ROUTLEDGE INTERNATIONAL HANDBOOKS

The Routledge Handbook of Museums, Media and Communication

Edited by Kirsten Drotner, Vince Dziekan, Ross Parry and Kim Christian Schrøder

The Routledge Handbook of Museums, Media and Communication

Museums today find themselves within a mediatised society, where everyday life is conducted in a data-full and technology-rich context. In fact, museums are themselves mediatised: they present a uniquely media-centred environment, in which communicative media is a constitutive property of their organisation and of the visitor experience. *The Routledge Handbook of Museums, Media and Communication* explores what it means to take mediated communication as a key concept for museum studies and as a sensitising lens for media-related museum practice on the ground.

Including contributions from experts around the world, this original and innovative Handbook shares a nuanced and precise understanding of media, media concepts and media terminology, rehearsing new locations for writing on museum media and giving voice to new subject alignments. As a whole, the volume breaks new ground by reframing mediated museum communication as a resource for an inclusive understanding of current museum developments.

The Routledge Handbook of Museums, Media and Communication will appeal to students and scholars, as well as to practitioners involved in the visioning, design and delivery of mediated communication in the museum. It teaches us not just how to study museums, but how to go about being a museum in today's world.

Kirsten Drotner is Professor of Media Studies in the Department for the Study of Culture at the University of Southern Denmark and founding director of the research programmes Our Museum and DREAM. Author or editor of 30 books, her research interests include media history, media and information literacies, digital creativities, and museum communication. Her most recent book is *Museum Communication and Social Media: The Connected Museum* (co-edited, Routledge, 2013).

Vince Dziekan is a Senior Academic and Practitioner-Researcher at Monash Art Design & Architecture (MADA), Monash University, Australia, whose work engages in an interdisciplinary way with the transformation of contemporary curatorial practices at the intersection of design, creative technology and museum culture. He is the author of *Virtuality and the Art of Exhibition* (2012); associate editor of *Curator: The Museum Journal*; and curator of *MWX*, the exhibition initiative of Museums and the Web.

Ross Parry is Professor of Museum Studies at the University of Leicester, United Kingdom. A Principal Fellow of the Higher Education Academy, he has been a Tate Research Fellow, Chair of the Museums Computer Group, and is one of the founding Trustees of the Jodi Mattes Trust – for accessible digital culture. He works include *Recoding the Museum: Digital Heritage and the Technologies of Change* (Routledge, 2007), *Museums in a Digital Age* (editor, Routledge, 2009).

Kim Christian Schrøder is Professor of Communication at the Department of Communication and Arts, Roskilde University, Denmark. His books in English include *Audience Transformations: Shifting Audience Positions in Late Modernity* (co-edited, 2014), *Museum Communication and Social Media: The Connected Museum* (co-edited 2013), and *Researching Audiences* (co-authored, 2003). His research interests comprise the analysis of audience uses and experiences of media. His recent work explores mixed methods for mapping news consumption.

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Contributors

Kathleen Pirrie Adams is Chair of the RTA School of Media, in the Faculty of Communication and Design at Ryerson University, Toronto, Canada. Her areas of academic expertise include media, museums, music and contemporary art. She studied at the School of Museum Studies at the University of Leicester, United Kingdom, where her doctoral thesis *When Media Becomes Form* investigated the way in which media reframes museum provision, specifically within the popular music museum. As a curator, she has developed exhibitions and media programmes for the TIFF Bell Lightbox, the InsideOUT Gay and Lesbian Film Festival, the Images Festival, and served as the commissioner for InterAccess Electronic Media Art Centre's presentation of Next Memory City at the Venice Architectural Biennale.

Susan Anderson is Assistant Professor of Museum Studies at The George Washington University, United States, where she focusses on the impact of digital technologies on the museum. An active member of the museum community, Anderson is the 2018 President of MCN (Museum Computer Network) and was Programme Chair for its annual conference in 2015–2016. She is on the Programme Committee for the Museums Computer Group in the United Kingdom and has served on the Advisory Boards for the NMC Horizon Report – Museum Edition and the Open Knowledge Foundation Network Australia. Anderson is also the co-producer and co-host of *Museopunks*, the award-winning podcast for the progressive museum. She holds a PhD and BFA from The University of Newcastle, Australia, and a BArts from Charles Sturt University, Australia.

Ien Ang is Distinguished Professor of Cultural Studies at Western Sydney University, Australia, where she was also the Founding Director of the Institute for Culture and Society. She has published influential books in media and cultural studies, including *Desperately Seeking the Audience* (Routledge, 1991) and *On not Speaking Chinese* (Routledge, 2001). Her latest book is *Cultural Diplomacy: Beyond the National Interest?* (edited, with Yudhisthir Raj Isar and Phillip Mar, Routledge, 2016). Her interests focus on globalization and cultural flows, cultural diversity and issues of representation in cultural institutions.

Bodil Axelsson is Associate Professor in the Department for the Study of Culture and Social Change at Linköping University, Sweden. Her research interests include critical heritage studies and the uses of history and museology. She is currently principal investigator of the project "In Orbit: Curatorial Agency when Museum Objects and Knowledge go Online," and she acts as the Director of ACSIS: Advanced Cultural Studies Institute of Sweden.

Rikke Haller Baggesen is Postdoctoral Fellow in the Department of Communication and Arts, Roskilde University, Denmark, and affiliated to a national research programme, Our Museum. She holds a PhD degree from the Royal School of Library and Information Science at the University of Copenhagen, Denmark. Her research focusses on the intersection of museology, design and digital culture, with interests including design methodology, participatory practices and the impact of digital culture and technologies on museum practice and discourse.

Vince Dziekan is Senior Academic and Practitioner-Researcher in Monash Art Design & Architecture (MADA), Monash University, Australia, whose work engages with the transformation of contemporary curatorial practices at the intersection of design, creative technology and museum culture. The scope of this interdisciplinary investigation has been outlined previously in his book, *Virtuality and the Art of Exhibition: Curatorial Design for the Multimedial Museum* (Intellect/University of Chicago Press, 2012). He has published widely in traditional, scholarly as well as non-traditional modes through his independent curatorial practice. He is associate editor of *Curator: The Museum Journal* (Wiley) and curator of *MWX*, the exhibition initiative of Museums and the Web (United States).

Anders Ekström is Professor in the Department of History of Science and Ideas, and currently Vice-Dean of the Faculty of Arts, both at Uppsala University, Sweden. He has published broadly on modern cultural and media history and theory for more than 25 years, including ten individually authored, co-authored and edited books. His work on the modern history of exhibitions is mainly focussed on the 19th and early 20th centuries. It has appeared in journals such as *Media, Culture & Society*, *Nineteenth-Century Contexts* and *Early Popular Visual Culture*. Among his more recent books are *History of Participatory Media: Politics and Publics, 1750–2000* (edited, with Solveig Jülich, Frans Lundgren and Per Wisselgren, Routledge, 2011).

Nanna Holdgaard is Postdoctoral Fellow at the IT University of Copenhagen, Denmark, where she conducts a research project named the "Digital Glyptotek," funded by the New Carlsberg Foundation. Her research is empirically informed by and grounded in the institutional and user-oriented practices that emerge where institutions, users and technology meet.

Sarah Kenderdine is Professor of Digital Museology at the École polytechnique fédérale de Lausanne (EPFL), Switzerland, where she directs the Laboratory for Experimental Museology (eM+), exploring the convergence of aesthetic practice, visual analytics and cultural data. She also directs EPFL's art/science museum. Formerly, she was Professor at University of New South Wales in Sydney, Australia, and Founding Director for the interdisciplinary Expanded Perception and Interaction Centre (EPICentre), where she conceived and designed its primary visualization infrastructure. She was head of Special Projects for Museum Victoria, Australia, 2003–2017. In 2010–2015, she was the Founding Director of Research at the Applied Laboratory for Interactive Visualization and Embodiment (ALiVE), CityU Hong Kong. In 2015, she was elected President of the Australasian Association for Digital Humanities (aaDH).

Jenny Kidd is Senior Lecturer in the School of Journalism, Media and Cultural Studies at Cardiff University, United Kingdom. She researches across the fields of media, museums, heritage and the creative economy. She is author of *Museums in the New Mediascape: Transmedia, Participation, Ethics* (Routledge, 2014) and *Representation: Key Ideas in Media and Cultural Studies* (Routledge, 2015). She is co-editor of *Challenging History in the Museum* (edited, with Sam Cairns, Routledge, 2014) and *Performing Heritage* (edited, with Anthony Jackson, Manchester University Press, 2011).

Line Vestergaard Knudsen is Assistant Professor in the Department of Culture and Global Studies at Aalborg University, Denmark. She earned her PhD degree at the Danish Research Centre on Education and Advanced Media Materials (DREAM) and Roskilde University, Denmark. She researches and teaches within museology, cultural heritage and communication, with particular interest in how museums engage with, include and learn from participating audiences and other external actors.

Karen Knutson is Associate Director of UPCLOSE: University of Pittsburgh Center for Learning in Out of School Environments, United States. Her research interests include visitor learning, organizational practices in museums and looking at the role of informal learning experiences as they occur throughout the lifespan. Her books include *Learning Conversations in Museums* (edited, with Gaea Leinhardt and Kevin Crowley, Lawrence Erlbaum, 2002) and *Listening in on Museum Conversations* (co-authored, with Gaea Leinhardt, AltaMira Press, 2004).

Anne Rørbæk Olesen is Postdoctoral Fellow at the IT University of Copenhagen, Denmark. She is part of the European research project GIFT that combines researchers, museums and designers in explorations of personalised digital museum experiences. She earned her PhD degree at the Danish Research Centre on Education and Advanced Media Materials (DREAM) and Roskilde University, Denmark. Her research focusses on digital communication, design practices, museums, culture and visual methods.

Peter Pavement is Director of Surface Impression, a digital design and development agency based in Brighton, United Kingdom, that specialises in work for the cultural sector. Peter has been working with museums and heritage organizations for more than 16 years, helping them to create engaging digital interfaces to collections, venues and histories. He is also a doctoral student in the School of Museum Studies at the University of Leicester, United Kingdom, where he investigates the production of media by museums, in both a historical and contemporary context.

Jingyu Peng is PhD Candidate in the School of Museum Studies at the University of Leicester, United Kingdom, and she is currently collaborating with the National Space Centre, United Kingdom. Informed by the sensory turn, her research focusses on how people feel using in-gallery interactives, and it aims to design a framework for evaluating the emotional and sensory experience of emerging technology in museums.

Palmyre Pierroux is Professor in the Department of Education at the University of Oslo, Norway, where she leads a large interdisciplinary research group. Her research interests include studies of the role of digital media and technologies in knowledge production in museums and archives, and the ways in which different visitors, including adolescents and school groups, interact with, contribute to, and learn from this knowledge. Pierroux has experience leading national research projects that are based on partnerships with museums, schools and other institutions, often involving design-based research approaches. She teaches courses on creativity, learning and innovation and on design-based research methods.

Nancy Proctor is Director of The Peale Center for Baltimore History and Architecture and of the MuseWeb Foundation, the new nonprofit initiative of Museums and the Web, as well as Co-chair and Co-editor with Rich Cherry of MW's international conferences and publications. Previously, Nancy was Deputy Director of Digital Experience and Communications

at the Baltimore Museum of Art (2014–2016), Head of Mobile Strategy and Initiatives at the Smithsonian Institution (2010–2014), and Head of New Media Initiatives at the Smithsonian's American Art Museum (2008–2010). With a PhD in American art history and a background in filmmaking, curation and art criticism, Nancy lectures and publishes widely on technology and innovation in museums, in French and Italian as well as English.

Pille Pruulmann-Vengerfeldt is Professor of Media and Communication in the School of Arts and Communication at the University of Malmö, Sweden. Her research interests are focussed on the cultural participation and changing role of people around memory institutions (museums and libraries). Taking audience-focussed perspectives, she looks at the new media-initiated changing role of media and memory institutions in society. In addition to writing numerous journal articles and book chapters, she has published *Democratising the Museum: Reflections on Participatory Technologies* (edited, with Pille Runnel, Peter Lang, 2014).

Pille Runnel is Research Director and Curator at the Estonian National Museum. Her research interests include new media audiences, museum communication and participation at public cultural institutions. She has published a number of journal articles and book chapters as well as edited books, including *Democratising the Museum: Reflections on Participatory Technologies* (edited, with Pille Pruulmann-Vengerfeldt, Peter Lang, 2014).

Peter Samis is Associate Curator of Interpretation at the San Francisco Museum of Modern Art, United States, and has spent his career fostering meaningful connections between artworks and audiences. A long-time leader in the field of interpretive media, Samis was the art historian/content expert on the first CD-ROM about modern art and then led SFMOMA's pioneering efforts through successive waves of technological innovations, producing a succession of award-winning media-rich websites, podcasts and videos. In recent years, he has focussed on larger questions of museum interpretation, both analog and digital, onsite and online. He has also published *Creating the Visitor-Centered Museum*, (co-authored, with Mimi Michaelson, Routledge, 2017).

Dagny Stuedahl is Professor of Media Design in the Department of Journalism and Media Studies at Oslo Metropolitan University, Norway, where she is coordinator of the Media Studies bachelor programme, and teaches visual communication and web design. Her research has focussed on digital design in pedagogy and especially museum and cultural heritage communication. In methodological terms, she has worked with participatory methods and co-design, with a special focus on collaboration with youth and children.

Maholo Uchida is Curator and Head of Exhibition Development Division at the National Museum of Emerging Science and Technology (Miraikan) in Tokyo, Japan. She started her career as a curator of new media art and design producing several national and international exhibitions, and she was appointed to the National Museum of Emerging Science and Technology (Miraikan) in 2002. She has been leading projects that bridge science and art by using cutting-edge interactive technologies, including Miraikan's symbol exhibition, "Geo-Cosmos." Several of these projects have been realised in collaboration with local and global artists. She received an MA in Media Governance from Keio University, Tokyo, and an MAS of Scenography from ZHdK (Zurich University of the Arts). The Japanese Agency for Cultural Affairs' career programme enabled her to work for a year in the Department of Media at the Museum of Modern Art in New York.

Bjarki Valtysson is Associate Professor in the Department of Arts and Cultural Studies at the University of Copenhagen, Denmark. His research interests include media and cultural policy, political economy of digital media, digital archives and digital museum communication. His most recent books are *The Media and the Mundane: Communication Across Media in Everyday Life* (edited, with Kjetil Sandvik and Anne Mette Thorhauge, NORDICOM, 2016) and *Technologies of Labour and the Politics of Contradiction* (edited, with Paško Bilić and Jaka Primorac, Palgrave, 2018).

Lauren Vargas is a graduate of Harvard University's Master's in Museum Studies Program and is currently undertaking doctoral research at the University of Leicester, United Kingdom. With a commercial background in developing enterprise social media and community strategies, Lauren's current research aims to understand how and why museum data is collected, and how it might be analysed together to inform how the museum operates and integrates into its physical and digital ecosystem. Her work draws upon maturity models used in business to assess management processes, to help build a "Playbook" evaluating what resources the museum has and how such resources impact upon its vision and mission, as well as its organization of staff, collections and technology.

Andrew Yip is Research Fellow at the iCinema Centre for Interactive Cinema Research at the University of New South Wales in Sydney, Australia. His cross-disciplinary practice encompasses the design of immersive, interactive installations for museums, galleries and educational institutions. His research interests include theorizing immersive interaction for cultural heritage materials and developing new tools for embodied and collaborative 3-D design. Prior to this, Andrew held the role of Public Programs Producer at the Art Gallery of New South Wales in Sydney, where he was co-curator of the exhibition Mad Through the Darkness: Australian Artists and the Great War, and published the book *The Legacies of Bernard Smith: Essays on Australian Art, History and Cultural Politics* (edited, with Jaynie Anderson and Christopher Marshall, Power Publications, 2016).

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Kirsten Drotner
Vince Dziekan
Ross Parry
Kim Christian Schrøder

Part III
Practices

Kirsten Drotner, Vince Dziekan, Ross Parry and Kim Christian Schrøder

How do media play into the practices of museums in terms of their relations to audiences, to their modes of organisation and to their strategies of development? This part provides answers to these pressing questions. Parts I and II have mapped the historical trajectories and the structural contexts of the intricate media-museums nexus, and chapters have illuminated how media have been, and still are, constitutive to the ways in which museums define themselves and interact with visitors and local communities, and with nationally and transnationally distributed audiences. This part homes in on how museums apply media as part of their daily communication practices and as catalysts of change.

Theorists of everyday life such as French Michel de Certeau (1980/1984) and Henri Lefebvre (1947/1991) noted how daily practices are often understudied for the simple reason that they are unassuming, taken-for-granted routines and thus fall under scholars' radar of intellectual interest. This situation is also true for studies of the relations between media and museums. For while mediated forms of communication are important practices in museums, indeed often fundamental to their institutional identities, these forms are relatively underappreciated as practices. Most publicly funded museums conduct research based on their holdings, so art historians and conservationists are strongholds of research in art museums and galleries, while historians and archaeologists, for example, hold a similar position in museums of cultural and natural history. But, until fairly recently, few museums have conducted systematic and research-based studies of their own modes of mediated communication.

So, the chapters in this part rest on a potential research paradox between an unquestioned focus on media *in* museum practices versus an equally unquestioned marginalisation of media *as* museum practices. This is why the authors in this part have been selected to demonstrate a range of academic and professional vantage points in tackling this paradox, thus allowing readers to consider media practices in museums from multiple angles. Unsurprisingly, the chapters are structured along the lines known from established communication models with key elements being sender (museum), message (objects) and receiver (visitors, audiences). So, museums are at the core of interest in the ensuing chapters mapping options and obstacles that occur when museums practice mediated communication and try to understand its social uses. But at the same time, the authors in varying ways display how the divisions found in established models of

mediated communication are insufficient when examining the complexities of these practices. As a result, more relational, processual and performative approaches emerge as joint frames of reference.

Vince Dziekan and Nancy Proctor open the part with an overview of evolving trends in museums' mediated modes of communication. With their combined expertise in art practice and digital leadership and curatorship, the authors argue that museums now find themselves approaching what they term "a post-digital horizon," where spatial practices and mediatisation begin to converge. The chapter illustrates this unfolding movement through examples of cultural curating, artist-lead projects and cultural storytelling initiatives; and it demonstrates how a redirection of institutional authority and a dispersal of curatorial agency characterises a process leading towards what the authors call "the pervasive museum."

Next, Jenny Kidd explores a contentious aspect of these transformations in museums' practices of mediated communication, namely, digital museum ethics. From a cultural studies perspective and based on a number of analytical examples, the chapter suggests four issues that museum professionals working in and with the digital should focus on: user contributions and debates about how to value them; risk and its management; playing with the truth; and power and its negotiation. The chapter demonstrates that the appraisal of ethical issues within the digital environment is fast becoming an institutional and professional priority, intersecting with debates that are currently underway about museums' relevance and responsibilities.

In their chapter, Line Vestergaard Knudsen and Anne Rørbæk Olesen examine another practice of growing importance, as museums develop new modes of mediated communication. These developments often take shape through collaboration across various stakeholder groups, and the chapter focuses on how these forms of collaboration unfold and are actually practiced. Working from a media and communication studies perspective, and informed by perspectives from Science and Technology Studies, the authors unravel potentials and pitfalls when new mediated forms of communication are designed through collaboration between different groups holding different organisational positions and different forms of expertise. In particular, the chapter homes in on collaboration between and across three different groups, namely collaboration between museum professionals, collaboration between museum professionals and third-party design professionals, and collaboration between museum professionals and museum users. It is shown how reflexivity and transparency about these differences can optimise potentials in these entanglements of innovation.

Innovation of museums' mediated communication is also key to the final chapter. Here, Dagny Stuedahl offers a critical examination of audience participation practices that many museums and policymakers are drawn to. Drawing on a Scandinavian tradition of participatory design, the chapter focuses on how participatory methods can be utilised in museum exhibition design development, and it documents how these methods can be applied through analysis of case studies. Finally, the author highlights the challenges posed by an uncritical adoption of audience participation as a communicative strategy, and she discusses the dilemmas museum professionals face inside their own institutions when established methods of profession-led exhibition design are exchanged for more participatory ones.

Taken together, the chapters in this part demonstrate the analytical validity of a practice-based approach for museums that wish to adopt more systematic studies of their mediated modes of communication and, importantly, for museums that wish to innovate such modes through design. Through their in-depth analytical examples, the chapters also highlight new and emerging modes of working – through co-design, co-curation and interdisciplinary collaboration – that are characteristic of mediatised communication within the museum. Last, but not

least, the chapters frame new dilemmas in these emerging practices, and they problematise new orthodoxies that potentially underlie general claims of collaboration, participation and interaction. Thereby, the part also serves as a timely reminder that the devil is often in the details, and that we may all learn by knowing more about and sharing this detail.

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III.1

From elsewhere to everywhere

Evolving the distributed museum into the pervasive museum

Vince Dziekan and Nancy Proctor

Museum digital transformation has unfolded as a series of continuous disruptions that track the evolutionary trajectory of the World Wide Web over the past quarter century. During the digital era, we have seen the *modus operandi* of the museum shift inexorably towards increasingly open and integrative modes of engagement and content creation, both inside and outside of its institutionally defined boundaries and professionalised practices. While the tide of new digital modes of communication have certainly enabled museums to create, publish and share their content more broadly with audiences, museums have also begun to embrace an accompanying paradigm shift towards openness in wide-ranging ways that place an onus on greater co-creative meaning-making. How museums and their collections are understood and reframed today, along with the role, purpose and institutional values associated with their curatorial practices, have been transformed by the cultural currency of digital media and their networked economies in the Internet age.

In order to discuss the implications of this transitional moment, this chapter begins by undertaking to reprise the logic of the *distributed museum*. While this model provides an effective frame for negotiating issues associated with digitisation, arguably, museums now find themselves approaching a *postdigital* horizon. The term "postdigital" can be defined as a response to the entanglements of media life after the advent of digitalisation. Rather than approaching the processes, experiences and actuations of digital as distinct from other, non-digital aspects of material culture and societal practices, postdigital instead describes a hybridised approach through which the implications of computation can be broached as a defining problematic of contemporary life (Berry & Dieter, 2015). From this vantage, digital disruption is not transcended as such, but becomes more a matter of fact; and the obsessive fascination and over-played enthusiasm that was once synonymous with new media is contested and critiqued, reappraised and reassembled. Representative of this broader socio-cultural phenomenon, the *postdigital museum* posits that a normative condition has been reached operationally within the institution in regard to digital practices and their functions (Parry, 2013). This state of affairs carries with it a new challenge: that of redefining the museum in relationship to cultural conditions existing outside, or "elsewhere," that have emerged from the convergence of spatial practices and digital mediation. The process of transitioning from a phase of digital "adoption" – illustrated in the theorisation of the distributed museum provided by Susana Bautista and Anne Balsamo (2011) – to postdigital

"adaption" opens up fresh possibilities along with their inevitable institutional challenges; notably, to (i) create new kinds of museum experiences that exceed binary, oppositional definition as physical or virtual, fixed or mobile; and (ii) curate cultural content in a manner that escapes the impasse of closed versus open processes. In order to engage with these key problematics, we will turn our discussion towards curatorial practices in the expanded field that ubiquitous computing technologies and pervasive connectivity have created and address cultural curating, artist-led projects and cultural storytelling initiatives that leverage the power of audiences in indicative ways. These modes of practice go beyond crowdsourcing as a neoliberal economic gambit that promotes participatory contribution but actually capitalises on the free labour of individuals for the benefit of the institution. More distinctively, these practices illustrate how the relative *dissolution* of institutional "authority" and *dispersal* of curatorial agency characterises a shift towards what we will call the *pervasive museum*. In the process, the trajectory of this movement leads towards the transformation of the museum from a treasure house to a production house of culture. The production of culture – as a discursive practice – becomes co-created and co-emergent with a broader range of agents and stakeholders than represented in prevailing "top-down" institutional models, which, in turn, are enabled to exercise exploitation rights over the cultural products of their labour.

