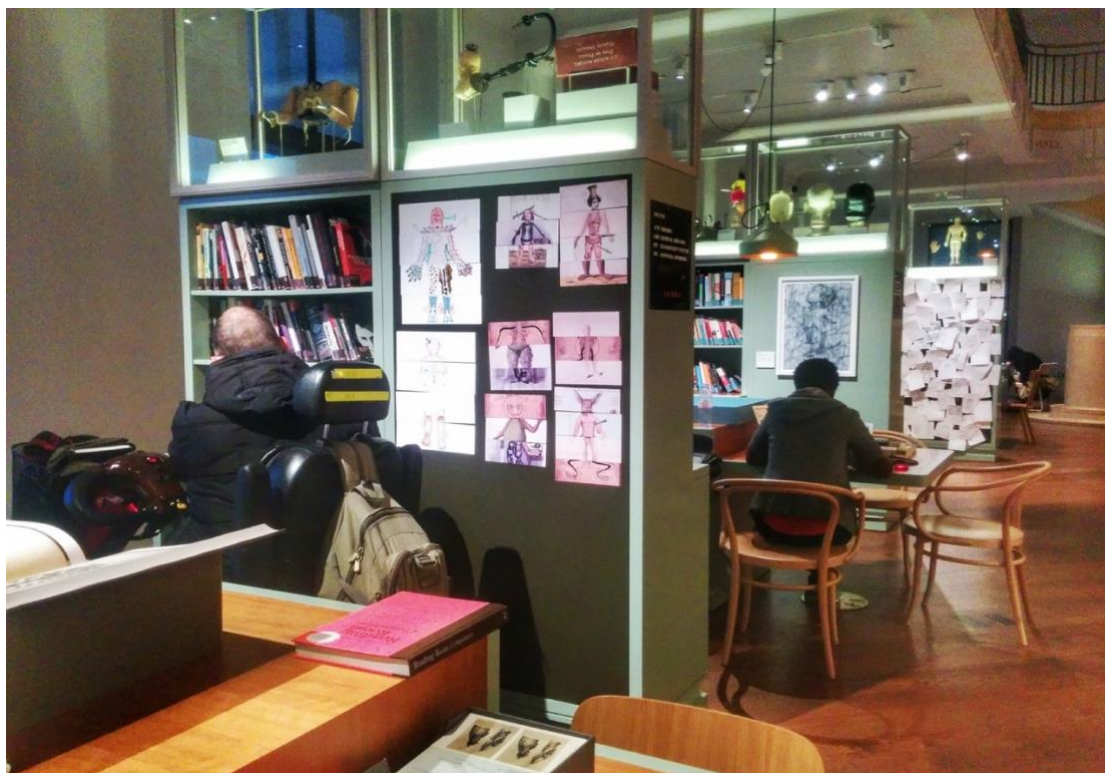
A lot of people using laptops creates a silent study atmosphere, which newcomers immediately tune into, leading them to engage in a less open and expressive way. When an activity or two is taking place instead, newcomers respond to the buzz and noise, and are more comfortable to explore, ask questions, have conversations and pick things up” (interview 17/02/17).

The staff facilitators I spoke to also expressed ambivalence about the main piece of technological equipment that the Reading Room did offer: The virtual autopsy table. Facilitator #3 said that while it was “one of the things that people walk straight over to when they enter, and maybe are new, and are pretending they have a purpose going into the room,” they rarely saw anyone spending a significant amount of time with it. Perhaps, they suggested, this was because in comparison to “all the paper and making stuff around [...] it requires more time to go through it properly.” Valerie, meanwhile, attributed more value to the table because it offered different ways of engaging than other artefacts. “You can see an actual mummy in the exhibit downstairs,” she explained, “and then explore through a very sophisticated representation what can be uncovered here [...] it’s something you can do in a self-directed way. You’re completely in control.” She added that “for me, the use of the tech is not that important here. What’s important is this *control*. The idea of the Reading Room is that it should be a place where you can slow down and browse, where you are given the freedom to engage with objects, prints, books and all sorts of objects to help do that.”

By attempting to find a balance between providing users with this kind of autonomy, while simultaneously discouraging behaviours deemed less than ideal, facilitators had to walk a fine line between engaging with the space as participants or benevolent enforcers. However, by trying to give users the freedom to interpret the Reading Room in their own ways outside of these limits, even if that meant that some groups merely used it as a public meeting grounds, facilitators did try to ensure that they were not the only ones who felt enough agency to produce the space. This meant that the practices of the Reading Room evolved based on those who interacted with it each day, the kinds of events they decided to facilitate, and the myriad ways they interpreted its offerings. In the next section, I will examine the effects of these relations further by taking a look at how the ambiguity and

freedoms of the Reading Room contributed to its richness, while also impacting relations between Wellcome staff themselves.