Reprising the logic of the distributed museum

There was a time when the museum could be said to exist "somewhere." As incessant tides of digitalisation lapped against the gates of the museum, both its architectural and internal institutional structures could only protect its long-standing object-centric practices from the rising digital flood outside for so long. As museums' resistance to new media technologies eroded, "multiplatform" strategies emerged to manage the multifaceted nature of communications associated with the initial phase of digital adoption. By suggesting the co-presence of the museum's physical sites in relation to its multiple digital contexts, multiplatform describes a "remediated" approach whereby a single content source is published to multiple outlets and channels; the aim, here, being to create an accurate digital representation of the same original (physical artefact or content type) on different platforms, or to at least control the message and experience from a centralised publishing source. As the number of distribution platforms increased and the audiences they were capable of reaching expanded exponentially, museums began realising the need to develop dedicated strategies to address content and experience design for visitors who engage with them across these many digital destinations, including where online audiences and third parties publish their own content and commentary with or without the direct knowledge, permission or editorial recourse of the museum itself.

In 2008, in an effort to articulate new media strategy and initiatives for the Smithsonian American Art Museum, Nancy Proctor mapped the proliferation of platforms on which content about the museum and its collection could be found (Figure III.1.1). This inventory encompassed everything from wall labels to lectures, docents to signage; time-honoured formats that serve the museum's exhibitionary, interpretative and educational functions by operating conventionally within its structured galleries and institutionally sanctioned spaces. Additionally, other groupings duly recognised both mobile and online platforms – spanning audio and interactive portable tours to the museum's website and podcasts, respectively. These formats have come to establish themselves incrementally as indispensable features of the late-20th century museum. In such cases, the museum itself acts principally as producer or content provider, serving these forms of museum media and communication to its audience on site and via its online channels. However, the very dimensions of the "mediatic" (Henning, 2006) experience of museums

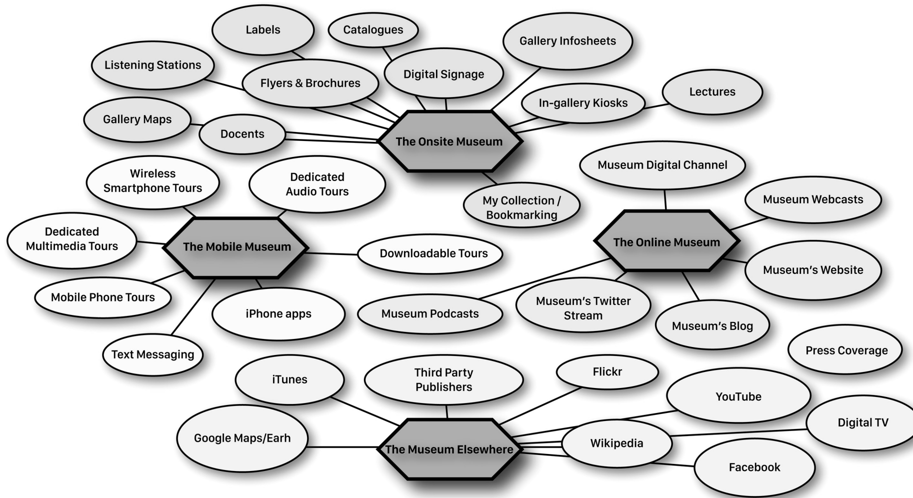

Figure III.1.1 Visualising the distributed museum.

extend well beyond the platforms that fall under their immediate control: mediated exhibits and gallery spaces, the museum's websites and managed presence on social media that construct meaning and organise experience by directing visitor attention. Museum content can also be found on platforms that Proctor's diagram label as existing "elsewhere," which have *not* been published or created directly by the museum or its agents. Rather, (then) emerging platforms and services, such as YouTube, Flickr, Facebook, Wikipedia, Google Maps and iTunes, offered members of the public and other third-party publishers with opportunities to share and disseminate content about museum collections and exhibition programs widely and at times *wildly*.

Distributed museology

The distinctive cultural conditions that these dispersed and nonlinear spaces produce have come to define museology in the digital age. Representing the "multimedial" nature of the contemporary museum (Dziekan, 2012) as a distributed constellation map of sorts reveals the ways that museums have – and continue to – adapt to the distruptive pressures associated with digital transformation by introducing processes that reflect new cultural economies of content production and consumption (Proctor, 2010). As new modes of knowledge formation relating to the "digital humanities" attest (Burdick, Drucker, Lunenfeld, Presner, & Schnapp, 2012), knowledge, rather than being produced and disseminated from a centralised position of disciplinary expertise and authorial control, is created generatively and collaboratively, while content becomes more relevant and therefore sustainable through circulation and use. The value of the "original" is not diminished but, rather, increased by being found in new, often unexpected contexts alongside content from other sources. As Internet search engines demonstrate – whereby the more sites linking to a piece of digital content, the higher it ranks in search results – connectedness is the chief criteria determining quality. It should be stressed that these implications are not restricted or delimited to the museum's "virtual" spaces as they have been conventionally framed (the museum website, for instance), but rather the resulting understandings ("know-how") and practices ("how to") are being extended to a wider, more encompassing range of spaces in – or better still, across – which the museum now operates.

As part of the 2011 *Museums and the Web conference* (an important international forum for advanced scholarship in digital cultural heritage and practice-led research involving the application of museum technology), Susana Bautista and Anne Balsamo took stock of the constitution of the museum's emergent digital spaces. Their accompanying conference paper maps these spaces against a set of conceptual coordinates that distinguish between the structured and unstructured dimensions of the kinds of "digital experiences" associated with the contemporary museum. Within their encompassing typology, physical/virtual defines spatial location or site, whereas fixed/mobile exaggerates the temporal, "situatedness" of the experience. The distributed museum describes the formation of museological spaces, placing an onus on how institutional "presence" is dispersed across both physical and virtual environments and its operations spread across their spectrum of activities. As a theoretical construct, it heralds the transformation of museum practices whose identity and functions were formed in strong relation to material concerns and physical place to the new, *fluid* cultural environment of the digital age, whose cultural conditions – it would seem – contradict the museum's promise to withstand the "flow of time" by providing art with its "materialist eternity" (Groys, 2016, p. 2). Yet, rather than heralding their dissolution and demise, museums have in fact proliferated today and become themselves "immersed" in this flow by:

> ceas[ing] to be a place for a permanent collection and bec[oming] a stage for changing curatorial projects, guided tours, screenings, lectures, performances, etc. In our time, artworks permanently circulate from one exhibition to another, from one collection to another. And this means that they are getting more and more involved in the flow of time. (Groys, 2016, p. 3)

Consequentially, museums – and their curatorial operations most directly – have become increasingly attuned to the dependency of the artwork on "context" and "mediation" rather than "contemplation" and "meditation."

The built infrastructures designed to anchor the museum's affiliated digital experiences – whether dedicated education and technology centres, computer kiosks, interactive "multimedia" productions or virtual exhibition programmes drawing upon museum collections – are indicative of the physical/virtual manifestations of the distributed museum. One tendency identified by Bautista and Balsamo entails reproducing the conventions of physical exhibitions as an organisational principle to help provide an understandable navigation context for online visitors to engage with digital collections. Keeping this orientation in mind, does the design of embedded digital experiences found in today's visitor-centred galleries effectively invert this approach by transferring the nature of interacting with content on the Internet into hyper-connected spatial encounters? This type of museological environment – such as Cleveland Art Museum's celebrated Gallery One or Tate Modern's "eco-system" of digital spaces identified under the "Bloomberg Connects" umbrella – blurs, if not more fully transcends the boundaries of physical and virtual that served as one of the epistemological bases or pillars of the distributed museum.

The second tendency identified by Bautista and Balsamo involves the relationship between fixed and mobile. In this respect, the prospect for new ways and means of engaging with cultural content beyond the walls of the museum continues to raise interesting implications. However, as Koven Smith rightly observed, technological advances can simply reinforce traditional models, rather than upend them by presenting new ones. Writing contemporaneously to Proctor, Bautista and Balsamo, Smith (who was then in the role of Manager of Interpretive Technology at the Metropolitan Museum of Art) expressed excitement in the nascent promise of location-based services to extend the traditional model of the museum tour by promoting experiences

premised upon "an entirely different kind of interaction model, one that substitutes serendipitous and disposable experiences for the more immersive, intentional ones that museums are accustomed to" (Smith, 2010, para. 1). He imagines the following scenario:

> A user who follows the Metropolitan Museum of Art, for instance, could check in at the Black Canyon in Colorado and be presented with [a] photograph and accompanying data from the Museum's Timeline of Art History: In essence, this approach takes content that was originally designed to be experienced as part of a museum visit (whether physical or online), and re-purposed it as a contextual/interpretive layer on a user's experience out in the world. (Smith, 2010, para. 1)

As illustrated by this example, the museum serves as a provider or purveyor of information. He goes on to note:

> Most online collections essentially attempt to replicate the experience of viewing an object, with a digital image as a stand-in for the real thing. In this experience, however, the experience of viewing the object is downplayed in favour of its relevance as a means of connecting one information node (location) with another (whatever information you wish to provide to the user). (Smith, 2010, para. 2)

The museum of everywhere

While the location-based social networking applications that Smith champions in his otherwise unassuming blog post may have since become obsolete, the appeal he makes for curated experiences that raise a different value proposition has become even more pronounced and urgent – especially as we consider how the "museum of everywhere" takes shape. For their part, Bautista and Balsamo highlight the active, participatory potentials of augmented reality (especially augmented reality games) and "geocaching" – the activity of using global positioning system- (GPS-) enabled devices to discover physical objects linked to particular physical locations – as examples that extend the possibilities of mobile digital experience. Research-led initiatives such as the Tate's *ArtMaps* and *ArtCasting* projects serve as cases in point that illustrate continuing innovation in this particular area, while more broadly raising implications for thinking about museums and their role as open platforms for public engagement (Stack, 2013a; Giannachi et al., 2017; Artcasting, 2017).

The *ArtMaps* project was initiated in 2012 with the stated aim of improving the quality of the geographical data relating to the over 70,000 works held by the Tate in its collection of British and international art (Tate, 2014). By developing an online digital application, crowdsourcing activities involving members of the general public were promoted through public-facing initiatives undertaken in an effort to give account to the rich and diverse histories that archival materials contain. Complementing this form of open-ended "geo-tagging," the project continues to be fuelled by a series of curated "challenges" designed to explore the social nature of archives.

Illustratively, it is worth noting that this project arose during a particularly transitional period within the institution, as the Tate took steps to operationalise a successive series of strategies designed in response to the "revolutionary" implications of digital and social media on the gallery's main functions. Under the guidance of John Stack, first the Tate's Online Strategy (2010–12) and then its Digital Strategy (2013–15) were set out with the stated aim to normalise digital by establishing a "digital culture" across the Tate that makes digital "a dimension of everything." In order to establish these cultural conditions, the Tate's Digital Transformation project

outlined a series of core objectives to achieve its institutional aims; including maximising the potential for digital in all activities, considering online and offline experiences as one, having a multichannel and multimedia mindset, and enabling more dialogical as well as broadcast modes of engagement. According to Stack:

> The museum of the future is not just a place where objects related to cultural heritage are cared for and displayed. It is not just a place where the stories of these objects and their significance are presented. It is a place where visitors (real and virtual) can interact with those objects and those stories, with the museum's staff, and with each other. Through these activities, the museum of the future is a platform where new ideas and meanings are generated, exchanged and preserved. (Stack, 2013b, para. 3)

Representatively, while *ArtMaps* explores the creative interface between what Bautista and Balsamo categorised as fixed/open digital experiences in a number of discernible ways, ultimately it offers a portent of what a pervasive museum might look like.

Curating in the expanded field, or the nature of the pervasive museum

The logic of the distributed museum reflects the cultural conditions of the networked information era. Contemporary art historians and theorists reiterate this perspective. Boris Groys, for one, recognises the comparability of art and the Internet as "powerful medium[s] for spreading information and documentation" (Groys, 2016, p. 6); while David Joselit, in reflecting upon the networked effects of the Internet, identifies how value, rather than being premised upon authenticity and authority, results from achieving a degree of saturation – "the status of being everywhere at once" (Joselit, 2013, p. 16) – through mass circulation, while "aura" is superseded by "buzz." According to Joselit, cultural circulation "aris[es] not from the agency of a single object or event, but from emergent behaviours of populations of actors (both organic and inorganic) when their discrete movements are sufficiently in phase to produce coordinated action" (Joselit, 2013, p. 16). He goes on to define three paradigms of cultural circulation that describe an object's distinctive relationship to site of origin, form of value and migratory status; for instance, the cultural value associated with migrant objects is deemed as primarily aesthetic, while cultural identity largely determines the value of native objects. In both of these cases, the traditional museum (as it *has been* instituted) is especially effective in communicating such qualities.

In contrast, however, the cultural value of documented objects proceeds from their informational nature, and so it follows that knowledge derived from them – whether shaped interpretively or communicated representatively through subsequent manifestations – "remains part of the cultural commons" (Joselit, 2013, p. 12). While documentation is inherently tied to the production of art in the digital age, as part of her conceptualisation of the "virtual feminist museum," Griselda Pollock asserts that the meaning of artworks is never fixed but, rather, mobile, because "being interpreted and reinterpreted is their cultural destiny" (Pollock, 2007, p. 11). These observations lead us to reimagine "how material culture, and image cultures of all descriptions, may be valued differently than as property" (Joselit, 2013, p. 12). This point of view is echoed by contemporary exponents of the networked society – such as Bruno Latour and his conception of the work of art as a "trajectory" (Latour & Lowe, 2010) – and, perhaps more unexpectedly, by visionary founders of the public museum in the 19th century, most notably Sir Henry Cole, who championed the universal reproduction of art. Historically, the Victoria & Albert Museum took the lead in adopting practices of copying as part of its

mission; an idealised vision of which endures in the museum's iconic Cast Courts. Outlined in his "Convention for promoting universally reproductions of works of art for the benefit of museums of all countries" of 1867, Cole advocated for a pan-European museum-led commissioning programme to collect, produce and share reproductions of artworks, in the form of plaster casts, electrotypes and photographs. Fast-forward to today, instigated in large part by advances in digitalisation and fabrication technologies, copying has taken on new urgency and relevance in the service of preserving "at risk" material culture, as evidenced by cooperative open-source projects, such as Project Mosul, that promote the recovery of lost art and cultural heritage through crowdsourcing methods of documentation (Rekrei, 2017). Serving as a portent of the pervasive museum, rather than seeing the cultural value of art and artefacts diminish as they migrate and proliferate across platforms, digital objects accrue value by adding stock to the cultural commons, through their social and political activation and by being curated "everywhere."

Cultural curating

Curating, it is fair to say, has become something of a ubiquitous feature that characterises the present day. Exceeding the remit of the professionalised definition of the term, the scope of curating activity has broadened markedly under contemporary mediatised conditions, leading to what some theorists and cultural commentators have described as a distinctive *curatorial* turn (Martinon, 2013; Lind, 2012) or *curationist* moment (Balzer, 2014; Obrist, 2014). Pre-eminent new media curator Steve Dietz pronounced that technological advances associated with the accelerated development of the Web during its first decade had "inevitably placed stress on the curator's central role in the museum," and that:

> regardless of how the curatorial role is defined, however, the Net in particular and interface culture in general introduces interesting and perhaps profound opportunities, which might also be perceived as competitive pressures in the culture arena. (Dietz, 1998, para. 2)

Does the proliferation of everyday, social practices of "curating" that have arisen in contemporary culture over the intervening years devalue the expert knowledge, skill and central importance that curating plays within the modern museum system? Whereas curatorial strategies can be thought of as carefully conceived, actionable plans that proceed from a position of institutionalised power, "tactics" – in the de Certeauian sense (de Certeau 1984) – are directed at mobilising courses of action in more opportunistic and improvisational ways. How can expert knowledge be channelled into authoritative content under networked conditions, when value is determined to a large degree by "find-ability" and linked relationally to other informational content and implicit knowledge embodied within the organically evolving dataset of the Web? The dynamics of circulation not only casts the notion of the "original" art object to one side, it also places a strong onus on both formally ascribed and informally constituted economies of curating. Initially, there was a feeling of strong resistance towards putting collections online based on the fear that people would no longer visit the museum. In a not dissimilar way, a perception that the popularisation of curation somehow risks diminishing the value, credibility and importance of curating as a professional practice arises from an economics of "scarcity," as expounded in Chris Anderson's "Long Tail" theory (Anderson, 2004). In the digital economy, we are no longer bound by the space and time constraints that analogue collections are subject to, nor the concurrent logic of limited selection, and instead can learn from how online distribution of digital content makes the "super-serving" of niche audiences economically viable. Further, "when information is cheap, attention becomes expensive" (Gleick, 2011, para. 21). As James Gleick

observes: "Attention is what we, the users, give to Google, and our attention is what Google sells – concentrated, focused, and crystallized" (Gleick, 2011, para. 21). These observations hold consequence to the way we see the role of museums (as a programmable, information infrastructure) and curating (as a means of framing and mediating public attention), transformed by the influence of global networks and their economies of abundance upon cultural production.

Within this context, new media challenges the underlying basis of the traditional art world by inducing a shift in long-established, institutionalised practices, such as "its customary methods of presentation and documentation, as well as its approach to collection and preservation" (Paul, 2008, p. 1). Elaborating upon how museums and galleries themselves have been predicated by forms and practices of "objectification," leading media art curator Christiane Paul has asserted that because new media art is deeply interwoven into the network structures and collaborative models of our information society, it will "always transcend the boundaries of the museum and gallery and create new spaces for art" (Paul, 2008, p. 2). In turn, the distinctive challenges presented by new forms of cultural production and agency spawned "(after) new media art" (Graham & Cook, 2010) are certainly demanding a re-consideration of the central role of the curator within the museum. As both Dietz and Paul foresaw, the networked structure of the Internet and the economies associated with digital culture call for a reformulation of curating in order to reassert its significance as part of the postdigital museum.

If there ever was a time when digital technology was seen as being revolutionary, in and of itself, that time has passed. "Digitality," rather, has become a pervasive condition. A postdigital museum, therefore, is one that has progressed from a state of *adopting* digital processes and platforms to there being evidence of wider digital integration or *adaptation* occurring across the organisation, whether embedded in strategic and operational policies or naturalised through various museological practices, including modes of curating. Broadly speaking, curatorial practices might be said to *mediate* the nexus that draws together and connects art, the museum and the public. Within the institutional setting of the museum, curating does so in a distinctive way by traversing a combination of internal as well as public-facing work. As Beryl Graham and Sarah Cook (2010) note in their defining survey of new media curating, *Rethinking curating: Art after new media*, the curator's purview within its museological context has developed from a specialist who "cares" for the objects found in its collection to serving as a crucial intermediary who acts – or better yet, *transacts* – between artist, artwork, the institution and its audience. And while the "auteur" curator has become a preeminent figure in the contemporary art system, and the gallery still remains its "default zone," the programme architecture of the postdigital museum is made up of a greatly expanded constellation of museological spaces, formats and event-structures that stake a challenge to established modes of museum practice. Indeed, the auteur curator and the postdigital curator represent fundamentally opposed concepts: the former being the product of a neo-liberal economics in which power is increasingly consolidated in fewer hands; the latter more akin to the distributed logic of the Internet and its economy of abundance. According to leading contemporary curator Jens Hoffmann, the curator should be regarded as a kind of storyteller, who in the process of making exhibitions turns the viewer into a reader. Informed by the critique of auteur theory formulated by the likes of Roland Barthes and Michel Foucault, the rise of independent curating since the 1990s marks a significant paradigm shift through which "curating has reinvented itself to such a degree that it will never return to the situation in which the curator was perceived as facilitator or caretaker" (Hoffmann, 2015, p. 33). While acknowledging that curatorial "authorship" is exercised as a functional principle of selective exclusion, Hoffmann's redefinition recognises that the curator is part of a larger, decentred structure; "hold[ing] a subject position, not always the core, despite occupying a more powerful distributive agency than some of the other elements or individuals in that structure"

(Hoffmann, 2015, p. 33). So, what part does the curatorial play when what is being distributed is not just the art, but also the very process of curating itself? While this can be characterised by applying open-source principles of co-production and collaboration towards exhibitions whose conceptual development or selection process is expanded in one way or another by the input of "citizen curators" or involvement of audiences, Paul (2006, p. 95) makes a crucial observation that "within a technological framework, curating is always mediating and agency becomes distributed between, the curator, public, and software."

Implications and insights drawn from artist-led practice

Distributed approaches to curatorial programming have transformed the nature of mediatised museum experience as it involves public access, participatory engagement and exhibition-making approaches. New technologies associated with museum media and communications have certainly played an influential part in these developments by expanding the range of exhibition formats and narrative structures, as well as the kinds of audience behaviour that can be precipitated. However, it is important to reinforce that ultimately it is not about technology application but rather innovation that occurs at the level of the content production and experience that instigates a different value proposition for museums. While location-based services, for example, enable the traditional museum tour model to be extended towards realising the promise of engaging with cultural content beyond the museum's walls, re-tooling the museum as a "super-server" of information carries far deeper systemic implications. These challenges require models of communication design that are responsive to the evolving dynamics of mediatisation – including participative authorship, social software and corresponding new approaches to intellectual property ownership and licensing – and emergent cultural economies and ecologies comprised of increasingly accessible, convivial technologies. Moving from the technological aspects of "digitisation" to the socio-cultural consequences of "digitalisation" equates with a transition from processes of "adoption" to "adaption"; while initiating a shift from authority to agency (by degrees) requires correspondingly radical yet persistent approaches to public engagement and participation, content curation and production, and experience design that reimagines and transforms the museum's relationship to its publics, from passive audience to active participant.

In this regard, it is important to acknowledge the influence that artists have had on museum-based innovation with creative technologies. While it is not possible within the scope of this chapter to do proper justice to a fuller, more representative survey of artist-led projects, for illustrative purposes a subset of examples will be drawn from MWX, the exhibition initiative of Museums and the Web. As explained earlier, Museums and the Web's annual conference has tracked the latest digital advancements taking place across the Galleries, Libraries Archives and Museums (GLAM) sector since 1997. For the most part, the evolution of museum media and communication practices during this period has been adequately accounted for in traditional conference formats and documented in academic papers. Inaugurated in 2013 under the curatorial purview of Vince Dziekan, MWX introduced an alternative platform designed to showcase "state-of-the-art" practices by contemporary artists using creative technology that respond to mediatisation.

The inaugural exhibition was staged at MW2013 in Portland, Oregon, and focused on augmented reality projects by artists affiliated with the distributed collective, manifestAR. Complementing the presence of (otherwise invisible) artworks – "public ARtworks" by John Craig Freeman and Will Pappenheimer that were re-situated in the public domain immediately adjacent to the conference venue – an augmented reality event was commissioned that wove

itself insidiously into the conference format. Co-produced with artist group Future of Reality as a curatorial intervention, the "Museum of Future Objects" (MoFO) was an elaborate museum fiction purportedly launching a ground-breaking art/science museum. Curatorially, the work was incorporated (almost) seamlessly into the main conference program as one of the many "exhibitors" and vendors that showcase industry projects and services that hold out the promise of the museum's digital future, today. Assuming the guise of museum educator and "R&D" lab director, the artists staged a performative intervention that blurred the boundaries of fact and fiction, thereby creating a state of suspended belief. While modest in its scale of ambition despite the grand claims conjured by its own moniker, this example of speculative design (Dunne & Raby, 2013) was indicative of what participatory mobile experiences can glean from the practices of immersive theatre and pervasive gaming.

The performative aspects of *mixed reality* were extended further the following year at MW2014 in Baltimore. As part of the conference's opening event hosted at the Baltimore Museum of Art, new media artist/musician Dan Deacon presented a series of micro-performances in context of the museum's William Woodward Collection of English Sporting Art (Figure III.1.2). Within this quintessential gallery environ of paintings, period pieces and trophies celebrating the city's long-standing relationship to horse racing, Deacon expertly conducted a consensual, deeply immersive experience through employing a rule-based choreography blending voice, action and mobile telephony. The emergent behaviour that resulted under Deacon's masterful manipulation of the assembled crowd verged on telepathic; creating a cacophony of mixed messages and partial dialogues parsed together from members of the audience and disembodied voices summoned "from elsewhere" into a swirling vortex of real and virtually present participants. Deacon's séance-like performance conjured the spectres of early digital tele-communications by reanimating the somnambulist-quality of the museum-goers recorded in classic filmed documentation of mobile audio trialled at the Stedelijk in Amsterdam in the early 1950s.

The following year, MW2015 was hosted in Chicago. On this occasion, its curatorial focus was trained upon the city's distinctive "dirty new media" art scene. So termed by its leading proponent, artist/educator Jon Cates, this approach exaggeratedly draws out the incongruity,

Figure III.1.2 Dan Deacon. Performance. MWX2014. Baltimore Museum of Art. 2 April, 2014. Photograph Vince Dziekan.

fragmentation and impurities or "glitches" inherent to digital media as a critique of technology, alongside modes of production that lend themselves to open, collective and distributed creation. Of the multiple artist projects represented in this survey, works by John Kannenberg and Branger_Briz have been singled out here to extend the current chapter's main line of discussion.

John Kannenberg's sound mapping project was presented as a stealth intervention of field recordings of the Art Institute of Chicago. The resulting audio mixes relate a series of meandering journeys that traverse a full array of the museum's spaces. The sonic tapestry woven from this montage of sound recordings presents the listener with a range of acoustic experiences that communicates a heightened state of acute attentiveness to the atmospheric quality of museums: eavesdropping on passing conversations, juxtaposed alongside expanses of white noise punctuated by footsteps and echoes of barely discernible environmental noises. These episodes, of course, are particularly uncanny when they are experienced in an immediate, site-specific relation to place. Resulting juxtapositions strikingly reveal the museum as heterotopic: a palimpsest of real and virtual; a parallel space of duality and contradiction. According to Michel Foucault's conceptualisation, a heterotopia "describes places and spaces of *otherness* that function in non-hegemonic ways. Such spaces are experienced as simultaneously material and mental … exist[ing] inside as well as outside of time" (Foucault, 1967/1984). This aspect is given a distinctively digital inflection in the distributed artwork commissioned specifically for MWX2015 by artist collective Branger_Briz. The practice of Branger_Briz reflects the ubiquity of digital media culture, thereby providing an illustrative basis to help appreciate the postdigital conditions under which contemporary museum communication and cultural curating operate. Using custom software, Branger_Briz brought together artists associated with Chicago's experimental media art community for a single-night collaborative desktop performance (Figure III.1.3). The resulting work, titled *virtualpublic.network*, existed simultaneously online across the artists' networked computers as well as physically as a site-specific media installation using a collection of locally-sourced CRT monitors. The combination of live and recorded media served from media sharing and social media platforms created the effect that temporal and spatial boundaries had been eclipsed by a state of consensual connectivity from which it was virtually impossible to disentangle individual constitutive parts from the larger ensemble. Representatively, experimental art works like this – along with that produced by other contemporaries, including Eva and Franco Mattes, Constant Dullaart and Lauren McCarthy – offer propositional models for audience participation, real-time experience, and consensual content production that revive the participatory social concepts of pioneering media artists from the 1970s, such as Kit Galloway and Sherrie Rabinowitz, whose "aesthetic research" creatively investigated networked technologies in order to reflect upon the new medial and social processes of the times.

Indicatively, the curatorial framing of these artist-led projects has aimed to demonstrate ways in which distributed media has transformed the nature of cultural production, particularly in relation to museal experience. As eminent media art curator and historian Rudolf Frieling has pointed out, an enduring quality of art practices that engage experimentally with creative technologies entails testing the distinctive attributes of platforms – physical, networked and online – for creating interactive exchanges with the public. The museum itself plays an integral part in doing so by articulating the social aesthetic conditions needed to create or support "open spaces for undefined interaction" (Frieling, 2008, p. 47). For the museum to take up this mantle doesn't come without its administrative and curatorial anxieties, Frieling concedes; nonetheless, by instigating more inclusive forms of creative practice and cultural curating, the perception of the museum as an "inflexible, deadening container" (Frieling, 2008, p. 47) can be radically transformed into a discursive public space co-produced with – and defined by – new audiences.

Figure III.1.3 Branger_Briz. virtualpublic.network. MWX2015. Palmer House, Chicago. 10 April 2015. Photograph Nick Briz.

Implications of cultural storytelling

Gathering, preserving and presenting objects is at the core of the museum's mission and the very definition of the institution itself. However, in comparison to the substantial investment that museums have made into their collections, not enough attention nor resources have been paid, broadly speaking, to the question of "for whom" this work is being done, and why it matters. Over the final part of this chapter, we will propose how museums might redress the balance between their obligations to both collections and communities through a radical shift in curatorial practice informed by cultural storytelling.

A standard curatorial process might be characterised as follows: an expert conceives a theme or thesis which subsequently directs the selection of objects for presentation; as part of the unfolding museological process, museum media and communication content is created around this material of an interpretive and didactic nature; then, typically towards the end of the exhibition design process, marketing and outreach are brought in in an effort to attract target audiences to experience the production. There is an element of "build it and they will come" in this waterfall process. By contrast, in a curatorial practice that is more agile, iterative and responsive, those audiences have been defined at the outset of the process and the objects, content and encompassing communication design developed with their needs and interests in mind. In some cases, members of the target audience may even be invited to become part of this creative process. While this kind of approach to *co-curation* has certainly led to more inclusive and empathetic museum experiences, in order to truly democratise museum access and thereby create long-term sustainability, we must go further still.

We can start by considering a new definition of the museum "collection": as not just the material culture that the museum cares for under its custodianship, but also the information that accrues around these items over time. This content is made up of archival materials as well as the products of digitisation processes, including various forms of digital copies and metadata. Additionally, it incorporates stories about those objects. Typically authored by experts – namely curators, educators and scholars – it is these narratives that serve as the main portals to the museum experience for most people. Stories, therefore, are as essential to the quality, value and impact of the collection as the physical objects themselves, and these accounts should be treasured, collected, preserved and transmitted with commensurate care because with the stories comes relevance and, hence, audiences. Without stories, museum objects risk falling like trees in the forest – with no one there to hear them, they make no sound. Moreover, who gets to tell the stories determines not just what connections can and will be made to collections and by whom, but what culture is and how it is transmitted.

So, what happens if equal weight is given to the stories that constellate around collections, as has been granted to the artefacts themselves? We would argue that such a reorientation shifts the very foundations of curatorial practice, making it no longer enough for museums to continue to operate as "broadcasters" that transmit knowledge to their audiences in a unidirectional manner. Rather – as theories about the distributed museum have already established; and the pervasive museum requires – in a time of "deep mediatisation" (Couldry & Hepp, 2017), museums find themselves thoroughly enmeshed in a rhizomic structure, connected to multiple nodes and sources of knowledge. In such a hyper-connected context, the museum's mission is redirected towards putting as many diverse attractors out there on as many platforms as possible and seeing what happens. Arguably, the most radical change that today's mediatised culture promises museums is the opening to new audiences, beyond the formally educated, managerial elite who constitute the majority of museum visitors today. The potential here is to go beyond participatory or crowd-sourced models as they presently stand, to true economies of co-creation that begin with the cultural stories that people and communities *draw* from museums and collections; and what they proceed to reveal to the museum about what's interesting, important and valuable about it and the collection.

Storytelling starts with listening. Crucially, in order to collect and communicate stories about objects, curators and museums must first learn to listen – not just to their peers and other professional experts but also to a wider range of storytellers and their communities. This is not a matter of simply putting the audience at the centre of curatorial practice, as this approach risks over-simplifying the nature of museum mediation by substituting social engagement for deeper cultural investment. Rather, it is putting people's stories at the centre of mediatisation processes

for collecting and designing museum experiences, that matters. After all, it is through the stories people tell that we learn what is most meaningful to them: what they care about, what delights, thrills and intrigues as well as shocks, worries or frightens them. A radical curatorial practice would start with these stories and relate them not just in the museum but also in other media environments, including their own local communities. The pervasive museum requires the curator, therefore, to be equally adept and fluent in cultivating stories from the museum's communities as in the domain or subject expertise that inflects upon how they perform the role itself. Starting with stories means museums are listening and giving equal attention and respect to their audiences as to the objects entrusted to their case. Inherently dialectic in structure and poly-vocal in nature, this is a radically inclusive practice whose rewards are reaped in both directions. Far from side-lining the role of the expert, a story-led approach requires vast knowledge of the many facets of the collection to be able to find the right hooks and angles that will respond to the interests and needs of people who are now positioned as museum interlocutors and co-creators, not just passive audiences. With each response, new lines of inquiry and scholarship are opened up, adding further dimension in both depth and breadth of cultural understanding to the collection as a *communicative figuration* (Hasebrink & Hepp, 2017).

The form of *cultural curating* being advocated here begins, firstly, by listening to communities and their interests, concerns and aspirations as expressed through the stories they tell of their own cultures and environments; then, pointing the storytellers of the community – whether identified as the elders or *griots* who pass on the collective histories and traditions of a social group or the social media mavens, bloggers and podcasters that relay communications in real-time – towards museological resources (objects, archival materials, digital assets, scholarship) that can serve as the raw materials for new, emergent stories to be crafted. In return, the stories created by these "cultural curators" grow the value of the objects that make up museum collections by adding an essential diversity of content, perspectives and living voices to them.

"Programming" the pervasive museum

An underlying issue for museums today involves how the various acts of mediation associated with museum practices are made manifest. In the face of increased diversification of museum media and communication (their forms, expressions and means of generating cultural content), the curator acts as the chief agent of museal literacy: as enabler, facilitator or intermediary; context generator or "filter feeder" (Schleiner, 2003); or distributor of content produced about objects and topics that the museum mobilises across its multiple and distributed platforms, including those to which it is connected in the broader "mediascape" (Appadurai, 1996). Crucially, the distributive capacity of electronic media to aggregate as well as disseminate information as part of a complex global cultural economy whose order "cannot any longer be understood in terms of existing center-periphery models" (Appadurai, 1996, p. 32) raises a host of implications for established museum practices, not the least of which involves curating in this expanded mediatised context.

The pervasive museum escapes being bounded – spatially as well as conceptually – by the dichotomies that have structured museum/digital relationships (such as physical/virtual, fixed/mobile and closed/open, which Bautista and Balsamo categorise as the basis of the distributed museum). Rather than being anchored at the epicentre of the galaxy of technologies, services and media platforms that Nancy Proctor illustratively drew together only a decade ago in an effort to visualise the discrete elements that constitute the distributed museum, it has become increasingly apparent in the intervening years that the museum as we need to understand it in the 21st century has become the product of their proliferation. In this chapter we set out to

extend the internal logic of the distributed museum – represented through the relationships forged between the onsite, mobile and online platforms – by drawing attention to critical, interrogative and imaginative acts of curatorship whose practices reveal "a *poesis* of the future, not a simple programme of corrective demands" (Pollock, 2007, p. 10). When the museum itself becomes distributed – which Proctor indicated in her diagram as "The Museum Elsewhere" – curating assumes even greater importance by serving as a means of drawing elements of this eco-system together into a new, dynamic formation – or *programme architecture* – that serves as the economy as well as the ethics of the pervasive museum.

The programme architecture of the pervasive museum provocatively carries the prospect for dissolution – if not a more comprehensive collapse – of the physical and architectural determinants that museological practices have in large part been erected upon. Redefining curation as "programming" – through reactivating the original etymological sense of the word by drawing back to the Greek *prographein*, meaning to "write publicly" – places emphasis on the practice of active meaning-making; of exhibitionary process rather than product. As a consequence, practices that premise the material object and the built environment will be supplanted by those that take better account of mediatisation; and in doing so, also resist neo-liberal economies and the oppositional logic of phallogocentric systems to instead "co-emerge" (Ettinger, 2006) with the communities and co-creators with whom the museum is inextricably linked, interlaced and, thus, mutually implicated. To this end, curatorial programming can inform how the museum in the postdigital age more characteristically and integrally goes about serving its enduring mission to draw together, communicate and converse.

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III.2
Digital media ethics and museum communication

Jenny Kidd

On 13 July 2016 it was reported via international media outlets that the Auschwitz-Birkenau State Museum, Poland, was banning visitors from playing Pokémon Go on their smartphones as they toured the former death camp, saying that to play in such a place was "disrespectful" (Morley, 2016). Similar stories have emerged in other contexts, such as the Holocaust Museum in Washington, DC. The bans have been widely accepted as an appropriate response to a (perceived) problematic collision of our modern media landscape and uses of technology with one of our most challenging heritages. It is a vivid example of how fully mediated our experiences of the world and our encounters with heritage have often become, and a useful reminder of the ethical dimensions of that shift. This chapter explores these developments and their consequences.

Contemporary museums are hybrid spaces that collapse a range of dichotomies: digital/analogue, past/present, open/closed, amateur/professional and fact/fiction. This renders them exciting but intensely challenging makers of meaning and facilitators of experience. To compound these challenges, and as is hinted at in the example above, museum users also now inhabit a broader media ecology, which makes possible (if not always encourages) practices of user-creativity and remediation. This raises questions about how visitation is being changed by access to digital media and the invitations to participate and collaborate that they often facilitate.

This chapter will introduce and contextualise the complex communications landscape museums now inhabit, before highlighting a range of ethical questions that such a varied media environment brings sharply into focus. These include, for example, questions about institutional voice, ownership, data and – perhaps most crucially – power, that are core to those developments. They point to a potential tension between the playfulness that is increasingly a characteristic of that broader communications landscape and the principles currently enshrined in the global museums discourse about ethics. This collision between playfulness and principles has the *potential* to be a productive one (although never inevitably so), forcing recognition of the myriad ways that the very definition of a museum, and of communication within that context, might need revision. Indeed, the term "visitor" is becoming a more difficult one to utilise. You will note how I move between "visitor," "user" and "audience" in this chapter, seeking to find the most appropriate terminology in each instance. However defined, we are becoming accustomed to heritage experiences that challenge, fragment and spill-over into the everyday, those other

territories we occupy, online, offline and in the spaces between. We oftentimes enjoy museum encounters characterised by serendipity and chance, losing our way, and that embrace randomness and incompletion. These are enticing propositions, but they raise many questions also, as will be seen.

Published scholarship on museums and digital media is no longer a rarity, and there are a number of key texts that highlight the range of ways in which such media have changed – in sometimes small, sometimes large ways – museums' varying practices (see, for example, Silverstone, 1988; Parry, 2007, 2013a, 2013b; Tallon & Walker, 2008). There is an emergent scholarship from museum practitioners also on these themes (Katz, LaBar, & Lynch, 2011; Beale, 2011; Decker, 2015; Rodley, Stein, & Cairns, 2015) and a comprehensive archive of key debates and cases from the Museums and the Web forum[1] and other online sources. Indeed, the blogosphere is an incredibly rich resource for debate about museums' uses of the digital. What has been less forthcoming, however, is scholarship that engages with the knotty issue of digital museum ethics.

Although museum ethics have never been simple or straightforward, professional codes offering guidance have been a feature of the landscape, seeking to support museum professionals as they acquire, steward, finance, display and dispose of artefacts of cultural heritage. These ethical codes have been open to revision in recent years as part of broader discussions about museums' evolving role in society (Bounia, 2014; Murphy, 2016). Georgios Papaioannou (2013) notes that the museums ethics discourse is shaped by debates about "heritage-related values, concepts of right and wrong conduct, acceptable and unacceptable behaviours, [and] moral rules on how one should act," but that museum ethics have "acquired new dimensions" in the 21st century in part because of the advent of new technologies. Such technologies introduce complex layers of ambiguity to many of the ethical dilemmas that preceded them and of course add numerous new issues for consideration. Museums' work with the digital has not been immune to recent debate about ethics, but their consideration has been limited (for example, in Marstine, 2011; Fouseki & Vacharopoulou, 2013; Pantalony, 2016; Kidd & Cardiff, 2017). The following section will provide an introduction to and historical perspective on those debates. The chapter will then go on to use a number of analytical examples to demonstrate some of the concerns raised in that discussion. In sum, this contribution does not argue for a consensus or framework for a digital museum ethics (although debate about whether such a consensus is appropriate would be welcome and timely) but does demonstrate that the appraisal of ethical issues within the digital environment is fast becoming an institutional and personal/professional priority.

Museums as part of the broader communications landscape

It is recognised that the museum encounter is increasingly a mediated one, "connected," "networked" and "participatory" (Adair, Filene, & Koloski, 2011; Giaccardi, 2012; Drotner and Schrøder, 2013; Kidd, 2014; Ridge, 2014). Angelina Russo has said that "the contemporary museum is a media space" (Russo, 2012; see also Henning, 2005, and Kelly, 2013), and Ross Parry has asserted that a museum is in itself "a medium" whilst being simultaneously "*full* of media" (2007, p. 11). Parry goes as far as to suggest that "media define the museum" (2007, p. 11). But media are of course not static; the landscape is a shifting one, and new and emergent technologies are a part of that picture. As we talk more about virtual and augmented reality, 3-D printing, mobile applications and increasingly sophisticated content management systems for museums, it is easy to forget that for most people and institutions, opportunities to connect via social media, blogs and video posting sites (for example) are only a decade old. The platforms upon which such participatory media are made available are still evolving, and the terms upon which they operate are mutating fast. Gerard Goggin (2012, p. 12) has proposed that rather than

seeing such technologies as a "given," a more productive way to approach them is as an "open set of questions," and this is an approach adopted in this chapter. Media and communications scholar Sonia Livingstone says that "today's media simultaneously converge and diverge, fusing and hybridising across digital services and platforms" (2013, p. 22). This makes them incredibly dynamic but intensely challenging spaces for museums to navigate.

Given that dynamism, to approach the contemporary museum simply through an online/offline distinction would be reductionist in the extreme and not very helpful. The boundaries of the online/offline nexus are now recognised as porous if not frictionless, and the distinctions very quickly lose their meaning when one talks to museum users about how their own "visit" has meandered; starting perhaps in TripAdvisor, moving into the What's On pages of a Museum's own website, taking in the Twitter feed, watching a documentary or reading a book, arriving at the physical museum, checking in on Facebook, listening to an audio guide, following a site map or brochure, posting their #museumselfie and maybe consulting online resources such as Wikipedia or Google as they go. For many visitors, a physical museum visit is rarely completely offline, just as an online visit is not disembodied. Instead, both are best conceived of as multifaceted and multimodal (Christidou & Diamantopoulou, 2016). Jason Farman notes that "locating one's self simultaneously in digital space and in material space has become an everyday action for many people" (Farman, 2012, p. 17), and we need a museology that recognises that fact without being alarmed by it.

Consequently, the boundaries of the museum visit become unclear. When does a museum visit start? When, indeed, does it stop? (Samis, 2008, p. 3). How do visitors distinguish between the different types of information that they "consume" on a visit, and does it matter if they cannot? How do visitors conceive of themselves as implicated in the museum narrative when posting their photos during a visit or pinning a piece of content to come back to once they arrive home? How do search engines, museum websites, performances on site, interactive exhibits or artworks, apps, the exhibition catalogue, the site map or the museum shop and its wares help to construct or complicate the narrative of a visit?

A more elaborate picture of museum communications is emerging, which this book attests to, one that requires re-appraisal to account for the subtleties and peculiarities of the changed media landscape. Elsewhere (Kidd, 2014), I have outlined one possible approach to this in the embrace of Henry Jenkins' notion of "transmedia" (Jenkins, 2007, 2011). Transmedia is a term that has been used to describe the extension of narratives across multiple media platforms that can then be accessed from varied entry points. Many blockbuster film and television franchises now approach the creation of storyworlds with this possibility in mind. Doing a Web search for, say, *Dr. Who* or *Harry Potter* reveals complex webs of content and narrative that extend across multiple platforms. Both storyworlds also support thriving fan cultures that feature and promote multiple acts of user creativity. Audience members engaging with such narratives do so in diverse and complex ways, sometimes constructing unexpected interpretations of the story or finding ways to shape it themselves through participatory media. Such a way of viewing the construction of meaning and of narrative seems congruent with the ways many users now interact with history or with other narratives about the world, including the interpretations produced by museums.

Henry Jenkins refers to "consumers" of transmediated content as "hunters and gatherers … trying to stitch together a coherent picture from … dispersed information" (2007). This nod to nomadic people foraging for food and resources in the wild is a seductive metaphor for museums, not least because it accords with recent conceptualisation of museum learning as constructivist, inquiry-led, lifelong, contextual and often informal. I wish not to suggest that this is purely a digital phenomenon, but it is one that is rendered more visible in the "connected"

museum. Such an approach acknowledges complexity and ambiguity in practices and patterns of communication but crucially does not seek to neutralise or rectify them. Instead, it embraces the idea that such complexity can itself be a rewarding part of engagements (in our case with a heritage, or with an institution), and that piecing together a jigsaw of meaning and evaluating what one finds might be a productive part of the experience.

In considering museum communications as allied to, indeed as part of, other forms of communication and ways of telling stories, a number of ethical challenges emerge that are not easy to unpack. Acknowledging that museum users and visitors roam from platform to platform – indeed, encouraging them to do so – no doubt has ramifications for museum professionals and their perceptions of the visitor journey, and this has an ethical dimension, as will be seen. Yet that digital ethics discourse is in its infancy. As Ross Parry asserts with respect to social media in particular, ethics "are still absent or at best, only emergent" (Parry, 2011, p. 321). It is telling that in the museums' sector, professional codes of ethics continue to gloss over the implications of work with the digital (International Council of Museums [ICOM], 2013; Museums Association [MA], 2016).

Janet Marstine suggests that we need to look beyond such ethical codes in order to truly explore ethics in the new museums and information ecology, and that this signals the need for a complete overhaul of the museums ethics discourse. She notes that:

> The traditional museum ethics discourse, created to instil professional practice through a system of consensus and its correlative, coercion, is unable to meet the needs of museums and society in the twenty-first century. (2011, p. xxiii)

To Marstine, ethics are unpredictable and rather more haphazard than we might like to think. They are necessarily both "adaptive and improvisational" (2011, p. 8; see also Sola, 1997, and Edson, 1997, for more on museum ethics).

But what might that mean in relation to the landscape of participatory media that this chapter has set out to explore? What kinds of things do museums need to think about as they further embrace the affordances of such activity?

Museum ethics in participatory media: Some themes and some examples

This section will introduce four themes that demonstrate the difficult ethical terrain that museum-makers must navigate in their embrace of participatory media. These are: user contributions and debates about how to value them; risk and its management; playing with the truth; and underpinning all of the above, power and its negotiation. The examples used open up a series of questions which, when considered, potentially lead to more nuanced and productive encounters within the new communications landscape for both institutions and their varying constituencies. Although the examples themselves may in time recede into oblivion (ephemerality being a feature of this landscape), the issues they raise will remain pertinent ones.

Valuing user contributions

There have been debates across the field of media and communications about how best to make sense of and to utilise the contributions of members of the public, or "user-generated content," as those contributions were, for a time, collectively termed (Kidd, 2014). Broadcasters and news outlets, for example, have been engaged in searching debates about the use-value

of contributions such as comments on news stories, with some now seeking to retract such opportunities (BBC, 2015). These are debates that museums are engaged in also as they operate in increasingly sophisticated ways within social media spaces and the blogosphere. These discussions are not trivial, connecting as they do with issues of power, representation and voice.

In recent years, we have seen the websites of museums and heritage sites become the hosts of archives of reflection and memory, and their social media spaces serve as the nexus for great outpourings of opinion and even grief. These activities raise questions about what the responsibility of institutions might be to look after people's emotional welfare within these spaces (the public, but also their own staff), and what their responsibility might be to the content that is being created as a result. We might well ask what the value is of the intense subjectivity museums now court in such spaces in calls to remember, share stories, photos and memories. Are museums and their "followers" clear about why such contributions are being sought and what will become of them once they are rendered "content" or even "data"?

One case that allows us to explore these themes is that of #towerpoppies, the hashtag that accompanied the Tower of London's Blood Swept Lands and Seas of Red installation in 2014. This was a high profile and hyper-visible artwork which became a central focus of the United Kingdom's activities to commemorate the Centenary of the First World War. Whilst over five months, 888,246 red ceramic poppies were "planted" in the moat at the Tower of London, members of the public were encouraged to share their responses via social media. In response, there were tens of thousands of posts on #towerpoppies, ranging from the critical to the poignant and emotional. The hashtag is in itself a staggering archive of remembrance, but potentially an ephemeral one. We might ask on reflection: who now "owns" that archive? The public, the institution or a third party (perhaps Twitter)? Who can now decide what its value might be and what would be a fitting way of making sense of it? What might be the copyright entanglements if it is decided that the Tower of London wants to accession that content or use it in another format? What permissions would need to be sought? Of course, we should remind ourselves that the ethical responses to such questions might be rather more ambiguous than the legal ones.