## 7.6 Reading Room relations and their impacts



*Fig. 6: Users explore books and activities in the Reading Room. Photo by author, 2017.*

During my time with the Reading Room, there were several occasions when the space's intentionally hands-off facilitation style needed to be actively discussed, and at times renegotiated, amongst its core facilitators. These were typically individuals who were also Wellcome Collection staff, and therefore seemed to feel the greatest sense of sustained personal responsibility over the space. Building an understanding of the complexities of this open facilitation style became the main focus of my research in the Reading Room. As a result, instead of engaging in action research by organising my own events as I had at the other field sites, I interacted with the Reading Room as more of a user than a facilitator. The space's moments of recalibration needed to be delicately managed, I learned, because of the value attached to retaining the sense of freedom that was deemed central to how the Reading Room worked. This meant that unlike the precise and hierarchical project management mechanisms that had been employed by Samsung

Centre staff to direct how it evolved as a space, the Reading Room's iterations emerged more generatively out of its myriad relations.

In great part, the depictions of the Reading Room that its facilitators shared with me involved imaginaries of experimentation and freedom. They cited these characteristics as essential to the ways the space operated, and as reasons why they found it inspiring. However, this interpretation of openness could also be a source of tension between Wellcome curatorial and library staff in particular, in part due to the fact that neither group felt that they personally 'owned' the space. In 2014, Arnold and Chaplin (2014, ix) explained that in setting up the 'new' Reading Room, the Wellcome Collection had been conflicted in how to situate the space equally around the library and museum aspects of its collections. As mentioned previously, the curatorial and library teams had also been enjoined by Wellcome Collection leadership in 2017 to collaborate on shared deliverables, instead of operating separately as they had for many years. These incongruencies meant that while the Reading Room had been imagined as a cross-team project, the reality was that some members of staff had deprioritised their engagements with space entirely due to feeling that it was not 'theirs' to manage, causing "some difficult internal power structures" (Facilitator #2) that had left its daily operations to a smaller group of staff than originally intended. Consistent negotiations were necessary, therefore, to engage less-involved members of staff – with the cross-team collaborations of the Object-Archive event series playing a key role in fostering these important connections.

Other members of staff I spoke to, meanwhile, discussed their feeling that the Wellcome Library remained a "marginalised" (Facilitator #5) actor within the institution, despite the library's connection to what was perceived as the more attention-grabbing Reading Room since the space's redesign. This seemed to arise from a continued politics of whether library or museum functions should be prioritised, with museum functions generally being viewed by the staff I spoke to as more prominent within the Wellcome Collection – a perception that they said had caused tension between library and museum teams since the institution's early days. "How can you justify yourself, and ask for more resources... if you're not actually making any money?" Facilitator #3 said as we walked past the empty shelves of the Wellcome Library's upper floor one day, the library almost empty



next to the bustling Reading Room next door to it, which was hosting another public event. They said that because the Library retained its focus on specialist collections related to the history of medical science, it still struggled to prove its “worthiness” in terms of visitor numbers through its doors.

This sense of inequality between the spaces of the Library and the Reading Room seemed to be further reinforced by the fact that the Reading Room did not appear privy to the same pressures to quantify its worth in terms of footfall – the feeling instead being that the space’s nebulousness had allowed it to take on a “quality versus quantity” (Facilitator #3) approach. Facilitator #4, for example, discussed with me their belief that what was most important about the Reading Room was that it had encouraged staff to start concerning themselves less with bringing in big numbers, and instead with building in-depth interactions between the collections and users. “We’re not looking for numbers, for popularity,” they said, “we’re looking for engagement. And we’ve had some amazing events with only a few people. There’s never been an event in here that’s drawn in no visitors. Everything engages someone.” By reinforcing its *modus operandi* of ambiguity and responsiveness, Reading Room facilitators were able to introduce new kinds of experimental practices for audience engagement within the Wellcome Collection, while also reinforcing the utility of such practices.

It is important to recall here that many of the freedoms enjoyed by the Reading Room (unlike most of the other spaces examined by this thesis) emerged from the fact that it did not have to prove its worth in terms of numbers because of its continued access to internal capital. The wealth of the Wellcome Trust imbued the Reading Room staff facilitators with the time and space to really experiment – a rare luxury in the museum world that they were all too aware of, and that they attempted to maximise where they could for the greater benefit of its users.

This encouragement of the Reading Room’s new ways of doing had even started to result in the space impacting on the experimental spaces of other cultural institutions. Facilitators told me that the Reading Room was increasingly discussed as an exemplary space for public participation by museum professionals in other nations, who often asked for tours of it. This kind of influence had wider effects within Wellcome itself. Facilitator #3 felt that the “main issue that

Wellcome has, is that the public side is separate from the corporate side [...] there's lots of parts of this building who are not interested in the public side [...so] I think from a public side, the stature or whatever, the sort of fame that we have... it's allowed us to be quite respected in the museum world... we're small, we have the resources to make it brilliant, we're always experimenting... so I think this room has definitely changed how the other [corporate] side thinks about public engagement. So the change doesn't have to be a complete overhaul of the corporation... it can just be an overhaul of how we view a space."

The Reading Room's growing influence did not only affect internal relations between staff. I also observed its impacts on the ways that staff engaged with the Wellcome Collection's audiences. Facilitator #2, for example, said that their time engaging with Reading Room users had made them think a lot about how the power relationships between staff and users of the Wellcome Collection needed to evolve. "I try to see myself now as a facilitator with a very light touch," they said. "I present myself as one of the group, rather than acting like I'm its leader or expert. And this makes a big difference." Nicola, too, said that the way the Reading Room shifted the expectations of staff-user relations had affected her own ideas of what was possible. "I feel like we are finally asking the audience what *they* want this time," she explained, "and acting on what they can do. We watch them to ensure they are comfortable [...] so we can see them coming into the room and making their own habits, becoming a part of that space... and that is shifting the power structure... the shape of things, in really crucial ways. There is something about how the room is structured now that has seeped out, across those of us in staff who have been a part of it. It's changing us."