Museums' social media sites also often become sites of intense memorialisation. It continues to be the case that people turn to museums in moments of crisis and of tragedy. After the terrorist attacks in Paris in November 2015, people around the world went to the Facebook pages of the City's many well-known cultural institutions to express their grief and anger, and some of this content was of course political in tone. Again, we can ask what should be made of such activity? Without eliciting it, a museum's digital presence can become a live space for personal testimony on themes that are expressly political. How should museum staff respond to posts that are full of hurt, and sometimes hate? Is moderation appropriate and defensible within such contexts? What might be the limitations of moderation? People often talk about museums as "safe spaces" as if they were objective, impartial and apolitical. Such language should make museum professionals uncomfortable and needs to be tackled where it is found. Moderation continues to be a key part of the debate about museums' uses of (especially) social media, yet these roles can oftentimes fall to more junior members of staff, and their parameters can be ambiguous at best (Kidd & Cardiff, 2017). Vetting comments is of course an interpretative act and is itself a risky business.

Risk and its management

Picking up again this theme of moderation, we can begin to see how risk – and reputation – management become a part of the debate about what is ethical. Moderation is perhaps at its most problematic when and where it verges on the censorial, such as in instances where public

debate about an institution's corporate affairs takes place on social media, as has recently been the case with both Tate and the Science Museum in the United Kingdom. Both institutions have been openly criticised for their ties with oil companies (BP and Shell respectively), and activist groups such as Big Oil out of Culture and Liberate Tate have used digital media in order to amplify their messaging on this theme.[2] This is part of an ongoing debate about the kinds of corporations that should be able to benefit (and profit) from relationships with cultural institutions, and whether there is a moral and ethical duty for museums and galleries to cease such ties where they are found to be problematic. Where these kinds of criticisms are voiced within participatory media spaces, institutions tread a very difficult line. To manage or moderate all comments out of existence would be to censor debate within precisely those platforms where dialogue is being promised and encouraged, and does nothing for positive public relations where it is found out.

Perhaps less politically sensitive but by no means inconsequential is the increased complexity of copyright protections within the digital domain. It is in this arena that the incongruence between legal positions and ethical ones is most clearly demonstrated. Institutions might legally own the copyright for an artwork, for example, but it might still be considered ethically problematic for them to assert that users should not download, re-use, mashup or otherwise distort a reproduction of (say) an artwork or photograph, or for them to charge them to do so, especially when held on behalf of those people within a national collection. There are ethical issues associated with the commercial imperative and how it informs museums' digital strategy, and there is seemingly a broad mistrust of the public to respect the integrity and commercial sensitivity of works within online collections. Thinking about ownership and how it is being frustrated within the online environment raises further questions for those interested in ethics: Who bears responsibility in cases of misuse or non-accreditation? And what might constitute reasonable repercussions for those who fall foul of the law? (Kidd, 2014). This also, fairly acutely, raises the question of what ethical responsibilities users or visitors might reasonably be expected to uphold.

Figure III.2.1 exemplifies some of these issues. It is a mashup of Leonardo da Vinci's Mona Lisa, famously located at the Louvre, Paris, and lyrics from American hip hop artist Nicki Minaj's "Super bass". The print was re-mixed by Fly Art Productions and might be seen as a commentary also, a new derivative work that raises questions about art, cultural value and relevance.[3]

Some museums have begun to embrace the possibilities of "remix culture," offering high-resolution artworks (for example) for re-use and circulation. The Rijksmuseum's Rijksstudio[4] is a beautifully crafted example of how this can work in practice, offering 125,000 ultra high resolution images of artworks from the collection for members of the public to download and use as resources to "create their own masterpieces" (Gorgels, 2013). But of course, many other digitised art collections don't go as far as this, offering poorer quality images or rigidly policing their copyright. The e-Kokohu/e-Museum initiative bringing together digitised images of works from four national museums in Japan is one such case in point.[5] E-Kokohu features digitised paintings, sculptures, textiles and other objects archived online with detailed metadata and an intuitive interface for viewing in high definition. It does so, however, without a download function and with a strongly prohibitive line on re-use. Rather than indicating to users of the site ways in which they *can* use the works, the language is instead inhibitory: "You are not allowed to use the content of this site beyond the purpose of private use or the scope permitted by law … For permission to use the images, please contact the office of each museum that owns them" (e-Kokohu, n.d.). Such a perspective is understandable in a landscape where many museums and galleries still view their digitised collections as a source of revenue income as other institutions, scholars, creatives and advertisers pay for licenses to use content. But this would

Figure III.2.1 Mona Lisa, Leonardo da Vinci (c. 1503)/"Super bass," Nicki Minaj. Courtesy Fly Art Productions.

seem a challenging long-term proposition in a digital landscape where sharing and doctoring are becoming the norm.

Here we see examples of the myriad ways in which risk needs to be negotiated within participatory media projects and platforms, and where the ethical and the legal can diverge.

Playing with the truth

A related concern is whether and how fact and fiction are being demarcated within digital heritage work, and whether the distinction is always clear. Of course, it might be said that there has always been a frustrated relationship between fact and fiction within museums (Parry, 2013a), but it is nonetheless still the case that members of the public value the truth-claims that such institutions make. As has been noted, digital media lend themselves to playfulness (such

as in the acts of distortion referenced above), and it might not always be clear to users where mischief-making has taken place. This begs the question of whether museums have an ethical responsibility always to tell the truth. Or perhaps it might be time to ask instead if museums have a moral responsibility to make the fictions and distortions that have always been a part of the museological encounter more visible.

This segues into the issue of voice within participatory media initiatives. Museums often embrace polyvocality within social media spaces (especially perhaps Twitter); that is, making space for multiple voices and perspectives, and not indicating a correct or preferred interpretation. But how is that to be read and negotiated by the public? One brief demonstration of such polyvocality comes from the National Media Museum in the United Kingdom in the form of a series of tweets:

> Tweet 1: Hugh Jackman, star of the frankly RISIBLE Les Misérables, was born #OnThisDay in 1968
> Tweet 2: Hugh Jackman, star of the utterly BRILLIANT Les Misérables, was born #OnThisDay in 1968

Sent almost simultaneously, the tweets in juxtaposition are a playful, even mischievous, conversation starter about a film which was itself divisive. The tweets were illustrated with different stills from the film, each featuring the actor Hugh Jackman in character as Jean Valjean in Tom Hooper's 2012 adaptation of *Les misérables*.

Such an example, although seemingly inconsequential, brings into sharp relief debates about voice within social media spaces especially. How do visitors distinguish between the different modes of address? The official and authoritative, the playful or the voices of other visitors (in retweets for example)? Does it matter if they cannot? Is it always clear who is talking and who they speak for? Such questions are, at their core, questions about truth and its interpretation, and connect with debates about other values such as public interest and taste. They also bring us to a consideration of power relations, a continuing pre-occupation of much communications research and scholarship.

Power and its negotiation

Participatory media undoubtedly have issues of power at their nexus; indeed, according to Nico Carpentier, participation is "a political-ideological concept that is intrinsically linked to power" (2011, p. 10). Digital projects are very often articulated as having a radical potential for empowerment and for being a great leveller, but again these claims need tackling, as does the passive-active binary that they rely upon. Sonnet Takahisa has asserted that museums' participatory work needs to be taken to task, as it masks imbalances of power and issues around "control, authority, and access" that need to be foregrounded (Takahisa, 2011, p. 114; see also Lynch, 2011, 2014). These are not small matters, with the issue of access being a core ethical one. We know there are digital divides in place along lines of geography, age, socio-economic status, disability and ethnicity, and that real-world inequalities tend to be replicated online (Hindman, 2009). If museums are not careful, then those very people they have tried so hard to court and embrace in recent years under the banner of widening access will be exactly those people who they will exclude online (Hartley, 2015).

Considering individual projects through a critical lens should mean exploring the dynamics of power they reveal. Rhetoric surrounding this work often speaks of shared power: collaboration, interaction, democracy. But what kind of democracy are museum professionals talking

about here, and are they committed to it? Who does it exclude (hint: it no doubt excludes someone), and are they okay with that? It becomes incredibly important to think about how a call to participate is framed so that it speaks honestly to the kinds of experiences museums are hoping to architect and the outputs they might be trying to elicit. If a project is about securing new content for marketing purposes, then that is a very different end-goal to sourcing new designs for an exhibition space, or collecting additional metadata to support a collection. Making a digital story based on personal testimony will likely make a contributor feel very different to another who is responding to an Instagram Story. Being upfront about expectations and likely commitments for all parties will be increasingly crucial.

Also important is the right of reply if those participants find contributing unsatisfying, chaotic, pointless, challenging, heart-breaking or infuriating (which is not to suggest that museums have a responsibility to avoid all of those outcomes). Museum professionals need to openly reflect on whether projects have been in any way exploitative or manipulative and how that might have been avoided, otherwise participants can feel a sense of continued exploitation that can become difficult to resolve (Lynch, 2011).

Allied to these crucial questions about power are, increasingly, questions that need to be asked about the longer-term use, archival and disposal of visitor data. A museums' data policy (assuming they have one) speaks to its perceptions of power also. Are museums clear about how they will use the data they collect? For example, is there clarity about when and whether those signing up for use of public Wi-Fi in museums will go on to receive marketing messages? How will their data be stored? How might it be disposed of further down the line, and when? Are museum professionals comfortable encouraging their audiences and visitors to use proprietary platforms wherein their data is sold to advertisers (Facebook, Instagram, Twitter)? And are they keeping abreast of wider debates about privacy and surveillance, and public perceptions of those debates?

One crucial question remains: where can those who are working at the sharp end of delivery of participatory digital media projects go for guidance on all of these issues when their professional codes of ethics are found wanting? It is clearly important that space is made for professional development in response to these challenges, but there may be concerns about how willing an institution is to support that kind of skills development.

One response to that question has been a turn to the very platforms that have been problematised in this chapter. As noted in the opening paragraphs, there is an incredibly active community of practitioners debating many of these issues in the blogosphere and in social media spaces (see #musetech, #musedigital and #musesocial). Moreover, such spaces have also become live sites for negotiation of a broader set of debates about museum ethics if one looks hard enough. In recent years, and in response to the seeming lack of radical change within the profession, many museum professionals have begun campaigning online. Movements such as #Museumsarenotneutral,[6] #MuseumWorkersSpeak and #MuseumWomen have carved out space for difficult questioning of museums' practice and of their ethical responsibilities.

This section began by discussing anxieties about how the contributions of museum audiences should be understood and valued and ends with a consideration of the impact of museum workers' own contributions on the very face and values of the profession itself. These are some quite profound and remarkable debates, and their longer term implications are only beginning to crystalise.

Reflections

The previous section covered a lot of ground with regard to museums' digital practices and the variety of ethical questions they raise. Chief amongst them were questions about valuing

digital participation, managing risk, playing with the truth and negotiating dynamics of power. Finding the answers to the multiple questions raised here is of course not easy. As with all ethical problems, there may be no clear distinction between "right" and "wrong," and for some ethical dilemmas there may only be undesirable outcomes with a difficult choice to make about which course of action will be the more defensible in the longer-term. What is key is not *answering* those questions definitively – the answers will differ by context, and will certainly change over time – but making ongoing attempts to *explore* them with care and reflexivity.

Making decisions about ethics has become a daily part of museums' digital practice, whether recognised as such or not. Going forward, considered appraisal of ethical issues should be identified as a legitimate, indeed central, literacy for museum professionals who operate in and with the digital. Such consideration should intersect with investment of time and (where necessary) resources in increased media literacy, data literacy and work toward data justice (Dencik, Hintz, & Cable, 2016). Those doing this work must daily be mindful of two things: that their entries into the participatory media space are not inconsequential, and that the tech and platforms that underpin their practices are not neutral. Consideration of these issues might lead to difficult discussions internally and externally to institutions, but such discussions are increasingly unavoidable and, as has been noted in the previous section, already underway. Participatory media are becoming a complex site of negotiation and possibility for all involved in the global museums' sector. This comes through overwhelmingly in the above examples when viewed through a lens of digital ethics. This is an exciting and dynamic site of contestation, and the need to be "adaptive and improvisational" emerges powerfully (Marstine, 2011, p. 8).

Notes

1 The archive can be found at http://www.museumsandtheweb.com/bibliography.
2 Both sponsorships have now ceased.
3 https://www.instagram.com/flyartproductions/?hl=en, with t-shirts for sale at http://www.rad.co/us/collections/fly-art.html
4 https://www.rijksmuseum.nl/en/rijksstudio
5 http://www.emuseum.jp/top?d_lang=en
6 See the work of LaTanya Autry and Mike Murawski on this.

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III.3

Complexities of collaborating

Understanding and managing differences in collaborative design of museum communication

Line Vestergaard Knudsen and Anne Rørbæk Olesen

In the museum literature, collaboration is portrayed as an essential activity of museum practice. Numerous accounts emphasise that collaboration is practiced internally at museums (e.g. Hansen and Moussouri, 2005; Lee, 2004; Macdonald, 2002) and that museums furthermore collaborate with external parties, such as other cultural institutions (e.g. Kavanagh, 1995; Robinson, 2014; Waibel & Erway, 2009), museum users (e.g. Simon, 2010; Mygind, Hällman, & Bentsen, 2015), education institutions (e.g. Boddington, Boys, & Speight, 2013; Søndergaard & Veirum, 2012) and private businesses and consultants of all kinds (e.g. Fischer, 2001; Olesen, 2015; Roberts, 2015). Historical studies (e.g. Schneider, 1998; Star & Griesemer, 1989) have demonstrated that collaboration is not a new museum activity. On the contrary, these studies showcase how museums have engaged in complex collaborative activities for centuries. However, it may be argued that the past decades have seen a rise in the attention to the potentials of collaboration across earlier demarcations, thus resulting in increasingly complex constellations of collaboration (Springuel, 2001; Davies, 2010). In spite of this, the museum literature often deals with collaboration in relation to overall perspectives and outcomes, rather than on how collaboration is actually practiced as a complex work process across various stakeholders (Olesen, 2015).

Inspired by insights from Science and Technology Studies (STS), this chapter frames collaboration as a complex work process that benefits from a detailed analytical attention. More particularly, we are interested in collaboration in regard to the design of museum communication relating to museum exhibitions and media. In the first section, we broadly introduce collaborative design practices in the museum area and give overviews of potentials and challenges of collaborative design by drawing on conclusions from the museum literature. We conceptualise differences as a particularly important factor across dissimilar constellations of collaboration and argue for the value of a detailed analytical attention to the complexities of differences when researching and managing collaborative design of museum communication. In the second section of the chapter, we refer to the manners in which STS-researchers have studied knowledge and technology development processes by various approaches to complexity. Based on our own studies of collaborative design processes in museums, we give examples on how two

STS-approaches can be used to investigate differences in order to understand the socio-material practices that come to influence collaborative processes across various stakeholders. By way of conclusion, we discuss how the advocated approach can introduce new directions to both research and management of collaborative design of museum communication.

Potentials and challenges of collaborative design

Museum studies on collaborative design particularly revolve around three different constellations: First, collaborative design internally across different museum staff groups; second, collaborative design across museum staff and external design professionals; and third, collaborative design across museum staff and museum users. These constellations seem to be particularly important for developing museum communication today, signalling a need for involving expertise about museums, about design and different media types and about usage. Even though this division is simplistic, since collaboration often more or less involves all of these groups, studies on collaborative design of museum communication tend to focus on one of the groups. We therefore find it to be a relevant distinction in the overview of the museum literature on the subject below.

Collaboration across museum staff groups

Museums employ different staff groups that hold dissimilar expertise, such as curators, educators, designers and so on. Studies touching on collaborative design internally across these groups often focus on exhibition design. Indeed, designing a museum exhibition is generally considered to be a team effort (e.g. Dean, 1996; Lord, 2002). The potentials of collaborative design across museum staff groups are often argued to be greatest if the groups holistically take part in all aspects of the process, in contrast to silo culture and linear exhibition-making, where the work of, for instance, curators, is finished before educators become involved (e.g. Grasso & Morrison, 1999; Hooper-Greenhill, 1999; Jung, 2016). Thus, educators can be "forced into a remedial role, making the best of a bad job once the exhibition has opened" (Hooper-Greenhill, 1999, p. 38).

Studies on exhibition design tend to focus on overall perspectives or finished exhibitions, as for instance pointed out by Lee (2004) and Macdonald (2002). However, some studies have portrayed collaborative design practices as messy and complex work processes (e.g. Lee, 2004; Macdonald, 2002; Star & Griesemer, 1989; Yaneva, 2003). A central theme in these studies is the challenge of collaborating across differences between museum staff groups; using words such as "factional warfare" (Macdonald, 2002, p. 260), "battle" (Schneider, 1998, p. 32), "struggles" (Schneider, 1998, p. 32) and "fire-fighting" (Hansen & Moussouri, 2004, p. 171) to illustrate the potentially intense conflicts occurring due to differences. A variety of theoretical frameworks have been used to understand these differences. For instance, conflicts in exhibition design teams have been argued to be caused by the co-presence of different communities of practice (Lee, 2004; Hansen & Moussouri, 2004), different educational intentions (Lindaur, 2005) or different values (Davies, Paton, & O'Sullivan, 2013). The majority of these studies do not come up with concrete ways of dealing with these conflicts, other than to be attentive to the differences. As stated by Lee (2007, p. 183), differences of opinion arising in exhibition teams should be seen as "the inevitable result of communities of practice coming together to create something new." Thus, conflicts are not necessarily seen as something that needs solving but rather as something that occurs naturally in collaborative environments and holds potentials for innovation. Furthermore, artefacts, such as sketches and prototypes, have been demonstrated to have significance for conducting collaborative design across museum staff groups (Lee, 2004, 2007).

Collaboration with external design professionals

Besides collaborating internally across different staff groups, museums engage in collaborative design with a range of external professionals with expertise in design, such as exhibition design, digital design and interpretation design, etc. Engaging in these collaborations has the potential to bring new knowledge and know-how into museums. Particularly, the increasing use of digital technologies in museum exhibitions (Parry, 2007, 2013; Parry & Sawyer, 2005) has resulted in the need for collaboration with external design professionals. Thus, since the early days of museum computing, studies have noted on the lack of digital knowledge and technical expertise in museums (e.g. Sarasan, 1981; Parry, 2007; Jones-Garmil, 1997). As Sarasan (1981) for instance concluded in a study of the application of computer technology for collection management, museum staff was said to have "a serious lack of understanding the use of computers." While the lack of knowledge may be argued to be less of a problem today (Parry, 2013), there are still studies pointing to poor integration of technologies in museums for this reason (e.g. Holdgaard & Simonsen, 2011).

Lack of knowledge and know-how in relation to an area of design expertise may then be an argument for engaging in collaborative design with external design professionals. At the same time, lack of knowledge and know-how is often mentioned as a challenge. Conservative attitudes and inexperience can cause grave conflicts or a situation where the external design professionals need to educate the client (Holdgaard & Simonsen, 2011; Skot-Hansen, 2008; Parry, 2007; Roberts, 2015). This may also result in late or limited engagement of external design professionals. Similar to arguments made about collaborative design across museum staff groups internally at museums, some studies argue against silo culture and linear development processes by pointing to benefits of early and deep engagement of external design professionals (Olesen, 2015; Roberts, 2015). Other studies simply urge museums to be attentive to the level of engagement (Davies, 2010; Holdgaard & Klastrup, 2014). For instance, Davies (2010) finds that external collaborators are not so commonly involved in management planning and key decision-making. This "may be entirely appropriate but it is only a limited form of co-production," as Davies (2010, p. 318) concludes. The way funding is granted to museum design projects can be a reason for such late or limited engagement (Olesen, 2015, 2016; Clay, Latchem, Parry, & Ratnaraja, 2014).

These challenges are related to the basic challenge of collaborating across differences, which again is a main theme in the literature on collaborative design, here in relation to external design professionals. Thus, challenges of differences in terms of knowledge, know-how and experience may have great influence on the success and extent of collaborative design. Furthermore, differences in terms of concerns, work cultures and languages are mentioned in the literature (Clay et al., 2014; Davies, 2010; Parry, 2007). Involving a broker with knowledge about different sectors can be a way to overcome the challenge of collaborating across differences (e.g. Clay et al., 2014; Søndergaard & Veirum, 2012). For instance, brokerage can help participants in collaborative processes "to feel comfortable outside their professional 'comfort zones'," as pointed out by Clay et al. (2014, p. 5). Additionally, artefacts, such as sketches and prototypes, have been demonstrated to have a positive role in collaborative design processes across museum staff and external design professionals (e.g. Mason, 2015; Olesen & Knudsen, 2018). However, recent studies point to the need for on-going reflexivity as essential for the success of such measures (Olesen, 2015; Olesen & Knudsen, 2018).

Collaboration with users

Recently, more and more projects that involve users in design processes in museums have occurred (Smith, 2013; Taxén, 2005; Smørdal, Stuedahl, & Sem, 2014; Davies, Tybjerg, Whitely,

& Söderqvist, 2015; Mygind et al., 2015), and several studies have researched the potentials and challenges when museums collaborate with users (Mygind et al., 2015). Rationales behind such processes have predominantly been formulated as democratic. Thus, involving users can potentially help museums become more reflective to the multiple practices of cultural heritage in society at large (Mygind et al., 2015; Schorch, 2013; Smith, 2013; Lagerkvist, 2006). Further, such processes can be seen as expressions of "a political rationale" which "implies an attempt at giving voice to a group of people, using a system or an institution to create more democratic processes and goals" (Mygind et al., 2015). However, more pragmatic rationales have also been formulated, such as aims to develop "high-quality user-oriented information technology" (Taxén, 2005; Knudsen, 2016; Mygind et al., 2015) or to mobilise new visitor groups (Fuks, Moura, Cardador, Vega, Ugulino, & Barbado, 2012; Termini-Fridrich & Shepherd, 2010).

Again, the challenge of collaborating across differences is a main theme. Differences are described in numerous dimensions, such as differences in terms of foci (Lynch & Alberti, 2010), work culture (Giersing, 2012), language (Mygind et al., 2015) and values regarding cultural heritage (Morse, Macpherson, & Robinson, 2013; Fouseki, 2010; Ashley, 2011; Tzibazi, 2013; Smith, 2013). Differences are seen to be challenging, as they can lead to lack of recognition, respect, openness and trust (Smith, 2013; Tzibazi, 2013). When differences arise in relationships with users, museum staff tend not to have sufficiently considered "the full ramifications of co-production in practice" (Lynch & Alberti, 2010, p. 28). Also, when faced with conflicting interests, they are sometimes not ready to let the foreign practices and beliefs be truly influential in museum processes (Tzibazi, 2013; Thumim, 2010; Fouseki, 2010; Lagerkvist, 2006) and neither to openly reject or refuse such influences. Sometimes, they even "deftly avoid … conflict, subtly by-passing differences of opinion and effectively overriding … [participants'] passion and anger" (Lynch & Alberti, 2010, p. 22). Thus, in some studies, differences – combined with museums' inabilities to deal explicitly with them – are considered barriers to success on both the democratic and pragmatic outcome measure levels.

However, some studies point to differences – and the controversies and conflicts arising because of them – as potential possibilities towards more genuine negotiations and dialogues (Lagerkvist, 2006; Fouseki, 2010; Tzibazi, 2013). Here, "unpredicted reactions and developments" should be regarded "as *necessary* for the project, rather than as barriers" (Lagerkvist, 2006, p. 60). These studies also pinpoint that museums' ability to reflect on such controversies are significant for their usefulness and influence on museum practices. However, there are various – if not conflicting – ideas of what it requires of museums to be reflexive in collaborative processes with users. Tzibazi (2013) stresses that museums should pursue "institutional transformation" while Morse and colleagues (2013, p. 102) emphasise that museums should operate with well-defined codes of purpose, take an "ethical stand" and thus maintain a clear position and authority in relation to such.

Several studies (Morse et al., 2013; Tzibazi, 2013; Lagerkvist, 2006; Fouseki, 2010; Thumim, 2010) indicate that differences are – if not constituted, then – developed in the encounters between participants, and as Fouseki mentions, museums can even work as "diversifying zones" (2010, p. 188). This points towards the significance of planning, facilitating and managing the activities of collaborative practices in ways that are sensitive towards the development of differences. However, methods to do so have not, with few exceptions, been presented and discussed in the literature. Fouseki (2007) introduced a model for training museum practitioners in negotiations and the management of diversity. In addition, Davies and colleagues (Davies et al., 2013) presented the Museum Values Framework (MVF) in order to help museums reflect on the different management roles ("team leader," "facilitator," "guardian" and "business manager") they take on in collaborations (with both internal and external partners).

Altogether, the literature creates an ambiguous view on collaborative design where especially differences of various kinds are seen to pose potentials and challenges at once. Also, the impossibilities and sometimes undesirabilities of setting up certain aims, codes of purpose and ethics because of the evolving and unpredictable nature of collaborative design processes add to the difficulties of managing such processes. Here the majority of the literature recommends that actors apply their skills of reflexivity rather than certain rules or recipes to help navigate in collaborative design processes. Thinking of the ambiguousness of differences brings our attention to the manners in which STS-researchers have studied complexity and touched upon questions of how to both understand and manage differences in collaborative work processes.

Ways of differing

Inspiration from STS

For decades, STS have researched the partaking of multiple agencies when developing science and technology (Pinch & Bijker, 1984; Callon, 1986; Latour, 1988; etc.). Scholars within this field have sought to understand the socio-material assemblages of knowledge practices in order to better comprehend what drives technological and scientific development. Studies have shown that different socio-material *modes of ordering* (such as *enterprise*, *administration*, *vision* and *vocation*) form a scientific research laboratory (Law, 1994), and that different practices (such as blood pressure measurement, ultrasound, clinical conversation, rehabilitation therapy, etc.) take part in diagnosing and curing a bodily disease (Mol, 2002). Thus, STS approaches have paved ways for innovative findings about basic processes, by for instance showcasing a well-established research laboratory or a disease as sites of socio-material complexity (Mol, 2002; Law, 1994).

Obviously, processes of collaborative design in museums can be viewed as complex encounters where numerous differences are at stake. As mentioned earlier, differences are thus a main theme in the museum literature on collaborative design, and previous STS-inspired studies of museum practices have made us aware of how museums and their knowledge are made up of numerous socio-material connections (Star & Griesemer, 1989; Yaneva, 2003; Macdonald, 2002; Bennett, 2005; Meyer, 2008; Lee, 2004).

STS not only emphasises complexity. Another central point is that while the multiple agencies within which science and technology evolve cannot necessarily be rationally orchestrated, they still, in practice, *co-exist* (Law & Mol, 2002, p. 20). The Dutch STS-researcher Annemarie Mol subsumes attentiveness towards *co-existence* in the following manner:

> … what are attended to are resonances and similarities between, for instance, the mechanics of ways of relating. What is it to differ? How many styles of differing are there, how may different entities or actors both clash and show interdependence, what is the character of the "sides" involved, what kind of materials (and socials) are they made of? (Mol, 2002, p. 115–116)

Co-existence thus terms the manner in which complexity is handled in a socio-material assemblage, and complexity can be handled by a variety of such co-existences, or *styles of differing.*

Following this attention to differing, STS operate with an inexhaustible list of concepts that help comprehend the various types of co-existence (e.g. Mol, 2002; Meyer, 2008; Jensen, 2010; De Laet & Mol, 2000; Star, 2010). For our studies, we have been inspired respectively of the method of "positional mapping" introduced by Adele Clarke (2005) and the concept of "partial connections" introduced by Marilyn Strathern (1991) and applied by, for instance, Helen Verran

(2001). "Positional mapping" proposes a method of mapping dissimilar positions in a situation in order to understand how different positions co-exist and evolve across aspects such as social groupings and time. "Partial connections" proposes to search for and understand the generative correlations and mutual influences between different cultural practices.

In our pursuit of better understanding and managing the complexities of collaborative museum design processes, what we particularly suggest to import from STS is thus the approach of examining and discussing the complexities of differing by various foci on co-existences of difference. In the following, we give examples of how to apply this inspiration into concrete cases of collaborative museum design.

Two examples of collaborative design

Designing museum communication for all or for some? Investigating differences by positional mapping

At an art museum, a design team set out to design three apps. The team consisted of employees from various staff groups at the museum – such as educators, curators and communication specialists – and staff from an external design company with expertise in digital design. The goal of the collaborative design process was to develop three apps for three exhibitions, with the overall aim of developing a digital format for communicating artworks in an innovative way.

The participants in the project often had different opinions and wishes, resulting in many discussions and sometimes conflicts. Particularly one way of differing stood out as a recurring issue throughout the 1.5 years in which the project lasted, namely, how to define the target groups – i.e., the type of users that the solutions were targeted at. There were different opinions about who the target groups should be and, more particularly, how narrowly they should be defined. Simply put, one could say that there existed an opposition between wanting the digital solutions to appeal to a broad range of users and wanting them to appeal to a more narrowly defined type of users, such as, for instance, fashionistas, the creative segment, gadget lovers, etc.

At a first glance, these different opinions could be linked to typical concerns of two arenas involved in the project: The museum arena and the design arena. Arguments for appealing broadly were often accompanied by what the participants articulated as classical museum concerns about inclusivity, seeing the museum as a place for everyone. A digital solution should therefore be useful for as many as possible. On the other hand, arguments for appealing more narrowly were often tied to concerns about usability, following what the participants tended to understand as a design logic in which a digital solution would be most useful if it was designed for a specifically selected target group. To give an example of this opposition, the team discussed at one of the first meetings in the project an idea proposed by staff from the museum to conduct focus groups with four different types of users: School classes, the museum members club, families and young people. The digital designers questioned this idea, asking, *Are they the target group you want to communicate to?* and stating, *We cannot make a digital solution that appeals to everybody, so you have to dare to make a choice*.

While this opposition could easily be framed as rather simple and static, anchored in different groupings involved in the project, the STS perspectives presented in this chapter provide ways for more careful examination and discussion of the complexities of differing in the situation. For instance, the collaborative design process could be analysed by the use of positional mapping (Olesen, 2015), a method developed by STS researcher Adele Clarke (Clarke, 2005) within the framework of *situational analysis*. The idea of positional mapping is to map positions in relation to an opposition in the situation studied. In this case, the different opinions on how to define

target groups could be mapped. Importantly, these positions should not be linked to individuals or groups in the first place, but instead be represented on their own terms (Clarke, 2005). Thus, the mapmaker formulates positions on the basis of the data and draws a range of maps of how the positions are related to each other. Furthermore, positional maps could be drawn in relation to different periods in a project in order to map the development of positions – thereby illustrating how some positions change, new ones arise and others disappear. For instance, a map of one period might not have any positions in the centre, while a map of another period might almost only have positions in the centre. In the example, maps were drawn in relation to three periods corresponding to the development of the three different apps. To give an idea of what a positional map could look like, see the unfinished positional map in Figure III.3.1.[1] This map presents a set of basic axis parameters that were used in the analytical work of the example.

For instance, one of the positions in the map could be *we cannot make a digital solution that appeals to everybody*; another could be *the museum is obliged by law to appeal to everybody*. These two example positions would be drawn rather far from each other, since they relate to the opposition under study in very different ways. In a map of a later period, these positions would not be drawn if the positions weren't represented in the data from that later period. Maybe other positions, more or less related to these, would take their places. Or the places would be empty. Importantly, positional maps should never be understood as final representations of a situation but rather as analytical tools for continually challenging one's ordering of the positions under study by visual means. Positional maps can be used for presentational purposes (Olesen, 2015), but it takes a considerable amount of textual explanation, which is why the example in Figure III.3.1 is a rather abstract example.

Using this approach gave way to a more detailed understanding of difference in the situation: A range of positions were expressed in relation to the opposition under study, and these

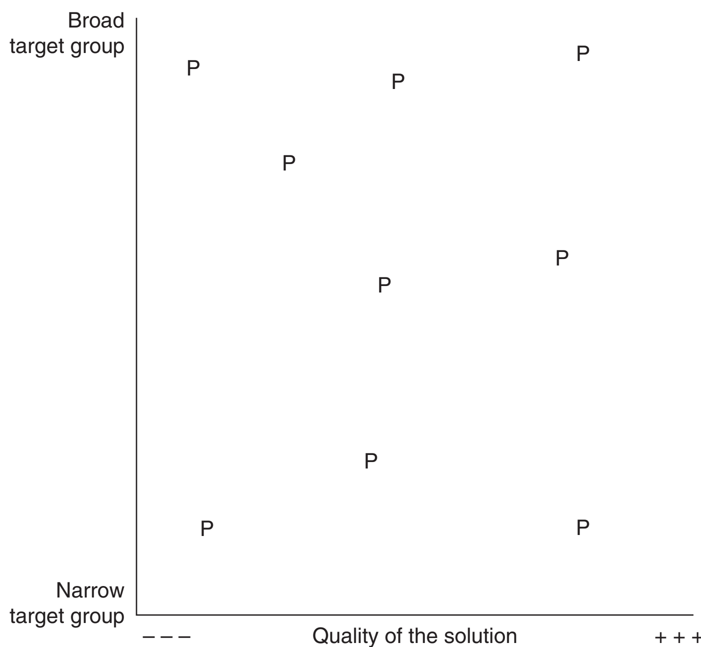

Figure III.3.1 Unfinished positional map. The "P"s indicate where positions, for instance, could be inserted.

positions changed throughout the course of the process, as did the way the participants related to the opposition. Indeed, while museum staff and design staff at times related to positions linked to what in the situation was largely comprehended as typical concerns of the museum arena and the design arena respectively, they also did the opposite. For instance, after having developed the first app, a new group of museum staff was involved in the project, and some of the original museum staff participants positioned themselves quite strongly in line with what was initially comprehended as a design logic, saying: *We have experienced that a very specific target group has to be chosen, to whom it should appeal.*

Furthermore, mapping positions made it clear that some positions were very strongly arguing for the one or the other approach, while others were more vague or middle-seeking. For instance, some of these positions portrayed an interesting ambivalence between wanting to target the solutions narrowly but at the same time wanting them to be inclusive. In addition, one of the middle-seeking positions that developed throughout the course of the project took the difference into account in another way. This position argued that it might be possible to combine the approaches of targeting broadly and narrowly by working with several specifically defined target groups and not just one specific target group. For this to be successful, another solution format would be more appropriate, and the design team therefore quite radically changed the materiality of the project: While the original intent was to develop mobile apps, the final solution was an app for stationary iPads positioned at different locations in the museum. The larger screens of the iPads and their relation to only one artwork at a time made it more appropriate to provide different entry points targeted dissimilarly. In this way, a middle-seeking position resulted in a new idea that became defining for the final app developed.

This solution should not be seen as a final consensus defining the situation but rather as a complex resolution formed by the continuous interplay between different positions. The differing was comprised of multiple positions that related to and developed each other in complex ways throughout the project. The collaborative design process was managed in a way that allowed these different positions to co-exist and evolve. Sometimes the participants consciously related to or "talked to" certain positions, and this attention to positions seemed to have great significance for the solutions developed. Thus, the decision to change the solution format was anchored in a position that deliberately sought to combine or order other, differing positions. In that way, differences were managed not as a static challenge but as something worthy of exploration that had the potential to catalyse new ideas about how to communicate artworks digitally. While the ambition to develop innovative digital museum communication catalysed collaboration across participants from different departments at the museum and the external design company, the innovation itself only happened due to the manner in which the differences across these various participants were managed.

To sum up, examining the complexities of what might at first glance seem a simple opposition paved the way for a richer understanding of differing in the situation. In addition, this examination gave insight into how differences were managed in order for the participants to develop new ideas about how to communicate artworks digitally.

Places of facts or experiences? Differences as partially connected

At a cultural history museum, a digital platform for mapping and describing Danish rock music history was designed (Knudsen, 2015, 2016). The platform was developed over a 1.5-year period collaboratively across museum staff, museum users, a digital designer and other professional partners, such as a venue owner and a rock journalist. It was envisioned by the museum that the meeting places of Danish rock music, such as music venues, festivals, youth clubs, etc., should be

mapped and described by digital content, such as collected or created pictures, videos, written text, etc. These materials were to be uploaded at the digital platform by both users and museum staff in an ongoing process.

On the surface, this collaborative design process also presented a rather simple opposition, here between imaginations of either an experience-based or a fact-based digital mapping. For instance, it was discussed what the primary content of the site was entitled to document: One participant suggested that site-specific hallmarks were to be identified for each of the meeting places of rock music put to the map. This would include descriptions of establishment phases, organisation structure, music genres, architecture, etc., thus a rather fact-based mapping. As a reaction to this, several participants flagged *the experience of rock music* as another, maybe more important, issue to be documented on the map. They stated that the portraits of meeting places of rock music would necessarily have to contain the specific personal reactions, reviews, stories and memories of fans and musicians who had engaged with rock music in these places.

However, when taking a more detailed look at the different versions of the digital platform emerging in the design process, it was not always an overall opposition between two routes that appeared. Rather, myriads of different issues were at stake. For instance, topics of how to make the communication format most attractive were raised:

> Rock music librarian: I simply have troubles reading long passages on a screen, I will rather listen, I think it's excellent listening to someone telling a story.

In addition, the issue of use and users were discussed: Some participants emphasised that *attracting the normal user* was one of the most important missions of the digital platform. While others suggested that the platform should appeal to historians (amateurs and professionals) who already had an interest in rock culture as a historical subject and were searching for specific information on the places of Danish rock music.

> Rock journalist: I don't think of the map as something to be sold as an experience. The map should be a good tool for those who have an interest in rock music history or local history.

As can be seen from these excerpts, there were several differences at stake in the formulations of what purposes the map was going to serve. Some were pointed at the topical content, others at the format of content (between the fact-based or experience-based), others at the navigation and entry points, and again others were occupied with discussing who the users of the platform should be.

At the same time, the participants very often made use of dual oppositions in their arguments. This could be seen when the spoken-for design idea or direction was substantiated by a negative description of its imagined opposite. Oppositions thus helped shape and specify the participants' imaginations and design ideas regarding the map. At the same time, the oppositions related to many dimensions in the design process and certainly did not all centre around the same issue. Table III.3.1 shows a list of oppositions articulated by various participants in relation to the design object.

How oppositions played a strong part in the collaborative design process could be understood by the concept of *partial connections* (Strathern, 1991; Verran, 2001). This concept pinpoints difference as something that emerges and is practiced in interdependent relations and thus within partial connections. Difference is therefore not a latent, logical and essential phenomenon *between* humans but rather something we develop by our *connections*. Difference is something we practice and manage "by contingently separating or connecting" (Verran, 2001, p. 30).

Table III.3.1 A list of oppositions articulated by participants in the design process towards a digital platform mapping the places of Danish rock history.

Oppositions	
Information tool	Experience
Edited	Personal
Historically angled	"Everything"
Facts	Entertainment
Facts	Social
Encyclopaedia	Fan site
Encyclopaedia	Personal
Academic	Concert experience
System	Feeling
Site-specific	Experience
The History of Denmark	Memories

As differences are emergent, they also vary and can be moved in several directions. Furthermore, differences can move into either simpler or more complex constellations.

With this attention in mind, the participants in the collaborative design process could be seen to gradually order the divergent directions and different oppositions into a simple and overall opposition between *facts* and *experiences*. For instance, one of the museum staff representatives described the results of a group discussion to the larger group by saying: *We spent ample time talking about facts versus experiences* … The discussion was much more complex than that, but in this way, the participants tended to relate the opposition between facts and experience to all issues concerned with designing the digital map, such as the platforms' purpose, users, media, etc. Thereby, the many shades of difference, as well as their changeability, were not maintained in the further implementation of design ideas. As a consequence, the map was designed with a clear and static division between the *factual* and the *experience-based* content. A division which also clearly demarcated a division between the factual rock historians and the experience-searching "normal users," between the encyclopaedic and the personal content, the factual and the social media, the system and the feelings, etc. In this way, many diffuse and vaguely related working oppositions were managed into one collapsed and more static overall opposition.

By understanding difference through the analytical framework of partial connections, we get an understanding of how various differences emerged, co-existed and interacted, even though one opposition was eventually conceptualised – and practiced – as the overarching opposition by the participants. As in the other example, the ambition to develop innovative digital museum communication catalysed collaboration across various partners – in this case, staff from different departments at the museum, museum users, a digital designer and other professional partners, such as a venue owner and a rock journalist. However, the differences that transpired from this complex constellation came to be managed in a rather simplistic way. Thus, the design largely centred on what came from discussions of the one opposition, and other oppositions or ways of differing were not really maintained and explored.

Detailed analytical investigations of differences could have paved way for a richer understanding of the oppositions in the situation as well as the way they were managed. Instead of generating a single dual division in the collaborative process, as well as in the design of the platform, the participants could have thought along, and maintained, the lines of vague multiple directions regarding both content, users, media, etc. The many different directions towards the

Map of Danish rock history could have been separately explored and concretised more thoroughly, for instance in design sketches and prototypes. In this way, each different version of the platform might have gained a more concrete and less conceptual form before being drawn into co-existence with other versions (Olesen & Knudsen, 2018). Possibly, this could have paved the way for a digital platform making more sense in a complex and hybrid landscape of content and communication. A landscape where differences are constantly generated and changed, as they emerge and dissolve in their concrete and materialised relations to each other, and thus change their *ways of differing*.

Conclusion

As described earlier, a great variety of challenges and potentials of collaboration are mentioned in the museum literature on collaborative design. In this chapter, we have conceptualised difference as a common denominator and somewhat overall factor of particular importance. Thus, we find that differences of numerous kinds are presented as challenges, but also, to some extent, as potentials in all of the three constellations of collaboration highlighted (across different museum staff groups; across museum staff and external design professionals; and across museum staff and museum users).

Inspired by the attention towards complexities applied within STS, we suggest that detailed analytical investigations of differences can inform our knowledge about the challenges and potentials of collaborative design processes. As discussed in the examples, we can for instance understand differences and the ways they unfold, change and influence a design process through STS concepts of *positionality* and *partial connections*. Mapping positions on their own terms, we see how different positions change and mutually inform each other in complex ways across aspects such as social groupings and time. Here, differences are understood as a potential, as they foster new positions and ideas that traverse through divergent types of expertise and logics. In line with this, we can move towards focusing on differences as generative and emerging and thus as something inherent in a collaborative design process rather than in the partaking participants. Thus, approaching differences as consequences of partial connections that evolve into either vague parallels, multiple directions or strong oppositions can give us a view as to how processes unfold differences in dissimilar ways.

The two examples presented in the chapter illustrate how such developments can be understood by various approaches to complexity. The act of investigating difference is approached dissimilarly in the two examples. In the first example, difference is approached *internally*, since the focus is on *one difference* and how that difference holds a complexity. Here, the oppositional view on how to target users is conceptualised as one key opposition in the collaborative design process at the art museum. By use of positional mapping, the example illustrates how the opposition comprised a myriad of different positions and their interactions – thus internally complexifying the understanding of the too-simply-framed opposition. In the second example, difference is more overly approached *externally*, since the focus is not just on one difference but on *many differences* and their interaction. Here, the example points to how one opposition that is conceptualised as overall to the collaborative process is actually collapsed from a range of other oppositions – thus complexifying the too-simply-framed opposition externally. Importantly, both approaches can be used to complexify differences internally and externally. However, we have sought to showcase dissimilar approaches to a detailed analytical attention to differences. Thereby, we also emphasise that dissimilar ways of operationalising the STS perspectives have potentials for introducing new insights into the understanding and management of collaborative design of museum communication.

In terms of managing these collaborative design processes, looking at ways of differing can, for instance, provide insights into how creative thoughts depend on the formulation of

oppositions. At the same time, oppositional differences can turn out to be exclusive and simplifying in a complex collaborative field of directions. Such views on the formations of difference may provide hints as to how differences can be handled in divergent ways, thus giving food for reflection on how to manage collaborative design processes. Depending on the concrete situation, some activities will seem more likely than others to either spark oppositions into being or to keep the differences in vague parallels. Also, managers may choose to explicate or frame differences in certain ways to try to achieve or avoid certain discussions. An ongoing and detailed attention to the complexities of differing can thereby be a useful part of a design strategy.

Thus, the STS perspectives presented in this chapter can introduce new directions to both research and management of collaborative design of museum communication. For researchers, these perspectives function as tools for obtaining a more nuanced and complex understanding of the challenges and potentials of collaborative design across various stakeholders. For managers, a detailed attention to the complexities of differing can be essential for the generation of new ideas and the ability to collaboratively develop communication solutions that adhere to an increasingly complex media usage in today's museum world.

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Note

1 For other visual examples of positional mapmaking, see for instance Clarke (2005) and Olesen (2015).

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III.4

Participation in design and changing practices of museum development

Dagny Stuedahl

An important discussion in the field of museum studies is about how museums may shape new dialogues with audiences and integrate a new understanding of diversity in institutional values and practices in order to meet the global context of museums (see for example Golding & Modest, 2013). These discussions may be seen as a follow-up to Peter Vergo's critical framework for the new museology practices of transparency and pedagogy (Vergo, 1989) and Stephen Weil's (1999, 2002) argument for a museum with a clear purpose for its communities. The "engaging museum" (Black, 2005), the "responsive museum" (Lang, Reeve, & Wollard, 2006), and the "participatory museum" (Simon, 2010) are all notions that support the shift away from an inward collection focus towards an outward focus on the museum's role in social development, education and community-building. The participatory paradigm and the shift towards thinking about visitors as active interpreters and performers of meaning-making practices (Hooper-Greenhill, 2006) are closely connected. Participation is complex and includes museums being open to the diverse ways that people may engage and express themselves.

The concepts of the "connected museum" (Drotner & Schrøder, 2013) and the "distributed museum" (Balsamo, 2011; Stuedahl & Lowe, 2015) capture the central role that digital media have for this development as key tools for enacting audience engagement, democratisation, social development and activism. This participatory paradigm shift (Holdgaard & Klastrup, 2014) has changed the understanding of media, mediation and media practices in museums. The shift goes from understanding media as tools that simply supply installations or objects with additional information (McManus, 1989) into a means for social interaction, participation, co-creation and contribution. Mobile media, social network sites (for short: social media) and digital interactives have thus become part of what may be termed a museum media ecology. This new media ecology requires museums to think beyond the traditional curation of objects and to address social curation that includes social interaction, connection and collaboration as part of curatorial and educational thinking. This represents a shift that has to be taken into consideration in every museum design project, whether the museum is designing an exhibition, a new learning programme or outreach initiative. This shift raises key questions of how museum professionals gain knowledge about their users, how they may implement participatory methods in their practice of audience collaboration to gain this knowledge and how the museum may embrace participatory methods as social interactions in ways that are meaningful to diverse

visitors and their needs. Based on the ongoing challenges that the participatory museum brings, and the various forms of visitor- and user-involvement that new forms of media-use introduce, it is time to draw attention to the methods that museums use to explore emerging concepts, practices and forms of engagement.

Lately, several museum projects in the Nordic countries and the United Kingdom have explored the potential of extending museum participation into actively involving users in the process of museum design. These endeavours involve visitors as collaborators who provide the museum design processes with a deep knowledge of their diverse experiences and expectations of both media and the museum. The aims of this active visitor involvement are multiple and include the pragmatics of shaping relevant activities of participation as a democratic endeavour to open up the institution. Visitor involvement is also to establish connections with visitor groups that go beyond just community involvement in collecting objects, creating relations that help museum professionals work in tune with their visitors' interests. Rather than being understood as activities related to content, visitor participation can thus be framed as a knowledge process that connects museum staff with society, and as a method of opening up all museum processes in exhibition design, design of communication programmes and in the design of learning activities.

Thus, the participatory paradigm addresses more than just the visitor's participatory activities in museum exhibitions. In this chapter, I address how the participatory paradigm is essentially about the methods and techniques used to build stronger relations between museums and society by involving people in the design process. I particularly emphasise how the participatory paradigm in museums may be inspired by current discussions within the Scandinavian tradition of participatory design (PD) that originally grew out of political concerns about workers participating in decision-making in technology development at the workplace. The approach is influenced by action-research perspectives and has, in the last decade, focused on democratic participation in innovation processes by involving people and drawing on their experiences of everyday life (Björgvinsson, Ehn, & Hillgren, 2012). The action-research focus on changing participants' knowledge has in these projects evolved to a focus on involving people to collaboratively shape new services to meet their needs. This is where PD becomes co-design, and this chapter aims to discuss how the co-design method becomes relevant for future museum work with audiences and exhibition-making.