These kinds of reflections reveal how the Reading Room's deliberate hybridity, and the variety of ways in which it could be enacted as a library, a museum, a public meeting grounds and a collections makerspace, had started to affect not only the tone of staff relations within the Wellcome Collection, but also the ways that museum staff themselves engaged with their publics. The space's internal influence within Wellcome, as seen in its interactions with other spaces like the Wellcome Library and with other kinds of institutions, meant that it retained its freedom to experiment – a freedom which was evidenced in its staff-user relations.

## 7.7 Conclusion



*Fig. 7: Self-portraits made on the Reading Room's drawing table. Photo by author, 2017.*

In this chapter, I examined the Reading Room as a hybrid space for public participation that is also sometimes enacted as a collections makerspace. I first took a look at the influence of its history to its current-day iteration, and the ways it has evolved from a closed site for elite knowledge acquisition to an open one that aims to engage many different kinds of users. I then examined its affordances (and the limits of its technical capacities), its 'Wunderkammer' curatorial style and its programming, discussing how these visions translated into its everyday practices. I explored in particular how the space's open ways of working were evidenced by the diversity and scope of its events, which were facilitated by both staff and publics. I then examined the broader institutional impacts of the Reading Room's practices, both regarding the internal relations that had emerged within the Wellcome Collection by virtue of its encounters with the space, and the ways that institutional staff interacted with publics.

Together, these observations depicted a space which complicated the duality discussed by Tony Bennett between “hidden space of the museum in which knowledge is produced” and the “public spaces in which it is offered for passive consumption” (2013, 108) at the beginning of this chapter. Because the Reading Room was co-produced by its facilitators and users, it felt like many different kinds of spaces depending on the needs of the moment. While the Reading Room was only occasionally enacted as a digital space, however, it was continually facilitated through uses of peer production, making and learning practices. While, like Tate Exchange, the Reading Room did not benefit from the in-house technical affordances to enact itself as such very often (a quality that its facilitators do not feel is a priority, and indeed preferred not to encourage outside of specific public events), its encouragement of making and craft to participate with collections rather than merely consuming them has revealed how the spirit of a collections makerspace can be enacted through hands-on practices, even when the ‘ontogenetic space’ (Dodge and Kitchin 2005) of technological actors is not in evidence.

This combination of limits and continuities has enriched my understanding of how a collections makerspace can be envisioned and produced, by illustrating how it can be engaged in co-productive and creative practices even without the use of digital tools. This is not to say that there is necessarily an explicit causality between Reading Room as a collections makerspace and as a space of co-production, but rather that these ways of doing are, in its case, co-constituted. When combined with the space’s intentional hybridity, and its encouragement of user behaviours associated with free association and experimentation, the unique institutional circumstances (and privileges) of the Reading Room have meant that it has started to influence not only the relations of the Wellcome Collection itself, but also those of other kinds of cultural institutions elsewhere. This did not mean that the imaginaries of the Reading Room did not have their own internal inconsistencies, as evidenced in the uncertainties expressed by facilitators and users regarding the extent of their freedoms in the space, and the ways that its rules, where enforced, remained unwritten and unclear. It did mean, however, that the Reading Room was in many ways the most ‘open’ of the spaces examined in this study, despite (and in some cases as a direct result of) its deliberate indeterminacy.

## 8. Conclusion: Towards decoupled space

*“In the case of certain aboriginal indigenous cultures [...] my understanding is that most people painted every day, and in doing so, they were participating in the cultural ceremonials which connected them to their own culture. This is a problem with institutions like the Tate, they take that shared culture and they make it elite, and we’re supposed to feel they’re being generous. And I think something powerful that digital culture can do is allow people to make something of their own again [...] to say you need to remake this to help it come alive – that’s very powerful, I think. That’s the change.”*

- Ruth Catlow of Furtherfield, discussing the Tate Digital Studio, 2017

As the case studies of this thesis have illustrated, the diffusion of once-grassroots spaces for digital material engagement into institutional territories is an ongoing project, the contours of which are continually being renegotiated according to the shifting alliances and tensions of myriad actors. In the case of the individuals who live in the vicinity of Tate Modern, whom the artist Tania Bruguera attempted to bring together for her Tate Neighbours initiative, these kinds of forces are illustrated when we ask what it means to widen access to a nation’s cultural heritage in a district of London whose ‘neighbours’ now include not only the working-class locals who have for many years lived in its council flats, but also increasingly millionaires. A group of these millionaires introduced themselves to their neighbours in 2016 by filing a ‘privacy lawsuit’ against Tate, with the claim that the views from Tate Modern’s redesigned top floor above Tate Exchange entrenched on the sanctity of their glass-walled £4m investment properties<sup>105</sup>.