Changing practices of museum media participation

The museums' concern with participation, democracy and learning is considerably extended by digital media practices that users bring into the museum. Participation has become a question of both the museum's forms of communication to meet the diversity that visitors bring and the institutional practices that need to be developed to meet this diversity. In particular, museum participation has become a question of how digital media are designed in order to support multiple media practices within the museum's media ecology. Museum media is complex and is composed and orchestrated by the diversity at play in museum communication: museum practices and everyday practices the visitors bring into the museum.

The changing practices of museum media are reminiscent of the discussions within media studies about the non-media-centric perspective that suggests de-centring the understanding of media's role in studies of how everyday life and media processes are interwoven (Morley, 2007). The de-centring perspective proposes instead a focus on how media are playing a central role in all social and cultural processes in contemporary societies (Hepp, 2010) and builds an alternative perspective to traditional media-centric media studies. The non-media-centric perspective thus represents a shift in how we understand media's role in democracy

and participation (Carpentier, 2011). Framing media as part of social and cultural processes includes recognition that the concept of media participation refers to "influence or (even) power relations in decision-making processes" that "cannot be equated with 'mere' access to or interaction with media organizations," which the discourse on participatory culture (Jenkins, Purushotma, Weigel, Clinton, & Robison, 2009) routinely brings forth: "Access and interaction do matter for participatory processes in the media – they are actually its conditions of possibility – but they are also very distinct from participation because of their less explicit emphasis on power dynamics and decision-making" (Carpentier, 2011, p. 69). Carpentier relates discussions on participation and democracy in cultural institutions to the history of art, where participation and interactivity aim to nurture a more active audience. He points to how recent new museology/new museum theory deepens the emphasis on representation, politics and power, through their agenda for audience participation reintroduced into the debate to counteract the mono-vocality of museums (Ross, 2004). Participation is used as a plea for a socially and culturally responsive museum that "is transparent in its decision-making and willing to share power" (Marstine, 2006, p. 5, as cited in Carpentier, 2011). This definition of participation as related to decision-making is shared between current discussions in museums and media studies, as well as in the field of participatory design.

Thus, the museums' participatory paradigm may be seen as a parallel to this non-media-centric perspective in media studies in the sense that museum media design goes beyond packaging messages curated by the museum. This includes issues such as visitor agency as related to cultural and social interaction: the new roles museums may take for democratic practices and for society in the future. Sharon Macdonald (2007), for example, can be read as taking a non-media-centric stance when she argues for a broader exhibition design perspective that includes consideration of how media structures social interaction and museum visiting in much the same way as content does. She proposes focusing on how media affords different kinds of audience relations and gives particular connotations that scaffold social interaction. Macdonald also expresses the need to understand how exhibitions work by combining perspectives from exhibition design, audience interaction and media studies in what she calls the "affective syntax of exhibitions" (Macdonald, 2007). Her questioning goes even further, as asking how exhibitions work with audiences also raises issues of how museum professionals design exhibitions when the role of museums in society is changing.

In the following, I address the methodological aspects of furthering museum participation into participatory involvement, and I discuss how core principles of the participatory design tradition (PD) are relevant for these discussions in museum media studies. I then report from some Scandinavian PD-based projects in museums, focusing most directly upon how the Norwegian project EXPAND – research in Norwegian science centres introduced a participatory method for museum educators to use in processes of re-designing exhibitions. The discussion raises challenges of organisational epistemologies when introducing participatory methods into museums.

Museum participation and audience collaboration

A recent anthology on museum participation (McSweeney & Kavanagh, 2016) points to the numerous meanings of the word participation and how the fluidity of the concept may be both a help and a hindrance to a consensus among academics and practitioners involved in museum development. In short, the anthology re-directs our attention from the general focus on audience engagement included in formative exhibition evaluation processes towards an understanding of the visitors as a collective, as groups and as individuals. This requires museums shifting

their focus from visitor participation to how institutions may collaborate with audiences in collective decision-making, co-creation and co-production (McSweeney & Kavanagh, 2016, p. 21). The United Kingdom-based initiative Our museum: Communities and museums as active partners was initiated by the Paul Hamlyn Foundation to give museums and galleries the possibility to further their methods of organisational development by brokering new cross-sector partnerships and establishing careful community consultation and co-production. This participatory endeavour also included creating productive relations with local authorities and keeping a focus on local community outcomes of museum participatory projects. However, a long-term impact did not evolve, as the funding invested in participatory projects remained separate from the museums' core budgets and did not succeed in shifting public-engagement work into the core practices of the museum (Lynch, 2011, 2016). Such innovative projects demonstrate how museums look for the long-term potential for public engagement but require a broader infrastructure of organisational and funding mechanisms to support the museum's ability to establish new relational forms with visitors and society.

In another recent review of participatory models and approaches to museum exhibition design, Mygind, Hällman and Bentsen (2015) conclude that participatory approaches in museums face many obstacles. These issues are chiefly concerned with coordinating degrees of participation, making choices of relevant methods used to involve the visitor, coordinating the multiple rationales for participation, as well as obstacles and tensions caused by power relations and sometimes contradictory rationales for participatory approaches. Their analysis is founded on a subset of studies that follow the criteria of longer-term visitor involvement, beyond formative evaluations and tests. One of the findings was that, for the process to be successful, there was a shared need for all institutional levels to have a clear strategy about participant involvement. Another finding was the need for museum professionals to accept a partial transmission of authority to the external participants. Mentioning the field of participatory design as potentially providing methods and theories which would be useful for future museum development, the authors argue for more research in order to identify the obstacles to facilitating participatory practices in museums (Mygind, Hällman, & Bentsen, 2015).

The current transformation of museums requires focus on the relation between digital media and museum curatorial practices and exhibition-making (Dziekan, 2016). Such re-focusing shifts the *modus operandi* of museums from a passive register to a more active mode of engagement through various interactions. The museums' organisational roles and routines frame the ways in which curators and educators collaborate with audiences and communities within a participatory context. However, participatory practices may also bring a shift in the overall relation between the museum and society beyond the exhibition or installation. This calls for a new methodological framework for museum development, and new ways for the museum to work in participatory ways.

Collaborative and participatory design

One option for museums is to look towards other disciplines that have developed participatory methods. PD is one such potential approach that actively involves users and stakeholders in design and development. The approach focuses on the processes and procedures and is used in software design, urban design, architecture, product design and health care development to ensure that the designed products or services meet with users' needs and expectations. Several understandings of participation from the field of PD are especially relevant for capturing the difference of participation as part of a museum visit from participation in the form of involvement

in decision-making on exhibition design or learning programmes. The terms "having a voice" and "having a say" indicate the central concerns of PD (Kensing & Greenbaum, 2012) about who has the power to participate in the decision-making, as well as indicating an awareness of how participation may have different levels (Arnstein, 1969). There is a big difference between having a voice and the opportunity to have a say, which includes having the power to influence and take part in decision-making that shapes the direction of a project or a design. Below we will look especially at how the Scandinavian tradition of PD has approached this challenge of giving users power and voice in design processes.

The Scandinavian tradition of a participatory design

The Scandinavian countries share the PD tradition of critical and collaborative approaches to development processes. PD was established in Scandinavia in the early 1970s as a collection of design practices, methods and principles for involving users as co-designers (Greenbaum & Kyng, 1991; Muller & Kuhn, 1993; Schuler & Namioka 1993). Central to PD is an awareness of power relations and involvement in decision-making, whether this is about organising new work practices or developing new systems or software. PD is based on participation and democracy as core values (Bratteteig, Keld, Dittrich, Mogensen, & Simonsen, 2012; Robertson & Wagner, 2012; van der Velden & Mörtberg, 2014), and it focuses on how design processes may be planned, organised and practised across the range of professional experiences, skills and knowledge that may exist within a PD-based design process (Simonsen & Robertson, 2012). The early PD projects and cooperative approaches involved local trade unions and paid special attention to how to enact democratic practices that involve all the people who will be affected by the workplace technology (Kensing & Greenbaum, 2012). Theoretically, the Scandinavian tradition of PD was rooted in political economy, democracy and feminism (Greenbaum & Loi, 2012). These theoretical perspectives gave Scandinavian PD its distinctive political character, compared to other user-centred design approaches that involved users for pragmatic reasons in designing better products. The guiding principles that underpinned the Scandinavian tradition still stand but are today related to ethical rather than political arguments, and this ethical grounding has paved the way for contemporary approaches to PD outside the workplace. The values of participative methods are, for example, prerequisites to enabling people to participate in the design process as experts in their everyday work or daily life (Robertson & Wagner, 2012; van der Velden & Mörtberg, 2014), and this goes beyond merely involving users in the development of a potential product or service into thinking about design as an empowering activity for users that will ultimately serve the institution. The former focus on democracy at work has been reoriented with a concern for democratic innovation, and PD projects today focus on including communities and grassroots movements in social innovation (Björgvinsson, Ehn, & Hillgren, 2010). PD is in this way developing away from design of technological products or systems towards understanding the participatory or collaborative method as an approach to exploring and shaping better futures together (Light, 2015).

Examples of participatory design in museums

Several museum projects have involved participatory methods in one form or another in exhibition design, the design of digital technologies (Ciolfi, Petrelli, McDermott, Avram, & van Dijk, 2015) or more general organisational development. For example, participatory action research methodologies have been used in United States-based museum educator research

and in endeavours to change learning concepts in informal science education (Ash, Rahm, & Melber, 2012; Pedretti & Hodson, 1995). Reflective practice has been a central issue in these debates on science learning and teaching (Scaife, 2010; Schön, 1983). Another example is a longitudinal participatory action research project in the United Kingdom where a local authority museum worked with youths aged 15 to 17 to involve young people as participants in order to explore new museum practices and professional identity (Tzibazi, 2013, p. 167). The study is based on the argument that museums need to move away from a transmission model of museum communication, where the museum's role is based on one-way communication. The participatory project aimed to define appropriate methods and outcomes for all partners included in the project. One of the obstacles identified was that an inherent lack of trust in participants' abilities forms an obstacle for museum professionals to meet their participants' needs. Tzibazi also discusses the challenges of finding the tools and techniques for collaboration within a democratic framework, where the voices of young people get appreciated at a level equal to that of the museum professionals. Thus, Tzibazi is addressing tensions well-known in both action research methodology and participatory design. These tensions relate to equalising power relations between museum professionals and young audiences – the challenge of creating situation-based actions that lead to knowledge and mutual learning between all parties involved. This aligns with Bernadette Lynch's (2016) argument that museums need to re-conceptualise their role as responsible social institutions and base their participatory projects on ethical and reflexive educational foundations.

In Scandinavia, several museum projects have been based on the PD tradition, and they offer experiences that are relevant to further methods, tools and techniques for audience participation in design processes. These projects are related to exhibition design, design of educational or outreach projects, or general exploration of the development of museum organisation. The current focus of PD on local knowledge-production through collaborative prototyping (Ehn, Nillson, & Topgaard, 2014) may be a particular challenge for museums in involving actual visitors, local communities and museum professionals, and aligning these different groups with museum curators and educators, often working with external exhibition designers and producers of interactive installations, in several Scandinavian PD museum projects.

Participatory design and visitor involvement

A PD approach to visitor involvement in general would involve visitors in the conceptual, operational and evaluation phases of exhibition design. But there are also practical challenges of hosting design sessions with visitors within the museum context, as well as managing power structures between visitors and museum professionals within established practices (Taxén, 2004, p. 33). In 2001, the Swedish Museum of Science and Technology started a collaboration with the EU/IST funded project SHAPE (Situating Hybrid Assemblies in Public Environments) and developed a number of exhibitions based on collaboration with researchers. Gustav Taxén's doctoral thesis, "Participatory design in museums: Visitor-oriented perspectives on exhibition design," argued for visitor participation as a method to find "new ways for audiences to contribute to exhibitions with their knowledge, experience, opinions, and desires" (Taxén, 2004, p. 15). Taxén describes a PD approach that involved methods containing educational brainstorming sessions suitable for children. He argues that the details of how participatory design methods are conducted in diverse contexts are important for the outcomes. In his view, PD in museum exhibition design requires that participatory methods have a common agenda for all museum professionals and visitors involved and that the methods are integrated at all levels of museum organisation.

Participatory exhibition design and involvement of youth

In 2010, the Digital Native project at Aarhus University, in collaboration with Moesgaard Museum and ARoS Aarhus Art Museum in Denmark, picked up the thread from SHAPE and focused on the involvement of young people aged 16 to 19 in exhibition development. The project involved a group of young people in creating an interactive exhibition that questioned the whole concept of "digital natives" (Prensky, 2001). The value of incorporating young people was that they could provide a critical reflection on what it is to be identified as a digital native. The Digital Native project addressed participatory process as interdisciplinary dialogue between teenagers, museum staff, anthropologists, interaction designers and programmers as much as the exhibition as an object of design (Smith, 2013; Smith & Iversen, 2014). The project experimented with how a focus on values of PD in museum settings may scaffold the engagement of young people, and was conceptual rather than just being focused on the exhibition outcome. In this respect, the Digital Natives project differs from other participatory projects which aim at participatory exhibition design or making incremental changes to museum practice (see Tzibazi, 2013). The Digital Natives was a design-led exploration of "unanticipated futures together [sic] based upon situated professional and personal experiences" (Smith & Iversen, 2014, p. 266) with the museum as context and arena. The project deliberately planned the process to support the young people to work both with and without the designers. In this way, the participants gained ownership of the exhibition project, and they developed their own ideas, undisturbed by the designers' professional views. While this approach helped the young people's confidence in the project, it challenged the professionalism of the designers and museum professionals by giving authority and legitimacy to the youngsters at a very early stage in the design process (Smith & Iversen, 2014). The goal was to create a design process that belonged to neither the teenagers nor the designers and to open a space for joint negotiation and critique in order to develop meaningful alternatives. The real challenge was for the professionals to handle this process, as this required them to redefine and share authority.

Participatory design to integrate social media-based audiences

In Norway, the TRANGO (Transformations in cultural heritage NGOs and museums) project at the University of Oslo (CONTACT/NFR 2009–2013) conducted several PD experiments to explore social media inside and outside the museum. For example, the project collaborated with the Norwegian Museum of Science, Technology and Medicine on small-scale participatory experiments to investigate how social media could be used as platforms for involving audiences, crowds and urban citizens in the design of a mobile audio guide along the Akerselva River in Oslo (Smørdal, Stuedahl, & Sem 2014; Stuedahl & Lowe, 2015). In collaboration with the Norwegian Maritime Museum, the project conducted another longitudinal participatory design project that involved museum professionals exploring different modalities of social media and their relevance to communicating museum backstage practices. Here, the project established an experimental zone as part of the regular museum exhibition where craftsmen, museum curators and conservators explored how communication with visitors could be continued online (Stuedahl & Smørdal, 2015). Also, the project "To – and from – youth" at the Norwegian Museum of Science, Technology and Medicine explored digital storytelling as a participatory method for including young people in the design of a learning programme on digital democracy (Stuedahl & Skaatun, 2018). These projects focused on PD and collaborative design as a concrete method to develop educational and communication practices as part of real development projects in the natural and everyday settings of the museum.

Future workshops as a participatory method for museum educators' changing practices

PD and collaborative design provide a number of techniques and methodological tools to support dialogue and knowledge-building in participatory projects. The role of means such as mock-ups, prototypes and different types of media to support participants' processes of exploring and negotiating tensions between different stakeholders involved in the project are central (for a discussion of these means, see, e.g., Olesen & Knudsen, 2018; Smith, 2013; Smith & Iversen, 2014). The means used to support collaborative processes need to be thought through in relation to the types of participants and contexts of the participatory project. In the research project Expand: Research in Norwegian Science Centres (UtVite in Norwegian), the Future Workshop method was used to support science centre educators in their endeavour to apply educational theories in re-designing installations. The Expand-project ran 2011–2017 as a collaboration between the INSPIRIA Science Centre, Norway and the science education researchers at Norwegian University of Life Sciences. The main objective was to develop interdisciplinary research methods and analytical concepts to support the relation between meaning-making and interaction with installations in science centre exhibitions. An important part of the project was to scaffold science educators' reflective practice and their need for training through practical learning projects.

EXPAND organised a Continuing Professional Development (CPD) course to support a longitudinal collaboration with science educators from all science centres in Norway during the research project.[1] The course was practice-based and conducted over two years through a series of workshops and Skype meetings. The intention was to develop a shared language and practice among science centre educators (Tran & King, 2007) on learning through exhibition objects and installations. The educators conducted qualitative observations and video recordings of visitor interactions, analysed these video-recordings, identified the problems of interaction with the installation and reasons for misunderstandings of learning content and, finding possible solutions to the problem, suggested changes. In the second year of the course, they put their knowledge into practice by re-designing the installations in collaboration with colleagues. The course participants' submitted exam tasks were collected in a practical handbook relevant for other museum re-design processes involving educational theory.

As part of the focus on participatory design methods, the Future Workshop method was introduced as a technique for collaborative idea generation relevant for their re-design project. Future Workshop (FW) is a technique developed in the 1970s by Robert Jungk, Ruediger Lutz and Norbert R. Muellert to help groups of people develop ideas or solutions to social problems. The technique includes five phases: preparation, critique, fantasy, implementation and follow-up (Jungk, Muellert, & Lutz, 1987; Vidal, 2005). It was introduced as a technique to scaffold collaborative creative thinking by involving colleagues and visitors in the re-design of installations. After the Future Workshop session, the science educators wrote micro-texts about their experience that constitute the empirical material for this analysis together with video recordings of the discussions. We can identify from these texts that the educators found the Future Workshop method exciting and interesting and that they understood the method as a way to bring more people into creative processes in exhibition design. However, the method seemed successful only to the point of speculation. None of the participants followed up on the method in their subsequent course work.

In analysing the contradiction between the description of the re-design work in the final exam report and the engagement and enthusiasm about the future workshop method in their micro-writing logs and the recordings from the session, it becomes clear that there is a mismatch

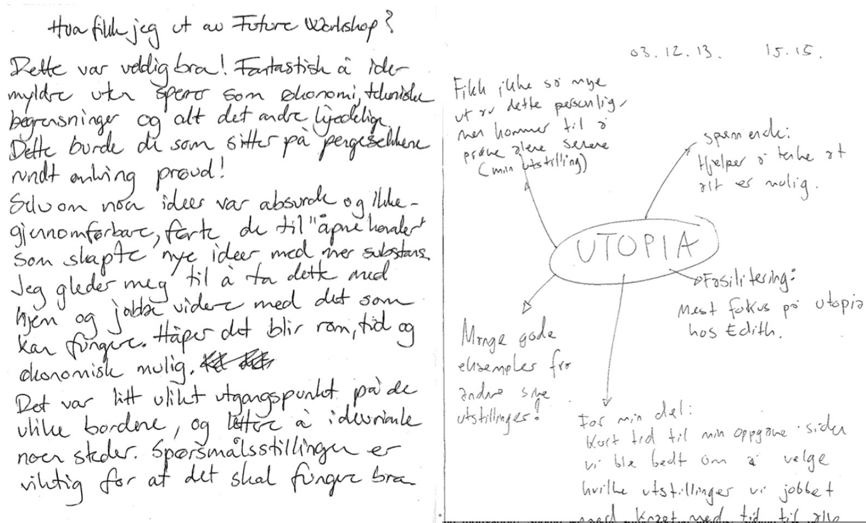

Figure III.4.1 Science educators' micro-writing reflecting on the relevance of a Future Workshop for their re-design of installations.

between the educators' enthusiasm for the method and the realisation. It seems as if the Future Workshop was appreciated as a participatory method but was not seen to be in confluence with the more traditional and systematic research methods they needed in order to argue for the re-design at their science centre. Also, it seemed that the fantasy phase of the Future Workshop method in fact distracted them from discussing solutions and preparing arguments relevant for their colleagues. To argue for re-designs of installations, they needed evidence, but this evidence would be video-recordings of visitor interactions. Ideas generated in a workshop had less legitimacy. Video documentation of visitors' interaction with the installation was better suited to arguing about why the installation miscommunicates the scientific content intended and thus arguing for a didactic re-design of the installation. The evidence-based method was for them a safer design process.

The Expand case illustrates how the challenges of participatory processes first of all start with the confidence and shared language between museum professionals and the differentmuseum departments. We saw how the contradiction between the educators' enthusiasm for the future workshop methods and how they then pursued their re-design process in the traditional way of working in a museum to fit with criteria of professional authority and argumentation established in their institution. The existing organisational model of re-designing installations underpinned their work and the way they could be accountable for the changes in their exhibition design. Their reluctance to integrate the Future Workshop techniques as a participatory endeavour in their re-design process may also have been connected to the central role played by the content-driven logics of exhibition design as identified by Taxén (2004). This logic positions museum professionals' design ideations above those of the audience. For the educators, their didactic-based argument was easier to pursue in relation to this content focus of curators than their ideas from a creative workshop. At an epistemic level, this interdependence between educators and curators defines the quality of museum communication and of social interactions with museum content. The example shows how museums' participatory thinking is not only about visitor activities but also requires museums to work with established conventions, routines and logics to achieve a participatory institution.

Discussion: Museum participation: One step further

The cases analysed in this chapter have focused on the application of participatory methods in museum exhibition work as one approach to the participatory museum based on empowering audiences. The cases discussed show how the ideals of participatory methods and audience involvement may collide with existing museum professionalism. The conclusion from the SHAPE project was that participatory thinking has to be integrated at all levels of the institution. The Digital Natives project follows up on this and concludes that a shared agenda for participation is necessary for museum professionals to relinquish some authority and get to grips with participatory processes. The biggest challenge of participatory methodologies is to negotiate a shared understanding of the purpose of exhibitions. At this point, PD in museums shares challenges similar to those in other contexts; namely, building confidence and developing a shared language (Taxén, 2004). However, the Expand project demonstrates how a shared agenda for participation challenges existing practices and power dynamics within the museum; existing conventions of quality still guide professional practice and still demand evidence of how re-design would give better quality, creating obstacles to the implementation of participatory methods in museum practice. In this way, the different logic of exhibition design, of the educator and of the curator becomes a major challenge when an individual museum professional takes a step and tries to realise participatory methods as a new way to develop exhibitions.

The potential discord of the participatory museum format requires museums to analyse their notion of museum participation. Participation in the form of inclusion in decision-making requires reflection on what sort of influence museums are willing to give their audience collaborators. But it also deeply relates to the practice of the museum professional as curator or educator. Audience participation in the form of shared decision-making requires the museum professionals to find ways of embracing the pluralism, conflict and controversy that may arise when audiences are also collaborators. This may collide with the existing and the familiar epistemology of the museum profession. Participation also requires that museums think through their own criteria for successful communication. The participatory museum is an epistemic endeavour that goes beyond a focus on the content of an exhibition or on the designed media affordances or on the social interaction of audiences. It requires a new professional mind-set to engage the museum as part of the broader social and political transformations outside the museum (Lynch, 2016). To develop from the authoritarian transmission of knowledge to a multifaceted space for reflection, museums need to understand that knowledge creation is first of all a matter of negotiation (Lundgaard, 2013) as a collaborative, interdisciplinary and inherently inclusive approach to knowledge, with different approaches to meaning-making and, hence, to solutions. This is an endeavour that starts with the methodology that museums use (Fleming, 2013).

As Carpentier reminds us, there is a difference between participation and engagement in the form of access and interaction and participation in the form of having influence on production and decision-making (Carpentier, 2011). Decision-making is at the core of the power dynamics of democracy, and would, first, require museums to be willing to share power. This pluralistic character of participation in museum decision-making is a challenge that museum professionals face when applying participatory methods and opening their exhibition-making processes up to the viewpoints of audiences and users. This requires museum professionals to examine personal and institutional values and assumptions about the worth of the participation work they do and to rethink the knowledge production that goes on in museums and that still drives museum practice (Lynch, 2016). I have in this chapter endeavoured to tell stories about how the conducting of participatory methods in exhibition-development processes is not only about how museum professionals work with specific groups of audience but also about how

their colleagues and managers welcome and emphasise the results of participatory processes. In this way, participatory work becomes an institutional practice and a measure of quality in how a museum relates to its audience and to the society of which it is part.