This scenario illustrates the kinds of processes that Doreen Massey (1993, 2013) spoke of when discussing how the power-geometries of agency, access and mobility of different groups are associated with socioeconomic privilege and also with flows of capital, leading to uneven stratifications of their interactions with, and expectations of, the spaces they encounter. It also reflects the reality that the

<sup>105</sup> Tate Modern won the case in February of 2019, with the judge ruling that residents had “created their own sensitivity by buying flats with floor-to-ceiling windows in the first place”, stating the investment advantages of the flats and their location “in effect comes at a price in terms of privacy” (Brown 2019).

spaces of collections makerspaces, too, are privileged and fragile ecosystems. While they remain safe for now within institutions, community-run makerspaces like London Hackspace are moving further out of London, driven by the increased rents that accompany the gentrification of inner-city districts like that of the Tate Modern<sup>106</sup>. Nevertheless, there is a malleability to these flows and relations, as witnessed when sociotechnical experiments in widening access to museums enable ‘cracks’ (Hall, Massey, and Rustin 2013) to emerge which foster new kinds of arrangements that challenge the status quo. This study demonstrates how the collections makerspace is one such site where these kinds of negotiations can occur.

The eight chapters of this thesis have allowed me to explore the primary focus of this project, which was to develop an account of a specific kind of public space found within museums which encouraged experimental interactions with their cultural artefacts through digitally-mediated making and learning practices – spaces which I termed collections makerspaces. In particular, my aim with this research was to explore how collections makerspaces worked, how they interacted with institutions, and what their effects were. In Chapter 2, I examined how once-dissident first- and second-wave makerspaces had evolved into the fourth-wave spaces for making that were starting to open within museums, analysing the (often concurrent) sociotechnical transformations of U.K.-based makerspaces and cultural institutions. By reviewing literatures in the tradition of Foucault’s genealogical approach, I tried to explore not only the historical knowledges that were readily available, but also the community stories that might have been left out of the dominant narratives which outlined these moments of progression.

In Chapter 3, I discussed the theoretical frameworks that informed my analysis, positioning the relations of space and power at collections makerspaces as key forces in their production. I first worked with the perspectives of Michel Foucault, Antonio Gramsci and Stuart Hall on power, and then built on these to examine how space itself could be conceptualised as an ongoing process which was both constructed from, and in turn constructed, social relations. I worked in particular with six spatial frames which were modified from the spatial triads of Henri

<sup>106</sup> More about the costs of London Hackspace at <https://london.hackspace.org.uk/cost-of-hacking/> and its choice to move from Hoxton to Wembley at <https://groups.google.com/forum/#!msg/london-hack-space/coUcqsX-Zis/D1gNWZACFwAJ>.

Lefebvre and David Harvey in order to observe different aspects of how the spatial organisation of collections makerspaces might work in practice. This gave me the opportunity to start to situate space-making itself as a form of power, which is variously imagined, produced and enacted. It also allowed me to start to build an understanding of collections makerspaces as sites which may reinforce, resist or transform the dominant discourses of their host institutions.

In the three empirical chapters which make up the heart of this thesis, four field sites were examined in-depth. These chapters illustrated how implicated I myself became in the workings of each space as a researcher-in-residence undertaking an action research ethnography. As I discussed in Chapter 4 when I introduced the epistemological and methodological framings of this project, my dual role as facilitator and user both troubled and enhanced my role as researcher. This meant that the ways that I engaged in action research, too, needed to be responsive to the particular characteristics and needs (or lack thereof) of each case study site I worked with. While my first aim upon starting this project had been to bring a grassroots maker culture ethos back into institutional environments by facilitating hands-on events, for example, I soon came to learn that in its own way, each space was already deeply engaged in maker practices.

The process of interacting with four case study sites produced one of the first important findings of this work, which was that the experimental practices of collections makerspaces affected not only the subjectivities of their users or publics, but also (and in many cases, especially) those of institutional staff themselves. This finding propelled the study to evolve into more of an institutional ethnography than I had expected it to be, which enabled me to arrive at a key conclusion – namely, that cultural institutions are not as impermeable to change as might be expected, and that one source of this permeability comes from their relations with their own staff. Understanding this meant that the research could move beyond my initial agenda to explore how collections makerspaces worked and how they tried to widen access to cultural collections, and examine how the ‘space’ of each field site was produced through the imaginaries, practices and relations of its social actors.

In the case of the British Museum Samsung Digital Discovery Centre discussed in Chapter 5, my central aim had been to examine the complexities of a collections

makerspace that was dependent on the funding and goodwill of a global technology corporation. To my surprise, I found that it was not the space's relationship with Samsung that necessarily defined the ways it was enacted and understood, but rather the power relations of the British Museum itself. Its facilitators, for example, were given almost free reign to execute their tightly-constructed programming, which used Samsung devices and museum artefacts to guide school children and families through topics relevant to the U.K. national curriculum. Core tensions started to emerge, however, when it came to the Samsung Centre's relations with the rest of the British Museum, which struggled to understand and articulate the work of the Centre due to long-reinforced traditions, logics and hierarchies. This revealed a collections makerspace that was at once more, and less, autonomous than might be assumed.

At the Taylor Digital Studio at Tate Britain examined in Chapter 6, meanwhile, I encountered a collections makerspace in continual flux, which had learned to shape-shift in order to survive – especially in response to its younger sister site Tate Exchange at Tate Modern. While Tate Exchange was only occasionally used as a collections makerspace due to its limited technical affordances and more generalist remit of inciting arts engagement, it was still much better resourced in terms of both staff time and institutional attention. This had caused particular interspace relations to emerge, which both challenged and sharpened the Digital Studio's focus on in-depth sociotechnical engagements with Tate Britain collections. During my time with both spaces, I learned that their impacts were clearest for those who had engaged with them regularly – encounters that imbued them with growing senses of their own agency, both as digital makers and as social actors within Tate itself. This had started to shift institutional power relations, by transferring agency from Tate to its publics and its staff.

At the Wellcome Collection Reading Room discussed in Chapter 7, I engaged with another collections makerspace that was only sometimes enacted as such. This resulted both from the space's limited technical affordances, and also from the ambivalence with which its facilitators perceived the utility of sociotechnical engagements with Wellcome collections. Despite this, the Reading Room had been carefully designed with exactly the kinds of hands-on practices for material participation and co-production that were also widely deployed by the third- and



fourth-wave makerspaces discussed in Chapter 2. As a deliberately hybridised space that could be produced as a library, a museum, a public meeting grounds and a makerspace depending on how it was imagined by its facilitators and users, the Reading Room enriched my definition of what a collections makerspace could be, despite (and in some cases because) of its temporal limitations.

The ways in which I observed the four field sites of this thesis to be articulated by the multiple actors involved in them, and the effects of these articulations on their own subjectivities, illustrated how the production of collections makerspaces is a continual process of social construction woven out of many layers of place-making, history and experience. This has enabled me to perceive how the relational space of collections makerspaces and the experimental material engagements they facilitate can both be contested by, and at the same time *contest*, institutional logics. As Hall and Gramsci's works on cultural hegemony have illustrated, contingent interactions like these can produce distortions or 'cracks' in a system, which challenge the scripts of its dominant discourses by reconstructing them (Hall 1986, 30–33). Here, space and time work in association, with the spatial form itself becoming an actor that can alter "the future course of the very histories that have produced it" (Massey 1992, 84). The mere act of augmenting an institutional space through the provision of an alternative space within it which encourages material participation and experimental practices, therefore, can be transformative.

Now that I have examined how the field sites of this thesis work and the ways that they interact with institutions, I would like to briefly propose a new spatial frame that augments the six spatial frames introduced in Chapter 3. This frame allows me to articulate the relations of collections makerspaces in another way, by proposing a conceptual examination of the particular kind of spatiality that is produced by experimental spaces for material engagement in institutional territories. I call this frame 'decoupage space', and while it most readily applies to the field sites of this thesis, it can also be used to explore the 'space-making' of other kinds of experimental spaces at other kinds of institutions that constitute social infrastructures, from libraries to schools. The term 'decoupage space' has been derived from the term *decoupage*, a mode of craft production similar to collaging where a series of cutouts are arranged, layered on top of one another, and pasted onto a surface as a composite. Decoupage has been traced to middle class

women in seventeenth century Europe, who employed it as a tactic to decorate home furnishings (Coggan 2018). This has led to it being dismissed and devalued, like many other techniques employed by female craft makers, as an "art of the poor" which is "charmingly" attempted only by "amateurs" (Severs 2011, 183). As a material practice of layering "history upon history in space" (Coggan 2018, 87), however, decoupage can also be understood as a kind of tactical reassemblage or 'hack' in its own right, which is intersected by the forces of gender, class and time.

By working with the frame of decoupage space, therefore, my aim is to highlight the multifaceted patchworks of makers, institutions and systems that are implicated in collaborative digitally-mediated environments like those of collections makerspaces. In a similar way to the 'produsage' (Bruns 2008, 2014) practices of users of interactive online platforms mentioned in Chapter 3, the practices of collections makerspace users also transcend dualities like 'amateur' or 'expert', and 'producer' or 'consumer', and can instead be found on a continuum that ranges from active creation to other engagements with, and uses of, knowledges and practices. However, where the engagements of collections makerspaces do move beyond concepts like produsage is in their *materiality*. By facilitating experimental peer production around artefacts through digital and craft tools, their engagements also affect the materiality of the institutional spaces within which they are placed. This makes collections makerspaces not only products, but also producers – who may either support, or challenge, the ways-of-doing of their hosts. With a decoupage spatial frame, therefore, the space being examined can be understood as produced through an *inherently interactive* process that involves three core features.

First, the relations of decoupage space, like the mutually dependent interactions of digital technologies and humans in Kitchin and Dodge's ontogenetic space frame, and the artistic and evocative responses of Lefebvre's lived space frame, are *co-constitutive*. This means that the interactions they facilitate between different kinds of actors (from cultural artefacts to digital technologies to institutional staff) take the form of reiterative or recursive practices, the interactions of which lead to the *continual recreation* of the space itself. At the Samsung Centre, for example, the infrastructural and digital affordances of the space are continually reimagined and iterated upon by site managers based on user feedback, which emerges from the process of making itself.