Note

1 The CPD modules gave 30 ECTS credits, and participants in the CPD modules automatically became participants in the research activities of EXPAND.

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Part IV
Incident(al) readings

Vince Dziekan

1

Photographs do much more than provide a documentary account in image form; rather, they present a particular way of thinking (about people, places and things) and archiving those insights (that goes beyond the fact of recording their mere existence; intuited below the surface and read between the lines). They are literally and figuratively points of view, or views from and with a point; a purpose. In their collective form, *these* photographic images become a Latourian assemblage that brings different objects into clos(er) association; or conversely, draws together similar objects with differing motivations. The excised fragments of this inventory act as *pavilions* to a human geography whose elemental features reveal the ways human activity affects and is affected by its relation with the cultural environmental or *milieu*: a mediated relationship inflected by this French term, meaning "middle place."

Photographs are pavilions, and pavilions, photographic. They share certain qualities that relate to being in-between time (temporary; temporal) and space (connected; detached). The act of seeing establishes our place in the surrounding world (Berger, 1972). Pavilions are temporary and detached structures, most commonly erected for the purpose of hosting events or spectacles; ceremonies of seeing … itinerant platforms that redirect focus – even if only momentarily – towards:

> A pavilion that "stripped of its glass, mullions, doors and roof, … no longer focuses viewers inwards, but opens to the Giardini, and to the surrounding world" (Canada, p. 38). Or one that constructs a post-cinematic platform in which bodies perform their "transformation into consumable images" with every auto-portrait or *selfie*; such a pavilion describes a world in which the camera itself becomes a performer that co-exists between represented and depicted realities (Pfeffer & Smolik, 2017). These incidental spaces (are we now referring to the art, architecture or the photographs themselves?) are accessed not in a direct, straightforward fashion (entered ceremonially via a framed Greek revival portico, for instance) but inauspiciously, through the side door.

2

In photographic terms, in order to determine exposure an incident reading is used to measure the light source itself, rather than that reflected by its "subject matter." If this technical operation was inflected critically, what would the extra-linguistic discourse of these resulting images reveal, latently … about the interactional aspect of "art" and its contemporary infrastructures: the "museum" (as cultural construct), media (that give it shape and form) and communication (that inflects meaning and value)? An incident(al) reading of these images turns focus to the foundations, environments and practices of the milieu in which we find (or "happen upon") art today. Exhibition environments connect bodies (people, things, familiar and defamiliarised objects) and realities (real, imagined, designed); a cultural script that inscribes in minute gestures and details a social code; "a sense that power structures are lurking in the background, invisible to the audience" (Pfeffer & Smolik, 2017).

Incidental: An ancillary by-product; occurring off-stage; to one side. Photography deployed obliquely; angled and edged. A sideways glance disguised in a flattened, frontal view. Interpretative rather than documentary. A redirected investigation whose thought-lines constellate within the notes recorded in field books and amongst the images of a proof sheet. Surely, it is too grand to stake a claim for these photographs as an aesthetic sociology: "An everyday aesthetic rooted not in distance from the world, but as immersed in the routine and mundane 'search' which sometimes informs, other times is informed by, aesthetics in cultural production" (Olcese & Savage, 2015, p. 721). Or is it? Beyond documenting customs and behaviours, these (ever-)formative observations appear fascinated with (the appearance and disappearance of) phenomena and the existence of things barely glimpsed; they celebrate the impossibility of capturing the momentary as a "stable state" (Macel, 2017, p. 29). These images are about noticing: ways of seeing that indicate – if not more directly expose – the discursive practices of museum communication: delicately poised encounters that "unsettle" what we see from what we know or understand. Considered more so than captured from multiple vantages and degrees of remove and situated knowing.

3

In picturing these extended manifestations of museal experience – from above, beneath, behind and around, dilemmas are traced in light and shadow; discerned in patterns of continuity and anomaly that emerge as a consequence of the museum's embedding within the broader social and media environment. A culturescape surfaces from the meaning-making processes that museums and cultural institutions frame and reconstruct using auxiliary instruments – such as biennales, festivals and cultural events – as "event-structures."

In this latest instalment of the Venice Biennale, the shape that these disturbances assume are symptomatic of a curatorial conceit – around art bearing witness to "the most precious part of what makes us human, at a time when humanism is precisely jeopardized" (Macel, 2017, p. 16) – that ultimately leads nowhere. Rather than cultivating a fertile ground for art's reinvention of the world, this instalment of the biennale exuded the air of a "memento mori"; its flatness exposed, leaving it open to criticism for being full of earnest well-meaning but devoid of incisive wit, irony or edge.

> Such moments are few and far between, and demand searching out … innocuous wedges that hold doors ajar, inviting furtive entry. A masquerade of deconstructed parts; an empty stage that brackets an implicit call-to-Pirandellian* action.

To breathe life. To compose (our own) narratives from "bodies, sound and architectural spaces [that] overlap, interpenetrating until a brief congruence is reached, only to break apart moments later" (Germany, 2017, p. 64). While the aspiration of the biennale to ensure art's vitality and longevity will (al)most certainly live on (cue the Biennale exhibition's title: "Viva arte viva"), it might just end up doing so in ways that we may well find (increasingly) difficult to recognize; to distinguish "cultural communication" from the mediatised experience of contemporary life/forms and the act of living itself.

4

*Postscript: With reference to the Italian dramatist Luigi Pirandello; most notably illustrated in his play *Six characters in search of an author*, which recounts the fate of a group of characters whose destinies have been left unrealised by their author. In an act of collective desperation, they hijack the rehearsal of another play written by Pirandello, *The rules of the game*, demanding that their story be staged in its place in an effort to resolve its incomplete narrative.

All works from the photographic series: Vince Dziekan, *Incident readings (Venice Biennale)*. Photograph © Vince Dziekan, 2017. In tribute to my incidental teachers: Henri Cartier-Bresson, Robert Frank, Lee Friedlander and Duane Michaels.

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IV.1
Visual essay

Vince Dziekan

RUSSIA
EXIT

STATI VNITI
D'AMERICA

A dog with two homes is
never
Irish Saying

la Biennale di Venezia
57. Esposizione Internazionale d'Arte
Partecipazioni Nazionali

VIVA
ARTE

CRESCERE A COLORI
GIOTTO
VIVA
ARTE

VIVA
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Biennale Educational 2017

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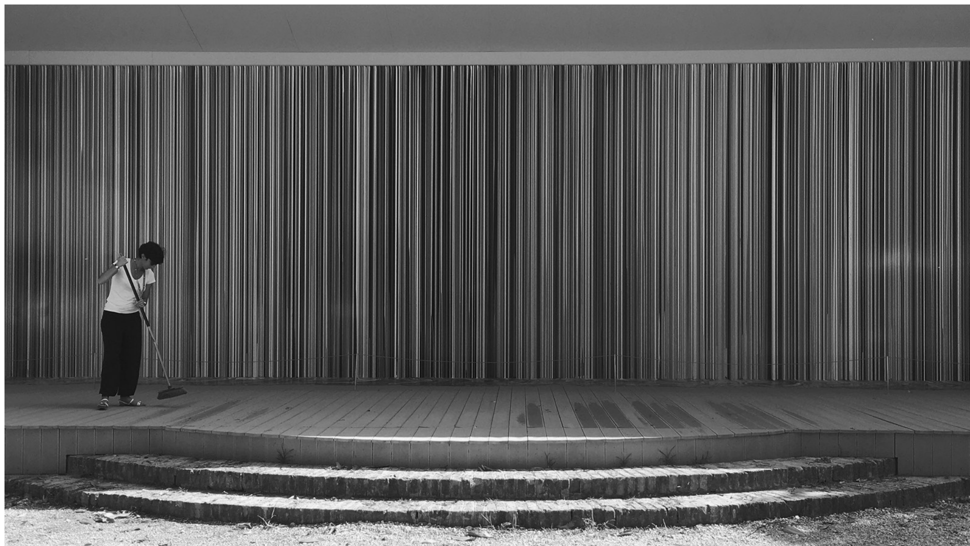

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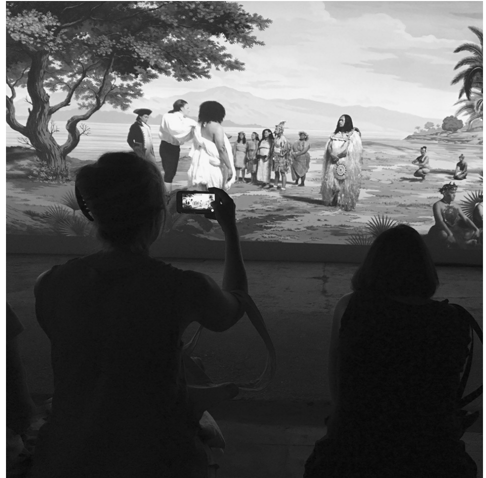
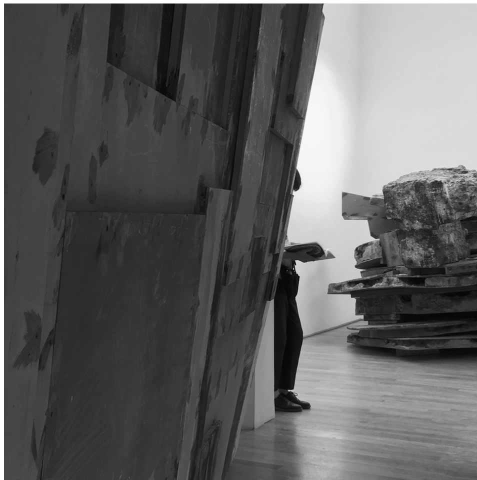

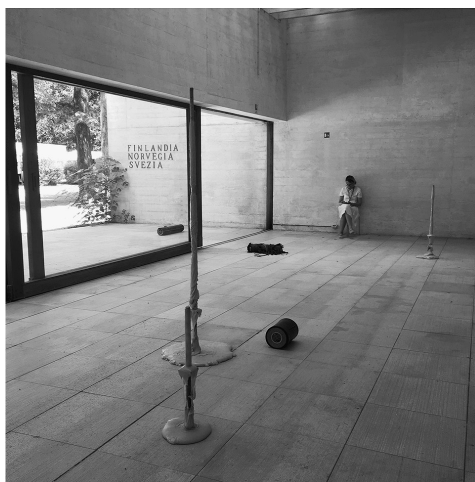

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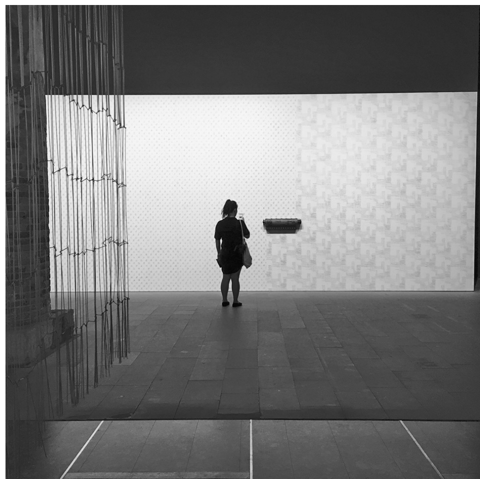
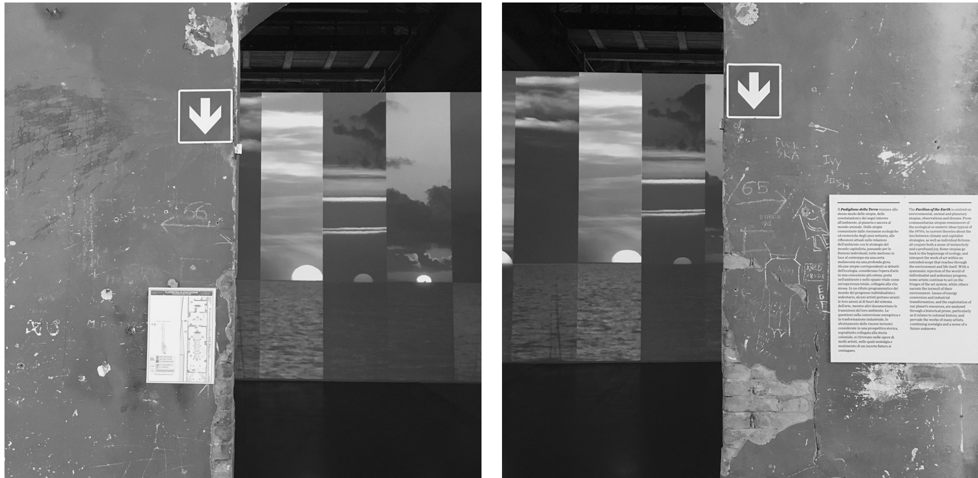
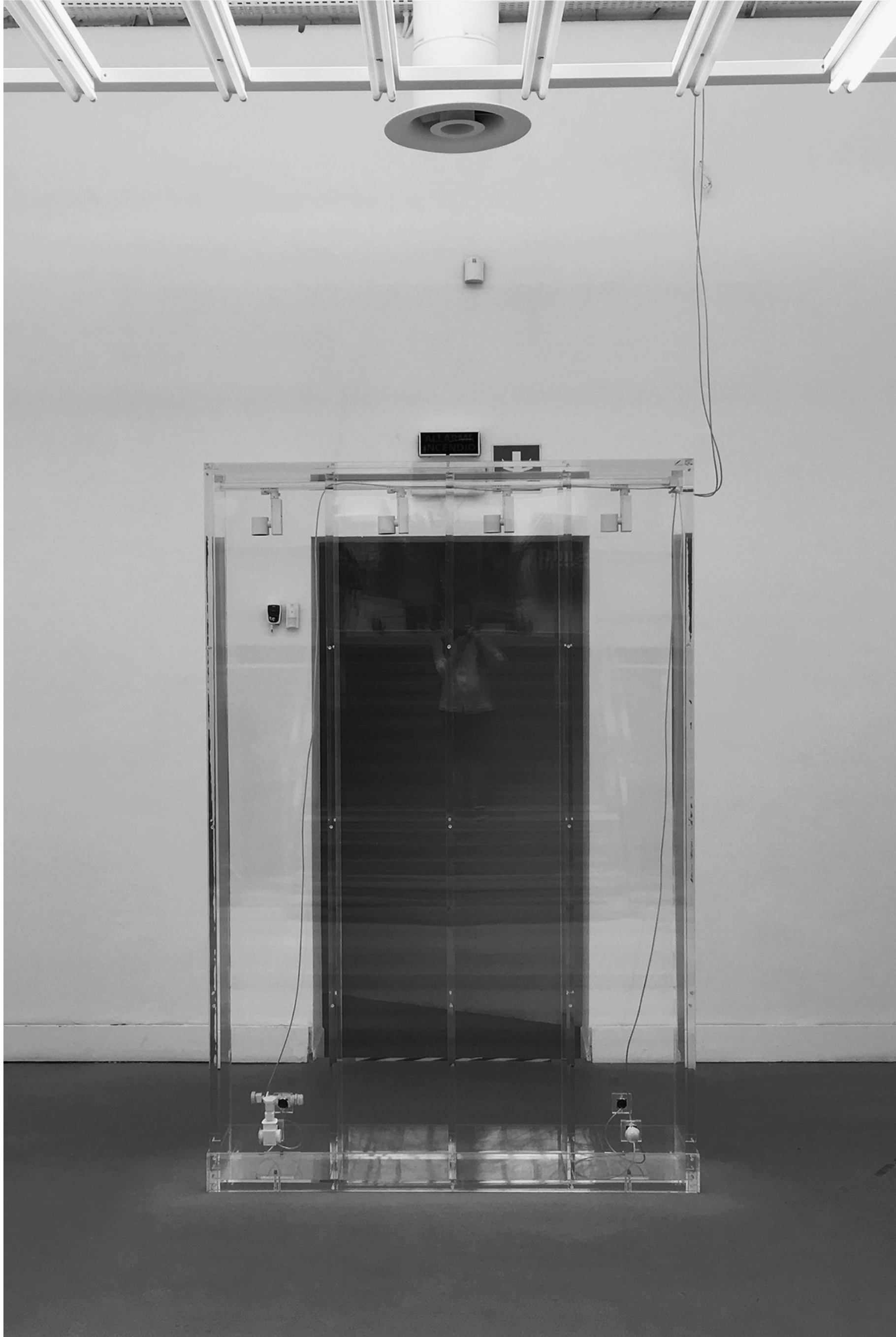
NORVEGIA
SVEZIA



an artwork
for after
/ and later
training exercices to catch the artwork ecosystem
you're with your friends.
you're talking about the artworks you've just seen.
the conversation you're having is the place to get it.
'cause that's where things happen
(that's one of the many sites where artworks take a public form.)
what can we get from an ordinary conversation ?
in that conversation, what if we were not talking about an artwork,
what if the artwork was activating itself through our conversation ?
the training is an artwork made for other artworks and is made for
after this show (the morning after): you can use it anywhere, any time,
with anybody.
1. augmented by other artworks
"that makes me think of this other artwork!", "do you know the work of this other artist ?". in conversations, artworks are activated by being inscribed in a family of artworks. those families are contingent to each viewer and each situation. an artwork contains many lineages.
3. the practices
which actions does the artwork needs to be made, activated, and maintained ? and when, and where, and how ? can we decompose an artwork in a series of actions ?
5. lifespan
what is the lifespan of an artwork in a conversation ?
2. augmented by ideas and controversies
an artwork gets discussed through topics and issues. it is usually described, evaluated and activated by mobilising series of arguments.
4. the collectives
how many people take part in it, and when ?
6. distribution / circulation
how was the artwork discussed in your last conversation ? was it through a monologue, a set of questions-answers, a series of statements ?


Il *Padiglione della Terra* riunisce allo stesso modo delle utopie, delle constatazioni e dei sogni intorno all'ambiente, al pianeta o ancora al mondo animale. Dalle utopie comunitarie dalle risonanze ecologiche ed esoteriche degli anni settanta, alle riflessioni attuali sulle relazioni dell'ambiente con le strategie del mondo capitalista, passando per le finzioni individuali; tutte mettono in luce al contempo sia una certa malinconia sia una profonda gioia. Alcune utopie corrispondenti ai debutti dell'ecologia, considerano l'opera d'arte in una concezione più estesa, posta nell'ambiente e nello spazio vitale come un'esperienza totale, collegata alla vita stessa. In un rifiuto programmatico del mondo del progresso individualista e sedentario, alcuni artisti portano avanti le loro azioni al di fuori del sistema dell'arte, mentre altri documentano le transizioni del loro ambiente. Le questioni sulla conversione energetica e la trasformazione industriale, lo sfruttamento delle risorse terrestri considerate in una prospettiva storica, soprattutto collegata alla storia coloniale, si ritrovano nelle opere di molti artisti, nelle quali nostalgia e sentimento di un incerto futuro si coniugano.
The *Pavilion of the Earth* is centred on environmental, animal and planetary utopias, observations and dreams. From communitarian utopias reminiscent of the ecological or esoteric ideas typical of the 1970's, to current theories about the ties between climate and capitalist strategies, as well as individual fictions; all conjure both a sense of melancholy and a profound joy. Some utopias go back to the beginnings of ecology, and interpret the work of art within an extended scope that reaches through the environment and life itself. With a systematic rejection of the world of individualist and sedentary progress, some artists continue to act on the fringes of the art system, while others narrate the turmoil of their environment. Issues of energy conversion and industrial transformation, and the exploitation of our planet's resources, are analysed through a historical prism, particularly as it relates to colonial history, and pervade the works of many artists, combining nostalgia and a sense of a future unknown.


INCENDIO

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Part V
Directions

Kirsten Drotner, Vince Dziekan, Ross Parry and Kim Christian Schrøder

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To this point in the volume, the previous chapters have helped to illustrate and evidence an idea of the "mediatized museum": not only within a modern society infused by a proliferation of omnipresent media technologies, but a museum that is also a unique media environment, of itself, in which communicative media is a constitutive property. By looking back at over a century of innovation, design and communication, Part I (Foundations) showed not only the fundamental part communicative media has played within the museum, but – in doing so – attempted to demonstrate the value of historicity and a time-based perspective in our scholarship around museum media. Then, calibrated against both administrative (politico-managerial) and critical (socio-cultural) concerns, Part II (Environments) mapped out a series of wider ecologies into which museum mediatisation needs to be understood. Aware of both these temporal (historical) and spatial (environmental) contents, Part III (Practices) then turned its attention to everyday practical applications of media, as well as to the complexities of new and emerging modes of working that are coming to characterise mediated modes of communication in the museum. Part IV offered a visual expression of the relationships formed between the museum, media that give it shape and communication which inflects meaning and value. Set out across these previous four parts has been this volume's claim for seeing the museum permeated by technologically-mediated forms of communication. But it has also been a claim for conceptualising museum media as an ensemble, specifically a trialectic between: the material and symbolic properties of communication technologies; the modes and processes of meaning-making; and the dynamics of museum practices.

The chapters in this final part (Directions) sustain this sensibility to the historical, this openness to the interdisciplinary, and this circumspection to a more holistic and inclusive view of media and mediatisation – within and without the museum. Together, they consider the datafication of culture, the overlapping ubiquity of media technologies, and the proliferation of digital platforms – from virtual reality and augmented reality, and from smart data to social media. In doing so, they circle back to the properties of a mediatised society, with which this volume began. Here, however, the attention is primarily to the future trajectories of scholarship, to emerging themes of research, and to new evolutions in practice. As a group, these chapters animate for us (as previous chapters have done) the breadth and diversity of the enquiries already active around museum media and mediatisation. But – more specifically – this part is also intended to point principally to new questions, alternative approaches and likely challenges ahead.

The authors of this part were selected to offer a set of contrasting subjects and perspectives. This, after all, is about sharing and setting in motion multiple academic and practice-based directions, rather than providing a single manifesto or model. Intentionally, therefore, the authors here are new writers and emerging scholars alongside established and esteemed academics. Some are practicing curators, others active researchers, and some are both. Some are writing from within museum studies, some closer to media studies, others elsewhere – from cultural studies to business studies, and from sociology to anthropology and pop music studies. Likewise, their subjects are intentionally varied and contrasting, representing waypoints and bearings to multiple future trajectories for museological research and curatorial practice.

In the part's first chapter, Lauren Vargas considers the communicative media of museums within a wider data landscape that extends beyond the walls of the institution. Her focus is on the multiple forms of operational, experiential and visitor data (beyond simply collections data) that is available to the museum, and the opportunity there is not only to connect these datasets in new ways, but to then use them to inform the choice, usage and design of communicative media in the museum. For Vargas, it is, specifically, the power of "big data" (harnessed as "smart data") through which museums can "frame new forms of more personalized communication with their visitors."

Another alternative but equally arresting direction of practice and research is framed in the next chapter by Sarah Kenderdine and Andrew Yip as they consider the possibility of accepting digital copies as authentic objects. Whereas Vargas reflects on the dilemma of being confronted with a massification of data, here the authors confront another new problem associated with modern developments in technology – namely, what happens when communicative media can "produce sufficiently high resolution to produce visual replicas with a spatial and structural integrity that respects the original's materiality"? Rather than seeing authenticity located in the materiality of an object, they see a direction of curatorship and scholarship (stimulated by the arrival of these new high-fidelity digital copies) in which the idea of authenticity is understood instead at the confluence of "material concerns, digital mediation and viewer perceptions."

Kenderdine and Yip's questioning of museological orthodoxy is taken even further in the next chapter, by Pirrie Adams. And again, as with the previous chapter, this is an example of mediated communication and media technologies acting as both a practical and an intellectual challenge to the defining tenets of the museum. Whereas with Kenderdine and Yip it is the presence of digital veracity in copies and simulations that challenges our notion of the authentic, here it is the ubiquity and normativity of media technologies (and specifically digital media technologies) that challenges our notions of collection, exhibition and interpretation. Working from the premise that communicative media has a constitutive (rather than simply additive) role to play in the museum, Pirrie Adams' proposition for a mediatised museum is one in which the language of computation and interface design is used to describe the core provision of the museum – therefore aligning it, as she says, "with the symbolic forms of the prevailing culture."