Second, decoupled space is enacted through the processes of *digital mediation* – which may involve digital tools like design software or a virtual reality headset; digital information like a web-based archive; or digital practices like learning about code through e-textiles. These interactions may transform the space into what Dodge/Kitchin (2005; 2011) have called a code/space like the Samsung Centre, where technological actors play prominent roles in its constitution – or a coded/space like the Taylor Digital Studio, where technological actors are engaged with and help produce it at varying levels in different moments. This means that the space will be produced differently depending on the needs of its facilitators, and the actions of the diverse sociotechnical assemblages they bring together. This also means that the space-making of a decoupled space is closely connected to time, because it may only be enacted for a few hours, as with the Reading Room, or for a period of years, as with the Digital Studio.

Third, a decoupled space is enacted *within* the bounds of an institutional space, such as a gallery or a library. The connections between a decoupled space and its host space can first be understood through a relational space frame (Harvey 2004; Massey 1993). However, because these connections are also mediated through, and augmented by, digital practices, a decoupled space is also transductive (Dodge and Kitchin 2005), in that these connections may also transform aspects of its host space. This might occur through the continual “making anew of a domain” (Dodge and Kitchin 2005, 15), in this case the domain of its institutional host, through its implementation of experimental and reiterative practices that augment the form and function of both spaces’ production.

As an extension of the frameworks of ontogenetic space and relational space, my application of a decoupled space perspective to the field sites of this thesis has enabled me to start to articulate an alternative approach for examining how the digitally-layered and heterogeneous practices of spaces for creative experimentation can challenge the logics or ‘ways of doing’ of institutions. For implementation in future scenarios, this frame can be used both speculatively (for example, when determining how a potential space situated within a library might have an impact on the spaces of its host) and observationally (for example, when

exploring why a space like the Reading Room is only transductive temporarily when it engages in digitally-mediated practices).

I will now add to this analysis, and also conclude the thesis, by articulating the five core conclusions of my research regarding the wider social impact of the kinds of field sites that I have called collections makerspaces. In doing so, I hope to lay the groundworks for further research at other kinds of decoupled spaces in other kinds of environments.

First, I have argued that collections makerspaces have emerged in museums in London as a result of a confluence of economic and social transformations that occurred in the U.K. from the 1970s onwards. They represent a new, fourth wave of elite and institutionalised makerspaces, the practices of which have been influenced by radical media lab and grassroots hacker- and makerspace traditions, as well as the traditions and experiments of cultural institutions, and yet operate independently of them.

Second, I have argued that collections makerspaces are evolving, always-in-flux ecosystems – their forms, functions and futures dependent on the aims of diverse constellations of internal and external actors. As a result, they are sometimes situated in tension with the significant social inequalities and power relations of their hosts, especially when their practices highlight or challenge the negative legacies of museums in the U.K., from colonial acquisition and artefact retentionism to issues with diversity, as discussed in Chapter 5. However, because they are always shape-shifting to remain responsive to their facilitators, users, funders and hosts, as discussed in Chapter 6, they are also resilient.

Third, I have argued that collections makerspaces are not only spaces that are produced. They also produce. In particular, their peer production engagements foster new subjectivities amongst the facilitators and users who interact with them on a regular basis, as seen in their transduction of the perceptions of core institutional staff regarding their host institutions and subject-positions.

Fourth, I have argued that collections makerspaces cannot be perceived of as panaceas for the issues of U.K. museums; for example, they cannot access hard-to-

reach audiences or promote greater diversity on their own. Each space requires a passionate team of facilitators (made up of both institutional staff and community collaborators) as well as an engaged public of regular users in order to operate not only as another room in a museum, but also as a coherent space. They also require adequate resourcing and attention from their hosts. They are additionally embedded in broader political economies and flows of capital, influence and culture which may limit, and at other times enhance, their power as social actors.

Fifth, I have argued that given the right circumstances, collections makerspaces can challenge the logics of institutions from within by “decentering” (Grayson and Little 2017, 72) the cultural hegemony of long-nurtured traditions, logics and hierarchies and opening up cultural collections more widely. By introducing new modes of knowledge sharing and production that reframe public engagements with cultural artefacts, they can enable new sociotechnical arrangements in ways that institutions themselves desire, for example by fostering greater diversity.

These five core findings reveal that collections makerspaces *can* act as tactical laboratories that help bring about organisational change by challenging how institutions think and work from within. By encouraging experiments that reframe the ways that people think about, interact with and exchange their own cultural heritage, they can help foster more socially just negotiations between institutions and their publics. My research also suggests that decoupled spaces more generally can reformat the power relations not only of museums, but also of many *other* kinds of institutions that may at first appear impervious to social change.

As Stuart Hall, Doreen Massey and Martin Rustin have argued in the *Kilburn Manifesto* (2013), societal transformation can never be driven by a single motor, especially when it comes to institutional structures that are negotiated by systems and flows made up of myriad economic, political and ideological factors. Despite this, they emphasise, there is no such thing as a hegemonic closure, because “hegemonies are never completed projects: they are always in contention. There are always cracks and contradictions – and therefore opportunities” (2013, 53:17). The wider social value, therefore, of institutionalised spaces for making can be seen in how they playfully articulate these tensions by challenging their hosts through material participation.

The collections makerspaces of this thesis have been animated by those who interact with them – and in turn, they too animate. They do this not by merely resisting or reinforcing museum discourses but instead by reframing them, using making to widen access in new ways. In doing so, they reframe both cultural collections, and the subjectivities of those who work with them, making way for other kinds of creative experiments that reorganise how we view our world.

It is here that their real power lies.

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# Appendix 1: Cited interviews

## 1.1 V&A

1. Irini Papadimitrou, digital programmes manager, V&A

## 1.2 British Museum

*Note: While I have omitted specific interview dates to protect identities, all interviews occurred between the months of January and June of 2017.*

1. Manager #1, British Museum staff
2. Manager #2, British Museum staff
3. Manager #3, British Museum staff
4. Manager #4, British Museum staff
5. Collaborator #1, British Museum staff
6. Collaborator #2, British Museum staff
7. Facilitator #1, British Museum staff
8. Facilitator #2, British Museum staff
9. Facilitator #3, British Museum staff
10. Facilitator #4, British Museum staff

## 1.3 Tate

*Note: TDS: Taylor Digital Studio; TE: Tate Exchange.*

1. Jen Aarvold, senior digital producer, Tate Digital. Interview 26/10/17, TDS
2. Kat Box, producer, Tate Kids. Interview 14/10/16, TDS
3. Ruth Catlow, Co-founder, Furtherfield and artist-in-residence, Taylor Digital Studio. Interview 05/07/16, British Library
4. Helen Cooper, manager, Tate National Programmes. Interview 14/12/16, TDS.
5. Dan Crompton, head of A/V, Tate. Interview 27/02/17, TDS

6. Luca Damiani, producer, Taylor Digital Studio. Interviews 03/02/17, TDS and 07/02/17, TE
7. Emilie Giles, co-founder, Codasign. Interview 06/02/17, Skype
8. Anna Marie Gray, curator, Tate Schools and Teachers. Interview 18/11/16, TDS
9. Sarah Horrocks, director, London Connected Learning Centre. Interview 29/03/17, Skype
10. Cristina Locatelli, doctoral researcher, ArtMaps. Interview 21/11/16, Skype
11. John McNeill, researcher, Tate Collection Care. Interview 18/11/16, TDS
12. Rachel Noel, curator, Young People's Programmes. Interview 11/11/16, TDS
13. Rebecca Sinker, convener, Tate Digital Learning. Interview 25/01/17, TDS
14. Leyla Tahir, digital producer, Tate Collectives. Interview 25/11/16, TDS
15. Luisa Ulyett, curator, Tate Public Programmes. Interview 18/11/16, TDS
16. Collaborator #1, Tate collaborator
17. Facilitator #1, Tate staff
18. Facilitator #2, Tate ex-staff
19. Facilitator #3, Tate staff
20. Facilitator #4, Tate staff
21. Facilitator #5, Tate staff
22. Facilitator #6, Tate staff
23. Facilitator #7, Tate staff
24. Facilitator #8, Tate staff
25. Facilitator #9, Tate staff
26. Facilitator #10, Tate staff

## 1.4 Wellcome Collection

1. Valerie Brown, events officer, Wellcome Collection. Interview 17/02/17, Wellcome Collection.
2. Loesja Vigour, librarian, Wellcome Collection. Interview 14/03/17, Wellcome Collection.
3. Nicola Cook, librarian, Wellcome Collection. Interview 14/03/17, Wellcome Collection.
4. Solomon Szekir-Papasavva, librarian, Wellcome Collection. Interview 17/02/17, Wellcome Collection.

5. Facilitator #1, Wellcome Collection staff
6. Facilitator #2, Wellcome Collection staff
7. Facilitator #3, Wellcome Collection staff
8. Facilitator #4, Wellcome Collection staff
9. Facilitator #5, Wellcome Collection staff

## Appendix 2: Participant info & consent



University of Sussex

### INFORMATION SHEET – Participant in Doctoral Research Study

Hacking the Museum Together? Spaces for Digital Making in London Cultural Institutions

Reference ER/KB359/2 | Researcher: Kat Braybrooke | k.braybrooke@sussex.ac.uk

### SUMMARY

You have been invited to take part in a research study about **hands-on spaces for lo-fi and high-fi digital making and learning being opened within three cultural institutions (the Tate Britain, the British Museum and the Wellcome Collection) in London**. Before you decide whether to take part, the researcher has put together this information sheet to give you a full understanding of the project and its goals. Please feel free to ask questions!

### WHAT IS THIS RESEARCH PROJECT ABOUT?

This project is a **3-year doctoral study** which takes an in-depth look at the social, cultural and political ecosystems emerging at a new generation of hands-on sites for digital making and learning being opened within three cultural heritage institutions in London: 1) The Tate Britain's Digital Studio, 2) The British Museum's Samsung Centre, and 3) The Wellcome Collection's Reading Room. Specific attention is given to the unique circumstances of this institutionalization of digital making practices, and their effects on user participation and access. Research is ethnographic and hands-on, with the researcher making and learning alongside participants, in addition to building open digital archives like <http://spacehacker.tumblr.com> aimed at displaying findings in creative ways.

### WHAT DO I HAVE TO DO AS A PARTICIPANT?

You have been asked to participate because of **your relationship** with the space and your use of it for making, curriculum development, learning, development and/or other institutional affiliations. The researcher would like to talk to you for under 1 hour about your experiences. This will be an informal conversation, so you don't have to prepare for it. If you agree, she may also ask to spend time with you while you make things on-site, ask if you can speak again another day, or if you would like to collaborate on a hands-on digital community project together.

### DO I HAVE TO TAKE PART? WHAT IF I CHANGE MY MIND?

It is entirely **up to you** to decide whether you would like to take part in this study. If you **do decide to take part**, you will be given this information sheet to keep for your records, and you will also be asked to sign a consent form. If you **decide to stop taking part** at any time, you are free to withdraw without giving a reason.

## HOW WILL YOU USE MY DATA? HOW WILL CONFIDENTIALITY BE MANAGED?

All interviews will be **recorded and transcribed** for the researcher's use only by default (unless you have specified against this on your consent form). Content will be analysed as a site-based research finding. The researcher will **protect your confidentiality and privacy**, and will only use personal information in anonymized ways. **You will not be named** unless this is asked for **specifically**. Data will be stored securely on a password-protected server, and once the analysis is complete, deleted. Data will be held in accordance with the **1998 Data Protection Act**.

## HOW WILL RESEARCH BE USED AND PUBLISHED?

Findings will be shared **openly and iteratively** through lectures, conferences, publications, blog posts and magazine articles. Some user experiences will also be featured online through the development of a Tumblr-based **digital archive of community activities** built on-site, pending user permission. Best practices and key findings will be shared with each participating institution in **report form**. Research results will additionally be published as a **doctoral dissertation** for the researcher's pursuit of a Doctorate of Philosophy – Media and Cultural Studies. We will be in touch with all participants when these outputs are published for your perusal.

## HOW ABOUT SAFEGUARDING, ESPECIALLY REGARDING YOUTH PARTICIPANTS?

Overall, the intention in this research is to have no harmful impact on participants, and ultimately to enhance well-being, have interesting conversations, facilitate the development of skills and build new insight together through participation in an interesting project. All researchers involved in fieldwork will have an enhanced DBS to ensure this occurs. Equally, when working in institutional settings, researchers will follow the safeguarding policy of the organisation if there is any concern about potential harm to young participants or those close to them.

## WHO IS RUNNING THIS RESEARCH PROJECT? WHO FUNDS IT?

The researcher responsible for this project is **Kat Braybrooke**, who is conducting the study while she is a doctoral candidate at the University of Sussex within the School of Media, Film and Music. This project has been fully funded for three years by the interdisciplinary **University of Sussex Humanities Lab**. It has been approved by the **Social Sciences & Arts Cross-Schools Research Ethics Committee (C-REC)**.

## WHO CAN I CONTACT FOR FURTHER INFORMATION?

If you have any **concerns or questions** related to your participation or the project itself, please feel free to get in touch with the researcher, Kat Braybrooke, via [k.braybrooke@sussex.ac.uk](mailto:k.braybrooke@sussex.ac.uk). If you have any concerns about the way the study has been conducted, you can contact Kat's supervisor Tim Jordan via [t.jordan@sussex.ac.uk](mailto:t.jordan@sussex.ac.uk). The University of Sussex has insurance in place to cover its legal liabilities in respect of this study.

## WITH GRATITUDE!

Thank you very much for taking the time to read this information sheet. I look forward to collaborating with you in the research, and exploring making and learning experiences together on-site!



**CONSENT FORM – Adult Participant in Doctoral Study**  
**Hacking the Museum Together? Spaces for Digital Making in London Cultural Institutions**  
 Reference ER/KB359/2 | Researcher: Kat Braybrooke | k.braybrooke@sussex.ac.uk

**1. In signing below, I accept the following statements:**

- a. I **agree to participate** in this University of Sussex research project.
- b. I have had the project explained to me in full, and I have read the **Information Sheet**, which I may keep for my records.
- c. I understand that this collaboration may **include an interview** and/or **observation of my participation** in lo-fi or hi-fi digital making tools, methods or activities.
- d. I understand that my participation is **voluntary**, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage without being penalised or disadvantaged in any way.
- e. I understand how my **data will be handled**, and that it will not be shared with any other organization without my consent.
- f. I am aware of who to contact if I have questions or concerns.
- g. I understand that this project has been reviewed and **received ethics** clearance through the University of Sussex.
- h. I consent to my **personal information being used** for the study. I understand it will be treated as strictly confidential and handled in accordance with the Data Protection Act of 1998.

**2. I allow the researcher to refer to me in the following way (please circle one):**

- a. I can be quoted in reports about this research, and I am happy for **my first name and/or institutional affiliation to be used** [e.g. first name; organisational role]
- b. I can be quoted in reports about this research, but these **must be ascribed to an alias** [e.g. fictional name; name of organisation only]
- c. I can be quoted in reports about this research, but it **must be fully anonymised** [e.g. fictional name, generic job title, generic description of organisation type (e.g. a shared machine shop at a UK cultural institution)].

**3. If I am being interviewed, I agree to it being recorded in the following way (please circle one):**

- a. I am happy for the researcher to record the interview to be transcribed afterward.
- b. I ask that the interview is not recorded.

Name .....

Signature .....

Date .....