Core museum principles are again challenged in the part's fourth chapter, although this time with respect to the body, embodiment and the sensory. Here, Maholo Uchida and Jingyu Peng reflect on the awakening of creative practice and scholarly enquiry that has accompanied the "sensory turn" in museum studies. In doing so, they highlight important dilemmas for future work. Not least that there remains a tension between activity in this area that looks to strip the communicative technology away and reflect and focus specifically on an unmediated sensory experience for the visitor, and that activity which in contrast sees afresh new interest in the sensual as a means to creatively explore new modes and applications of communicated technology and in-gallery digital experiences – from the multi-sensory to the immersive and the multi-user.

The courage to expose and articulate difficult challenges and dilemmas is then amplified in the last chapter in the part. In contrast to the optimism and confidence of the previous chapters, Ien Ang ends the volume with a soberer note of caution and mindfulness around what she sees as the "limits of the museum's communicative power." Reminding us of the assertion made at the start of this volume (that a study of media and mediatisation ought not fixate on digital technology), Ang chooses to set down media technology and instead turns to the other parts of the museum media ensemble – towards the modes of meaning-making and the dynamics of practice. Specifically, by evoking Falk (2009), she challenges any future direction for media and museums to acknowledge that the relationship between diverse audiences and the diverse content of the museum is "complex, contradictory, and uneven." Through her discussion of the museum as "a pre-eminent space of representation," our frame of reference draws back and widens, and we see museum media in a global and societal way. And as we do, we are asked to problematise the construction of a single "public," to recognise the challenge of communicating with a diverse multicultural audience and to adapt to what she calls "more postcolonial, multicultural and transnational times."

Crucially, these forward-looking chapters demonstrate a set of new starting points, terms of references and modes of working for the subject of media and museums. The predications for these lines of enquiry in this part come from technology industry writers such as dana boyd and Kate Crawford (2012) – guiding, as they do, Vargas to fundamental questions around consent and the ownership of data. Similarly, it is business studies and information studies that provide a reliable street atlas to navigate the new and unwieldy world of big data (Cukier & Mayer-Schonberger, 2013). It is the philosophy and sociology of Bruno Latour and Adam Lowe (specifically on the relationship between an original work of art and its facsimiles) that forms the platform from which Kenderdine and Yip are able to consider an opportunity for authentic engagement with a physical object that is absent (Latour & Lowe, 2010). Whilst it is the computer science of Lev Manovich (2001) that provides the "foundational text" for Pirrie Adams' assumptions concerning the effects of computerisation on society as a whole, and for understanding both the symbolic and material forms of media. Contrastingly, it is from design studies and theatre studies that Uchida and Peng are able to respond to the rise of the sensorial, with a practical set of scenographic methods (Lam, 2014). Whereas Ang, in her mobilisation of the work of Sandell (2002) on social inclusion, and Schorch, Waterton and Watson (2017) on "affective cosmopolitanism," reminds us of the central core of museum studies scholarship that will continue to drive this subject area – if joined increasingly by the insights of other disciplines.

Amidst this multi-disciplinarity and inter-disciplinarity, we also – excitingly – hear a new language of museum media research emerging. This is the language of the "terroir" (Vargas' term to describe the unique characteristics a museum's wider demographic, physical and media environment); of "digital materialities" and of "auratic virtual experiences" (that Kenderdine and Yip use to articulate their new authenticities); of the "sensorium" (that Uchida and Peng evoke to capture the museum as a distinctive multi-sensory space); as well as the language of "assets," "platforms" and "affordances" (Pirrie Adams' daring media-informed re-expression of the collections, exhibitions and interpretation). These are not hollow and performative neologisms. Rather, they stand, meaningfully, as further evidence of a subject substantively and genuinely re-aligning itself as it continues to reflect on museum mediatisation.

The chapters in this final part project a series of propositions and provocations on how both scholarship and practice around communicative media in the museum might be approached. Rather than closing and concluding, their approach here is to initiate and to lead. Vargas challenges us to "think forward about how data is structured and shared amongst museum professionals." Kenderdine and Yip resolve that much broader continuing research is required "to

determine whether visitors to fine arts museums assess virtual copies on equal footing with original objects." Pirrie Adams alerts us to "a pressing need to develop a methodology for media analysis from the concept of 'assemblages,' which holds promise but at present remains somewhat abstract." Uchida and Peng accept the need for "new conceptual frameworks for our criticality – frameworks that might involve a multi-sensory body, moving through a multi-channel space and an elapsing time." And, without compromise, Ang points to the requirement for "a more fundamental change in the representational strategies of museums towards inclusiveness of plural perspectives of the nation." Together, their fresh insights and new writing represent a call to action, responding to what we now know and showing us where we might head next.

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V.1

Smart media

Museums in the new data terroir

Lauren Vargas

According to Internet giant Google, five exabytes of information was created between the birth of civilization and 2003. That same total of information after 2003 is generated every two days (Kitchin, 2014, as quoted from Hal Varian, chief economist with Google in Smolan & Erwitt, 2012). Confronting this phenomenon, this chapter considers how – in the age of "big data" – museums have the opportunity not only to understand behaviours of visitation, but to form new connections with their visitors. The discussion considers some of the ways museums are responding to the necessities and opportunities of big data, and how they can mine for information about their visitors through new forms of media in order better to understand the wants, needs and challenges of the communities they serve. In particular, the chapter considers how museums may begin to think about "big data" in the context of the experiences, best practices and scholarship developed outside of the cultural sector. The chapter suggests that with the knowledge of this power of "big data" and this rapid growth, museums have the opportunity to frame new forms of more personalised communication with their visitors.

Drawing from the maturing scholarship of "information ecologies" (Nardi & O'Day, 1999) amongst other researchers and business pioneers who are transforming data-informed analytics, the approach here is to present how organisations have been, and are still, challenged with the technology and conceptual frameworks and language circulating around "big data." Our discussion here will consider, therefore, how visitor collection data and media might be seen as, in essence, the "terroir" of the museum. Here, "terroir" is the contextual characteristics unique to a certain place that influence and shape its character. In agriculture and ecological terms, a "terroir" is the soil, the topography and the climate that collectively give produce a particular characteristic. For cultural institutions, "terroir" might, therefore, be attributed to the type and size of the museum, its visitor demographics, its physical location and all forms of media. Collectively, this information produced within the museum may potentially be a big data set and is influenced by external variables that may or may not be within the museum's control.

The volume, velocity and variety of data today are influencing change across "informational ecologies" – as originally defined by Thomas Davenport (1997) and then expanded by other knowledge management researchers as "the system of people, practices, values, and technologies in a particular local environment" (Nardi & O'Day, 1999, p. 49). Successful data integration and knowledge sharing not only requires an original lexicon for use and understanding of the

information but also the financial, technical and human resources to extract insights from the data relevant to the needs, goals and objectives of the organisation. Our discussion here works from the assumption that, currently, there is no single solution or platform for obtaining, storing and analysing the combined museum physical space, object and personal or sociocultural data. Therefore, it is also suggested here that institutions might instead be better served by bringing together an array of separate operational, experiential and visitor data sets.

Defining big data

The essence of big data is the ability to economically capture and collect very large amounts of data of various formats and consume this raw material in real-time, making data viewable at the granular level. Much of the study around big data has been limited to the discussion about the growing volume and the defined amount of data being explored, outside of any agreed academic or industry definition of this data's characteristics (Kitchin & Lauriault, 2015; boyd & Crawford, 2011). Due to past technological constraints of data storage, only what was deemed important information was sampled and later analysed. The paradigm shift of how big data is collected and analysed may be described as the ability to see the forest and the trees, rather than just the forest. With big data, organisations can see the big picture view; unlike with "small data," where very specific data sets produced using sampling techniques tend to limit the volume, velocity, variety and veracity of information captured (Miller, 2010, as cited in Kitchin & Lauriault, 2015). In other words, "small data" is the study of the tree instead of the forest.

For context on how big "big data" may be or become within the museum sector, consider the extent to which the Internet has transformed the communication data landscape. In 2016, every second, approximately 7,000 tweets were tweeted, almost 800 Instagram photos uploaded, 136,000 YouTube videos viewed, 39,0000 GB of Internet traffic, over 57,000 Google queries searched and two million emails sent (Internet Live Stats, 2016). University of California communications professor Martin Hilbert, citing Papas, has commented, "[t]he Internet stores information, the Internet communicates information and the Internet computes information. The communication capacity of the Internet can be measured by how much information it can transfer, or how much information it does transfer at any given time" (Pappas, 2016). Therefore, it is important for museums to be able to define and distinguish the various data being captured and collected so the institution can better make sense and use of the information in the context of the goals and expectations of itself and its community. New forms of media and communication, enabled by the Internet, are producing data that museums may extract and analyse alongside traditional structured data kept in customer relationship management (CRM) systems to spawn improved visitor experiences.

In their seminal study of the scale and depth of this digital transformation, *Big data: A revolution that will transform how we live, work, and think*, authors Viktor Mayer-Schönberger and Kenneth Cukier define big data as "the ability of society to harness information in novel ways to produce useful insights or goods and services of significant value" (Cukier & Mayer-Schönberger, 2013, p. 2). The revolution is not how or what data is being collected; rather, it is how or why full data sets are conjoined and interpreted versus sampled data sets. Technology researchers danah boyd and Kate Crawford state the importance of big data is the "relationality with other data," and that this is what is changing the definition of knowledge in ways similar to the innovations of Henry Ford developing mass production and the Industrial Age (boyd & Crawford, 2011, p. 3). Just as Ford revolutionised industrial production in the first half of the 20th century, big data is revolutionising the way organisations are organised and managed, as well as learning about who is consuming their products and services and why. The information age is giving way to

a knowledge age (Martin Hilbert, as cited in Pappas, 2016), where the sum of an institution's information is available for investigation in company with behavioural and use data from external sources.

Boyd and Crawford not only espouse big data benefits but also caution the industry that the effects of "big data and whole data are not the same" (2011, p. 7). Big data possibilities may have spurred data-driven thinking, but small data may prove to be more attainable and effective to push for deeper data-informed thinking and data-based decision-making. The challenge, therefore, for institutions such as museums, is to bridge big data with small data, resulting in a valuable business objective. The value to be achieved is recognising an element within a large data set that requires deeper understanding with smaller data sets that then produces next-best actions for the organisation to implement. Some critics of using big data exclusively, such as Rob Kitchin and Tracey P. Lauriault (2014), note the merits of small data as the conjoining and scaling of disparate data sets to be used with big data analysis. Whilst both big and small data have their weaknesses, the fusion of their strengths may result in a more holistic outlook of the museum's visitor, operational and transactional data.

Big data infrastructure and value is still difficult to obtain at scale and requires long-term strategy and planning. Depending on the goals and objectives of the cultural institution or department, small data thinking may pave the way for big data successes. Trends like those captured in a *NMC Horizon Report* predict that museum education and interpretation are increasing the focus on personalising experiences in museums and focusing on the power of data analytics to inform museum operations (Freeman et al., 2016, p. 1) and the purview of small data. Museums could develop a framework embracing the development of data collection and use by blending big and small data sets with an infrastructure designed for big data with systems integration and networked data sets. Then small data via visitor personalisation opportunities and omni-channel experiences have the potential to become more consistent and attainable for the museum. The museum would then have immediate access to interpretation and use of this new media and communication data.

Until the advent of pervasive media and communications, data organisation, management and consumption tended to focus on collections management. For over a decade, museums have been in the process of digitising their collections with the aim of documenting better knowledge and interpretation of their collections by their users. Consider the comprehensive overview of museum technology advancements moving into the 21st century shared within *The wired museum*, where Katherine Jones-Garmil (1997) outlines the steps taken by museums to move from collections to content management system development, and the need for required planning and resources to support these investments. The more recent ability to analyse user activities across interactive media to question and study the global cultural universe is an additional future opportunity and benefit of big data. Media theorist Lev Manowich (2015, p. 1) coined the phrase "cultural analytics" in 2005, meaning "the analysis of massive cultural data sets and flows using computational and visualization techniques." Third-party data about what people post to social networks and how they interact with content and each other is now accessible, and the technology to process and visualise such data is available. Manowich has advocated the study of large data sets with multiple variables, referred to as "wide data," that seek out "new similarities, affinities, and clusters in the universe of cultural artefacts, but first of all, help us question our common sense view of things, where certain dimensions are taken for granted" (Manovich, 2015, p. 13). The challenge cultural institutions face is centred on the new skills required to weave data-informed critical analysis into every aspect of the museum's culture and terroir. It is up to the museum to choose to work with small-scale data or attempt to capitalise and learn from big data.

Therefore, as a first attempt to frame a way of thinking about (and working with) new forms of media, museums might consider the following processes as a useful proposition for the collection and use of both big data and small data. If one were to begin to set out the array of questions and new operations that big data brings to the museum, they could be dissembled as follows to inform and support a data-informed foundation. The activities described in each step of the framework may be executed in sequential or parallel order. As we set these steps out, we are only now exposing the new complexity (and opportunity) of big data management within the museum and the methods with which data may be understood, associated and explained. This is the museum data beyond the era of collections data and visitor metrics. The culmination of these steps is the establishment or enhancement of a data-rich terroir and information ecology present in all museums yet having a unique interpretation and application with each museum.

Step 1: Developing a "single source of truth"

First, any museum developing its new big data operation needs to start by understanding its information systems design and identifying a single source of truth (SSOT). This SSOT is essential in the creation of data models so that every data element is stored only once. Every physical and digital transaction within the museum is documented and, in some cases, tracked and analysed. The breadcrumb trail of data left as organisations and people conduct business online, both behind and outside of the firewall, is referred to as "data exhaust" by O'Reilly Media Company Research Director Roger Magoulas (Lorica, 2010). Such vast amounts of data may lead to incorrectly linked duplicate data or de-normalised data elements if a SSOT architecture is not advocated for and maintained. There is a broader question as to if the data should be stored or if organisations can use analysed and synthesised data findings as the SSOT. Cultural institutions may be feeling pressure to package and interpret data to build dynamic structures and experiences for the everyday visitor and risk incorrect, outdated information if not pursuing a SSOT model. A museum can collect and act on the "data exhaust" of visitor and development data to build a more in-depth view of visitors; provide a standardised, central personal and sociocultural context database across the institution; and perhaps increase customer service in the hopes of increasing membership and donations.

Data in and of itself does not provide a narrative. It lacks context and empathy as well as the ability to understand the sentiment of the individuals making up the collected information. It is simply raw data, both structured (data stored in a traditional format like that of a CRM) and unstructured (data that is not easily stored or indexed in traditional formats like email and social media conversations). Many organisations have this data being collected and stored in multiple locations rather than a SSOT structure promoting interconnected information. Museums have the opportunity to combine visitor information with artefact information to create a rich base of knowledge that could positively inform exhibit design, marketing efforts and interactive visitor experiences that span multiple touch points in and outside of the physical museum space. One of the ways to take advantage of this opportunity is to change visitor information collection processes and database design by allowing employees across the museum access to this data, thereby freeing or democratising the information. By identifying integration points and altering the collection of visitor information, the data sets of museum objects and people can be analysed and accessed alongside each other to determine actionable insights to improve the visitor's museum experience. Yet, it is not the technical limitations that are an obstacle for most organisations but the strategic and organisational challenges of such a connected environment (Malik, 2013).

There are models and exemplar outside of the sector, for instance, that can illustrate ways in which museums might interact with the many communities they serve, and that can show

how interactions and feedback loops can be collected to build more contextually relevant visitor experiences. For instance, the leisure industry can offer some strong examples of expanding the collection and use of data. The most vivid illustration is the way in which data is managed at the Walt Disney Company. Since it opened in 1971, Disney World has been a family destination. From Mickey ears to princess dress-up studios to meticulously painted details on park sets, Disney created an experience people enjoy more than once. Disney keeps upping the price of the experience. Disney World has a return visitor rate of 70 percent, and for every 1 percent increase of customer retention, profits soar 7 percent (Connellan, 1997, p. 6). Disney has woven together science and animation. For the effortless experience of scheduling breakfast with Cinderella, Disney trades a frictionless vacation for personal information. The second a park visitor steps off the airplane, a scan of their Disney MagicBand places them and their family or friends at the centre of action. No hassle required. The MagicBand is an experiment of human engineering.

Context-aware technology is the result of decades of engineering. The MagicBand was a $1 billion dollar bet on "big data" value. A seemingly simple plastic wrist band with RFID chip tracks your every move and anticipates your needs as you move from the airport to the resort to any one of the parks. Disney has cultivated the Magic Kingdom experience for decades from the TV screen to the physical park experience to the online expansion. No detail is too small. The magic is a contained physical and digital environment, and it is because of this clear separation from reality that Disney is able to obtain visitor information that in any other environment may appear intrusive (Kuang, 2015). Once children are snug in their beds and parents are fast asleep after a long day at the park, the magic behind the curtain is revealed. Chipped paint is refreshed; sidewalks are cleaned and the parks return to their sparkling appearance. Through an intricate set of underground tunnels and trained staff, guests never see the mess behind the experiences and creation of memories. This attention to detail and storytelling craft is the result of Disney needing to get better and faster at knowing where, when and what visitors were consuming in the park.

The less time visitors wasted in line at the park or other friction points in transition between the parks and hotels, the more time they could spend at the park and increase Disney business. The gains in technology were targeted to improve customer service efficacy and park effectiveness, ultimately impacting Disney's financial performance (Pedicini, 2016). In exchange for convenience, clear information policy, and Cinderella addressing the visitor by name, visitors give their credit card information and Disney receives a detailed view of how they spend their time and money.

While the MagicBand initiative gained considerable media attention since the formal launch in 2013, the project to develop a streamlined data collection for the improvement of visitor satisfaction started as experiential operation. The team crafting the networked experience started with five people. Challenged with identifying all the barriers for a faster attraction visit, the Fab Five team, as dubbed by fellow Imagineers, drew inspiration for their recommendations from wearable technologies (Kuang, 2015). They envisioned a park with kiosks instead of turnstiles that synced with the wristband and ended with a flash of green and a "pleasing tone" granting entry or cash register transactions (Kuang, 2015). A matrixes network of sensors has paradoxically allowed for more ease and spontaneity by offering pre-planning and advanced personalisation. The redesigned Disney experience thrives on making people happier by giving them more choices instead of limiting their number of options. The information does not start and stop within the parks either. While commenting on the intricacies of cross-channel experiences, Thomas O. Staggs, Special Advisor to CEO, Walt Disney Company, said:

> Also, I believe if you look forward as we increasingly establish those direct-to-consumer relationships, that expertise in customer engagement will be a skill set that's transferable

> around our business, even if you're not handing off an ESPN consumer to other Disney businesses. (Fritz, 2016)

The MagicBand had collected reams of data to analyse visitor behaviour to conceive and design many more features going beyond what is currently possible. The information not only makes the Disney park experience more accessible, it also develops a new workforce profile to serve visitor needs regardless of media, communication or physical space.

The end experience may appear seamless for the Disney visitor, but not so simple in the creation of infrastructure or the protection of the data elicited with every swipe of the MagicBand. There are numerous privacy concerns and challenges that accompany any data project. To extract value from data, museums should be clear with visitors about what data is being collected and how this data will be used. What the Disney example shows so overtly to museums is the powerful connection that can exist between the collecting of data and the generation of a frictionless visitor experience. In their own SSOT structure, museums may take inspiration from this example and organise around visitor behaviour, scale relevant knowledge across the institution and set the stage for a seamless approach to user experience.

Step 2: Establishing ever-connected and augmented experiences

Once technology is integrated into daily life and each platform, device and media are used to interact, the groundwork for a seamless user experience is then set. As new technology opportunities enter into the communications and media mix, museums are challenged with how to incorporate the activity into an already rich and complicated interconnected information structure. Visitor behaviour and patterns now extend beyond controlled observations to include tracking methods using indoor-way finding technology. Museums are discovering their role in the Internet of Things movement and how they can expand the relationships between visitor and collection to bring innate objects to life. For example, the Royal Ontario Museum in Toronto launched the augmented reality (AR)-enabled "Ultimate dinosaurs" exhibit in 2012 to learn more about their visitors' behaviour using motion-tracking data, and they are among many museums experimenting with technology on the visitor experience (Rielad, 2012). Similarly, the Solomon R. Guggenheim Museum in New York allowed visitors to post messages on exhibits using smartphones and electronic transmitters dispersed throughout the museum (Gamerman, 2014b). In examples such as these, the museum sector is beginning to address the gap between the front-end visitor experience and the way in which this set of experiences is powered and connected with back-end systems.

Whether AR, social media or traditional visitor engagement studies, such interconnected data infrastructures are amassing information the museums have the opportunity to analyse in order to understand challenges, gaps and potentials for all digital and physical interactions. This raises the question of what a museum might learn from the presence of these data sets. How can all communication channels work together to provide a "360-degree view" of visitor behaviour so museums can offer a harmonious experience across digital and physical visits to their institutions? It is not the tools that make a successful data-informed culture and seamless cross-channel experiences; rather, it is the challenge of the status quo to rethink the institution's data collection and use policies and processes (Patil & Mason, 2015). Data collection, big or small, requires a guide to use and extract every relevant detail. This guide or direction is influenced by the museum's terroir. When reviewing the current state technologies and processes, Patil and Mason suggest this is the time to invite all areas of the institution to ask questions to better understand the data flow, unearth flaws or opportunities to evolve

the data collection and use and build a common language to discuss how the data is derived and interpreted. The direction of the museum depends on knowing what data is available, how this data may be used and recognising which outcomes impact the organisation and why. It is with this recommendation that the third step in the process is critical to achieving democratisation of information.

Step 3: Creating trustworthy dashboards and scorecards

With potentially vast amounts of data being generated from these new forms of media and communication, museums will also need robust and trustworthy mechanisms to visualise and monitor this data. In addition to an open discussion about data flow, a data-informed culture is fuelled by transparency of data performance and interpretation. Dashboards are a living, breathing extension of data infrastructure strategy and planning, and a useful business tool to help jump-start conversation and establish a common language for data collection and use (Patil & Mason, 2015). Building and sharing collective knowledge across an institution is an integral part of any digital transformation process and is not a new process for the cultural institution. It is important to note that dashboards capture a visual moment in time that is only as powerful as their data and insights design. Dashboards are a source of information, and action on this information is the goal or intended outcome of having a trusted dashboard.

For more than five decades as museums have sought out new ways to explore digital heritage, museums have examined the multiple ways information has been collected and examined. While this examination has almost exclusively been collections data, the probing of what cultural institutes have collected and why and its place in the digital future has already begun to take share in the exploration of these digital heritage pioneers since the 1970s. From their initial efforts, we can delve deeper to understand the depth and breadth of information the museum now owns or has access to explore. To prepare for the future, it is essential to understand the questions and learning that has preoccupied researchers in the past.

If a museum is to make productive and profitable use of information, it needs not only to define what information means for it but also to understand itself as a community of users of information, to recognise the "stakeholders" in information and to provide them with the means of negotiating over information (Orna & Pettit, 2010, p. 28).

The difference between those first discussions in the museum sector about data and the debates about present data sets is the presence of user information. Yes, the volume and veracity of the information has increased over time, but the information has moved from innate objects to animated visitors experiencing collections and employee interactions within the physical and digital museum ecosystem.

Rather than trying to capture all of this data, the dashboards and scorecards that include only critical information about the people, places, things, methods and events aligning with the cultural institution's purpose with corresponding narratives and alarms to trigger review and action, are tools the institution can manage without the tool managing the institution (Patil & Mason, 2015). While writing about the information revolution within the National Museum of Australia (NMA), Darren Peacock also explored the metaphor of information ecology and ecosystem and through a series of internal workshops and experimentation settled on the concept of "commonwealth of information" to epitomise the content versus collections management system direction in preparation of a networked information society (Peacock, 2008, p. 67). When Peacock shared this snapshot of strategic planning and thinking with the museum sector, the networked information society had yet to explode with the types of social media and ease of mobile or responsive communication. The scholarship surrounding the movement of

collections to content management systems or importance of best-of breed capabilities of both systems has led to this critical juncture where technology is beginning to offer museums ways to meaningfully connect the information stored and analysed in both alongside information from a broader set of media and communications resources.

If there is too much information, the tool may become intimidating and ignored, and if the dashboard or scorecard includes only those data inputs that give a sense of the outcome the institution wants to address, the tool may assist in identifying opportunities and refining processes. The flexibility is not in the tool chosen to visualise the data but the test-and-learn approach required to identify, collect and take action with the data and the skills required to help prepare and make sense of the information.

Approximately 20 years ago, Howard Besser challenged cultural institutions to understand the changing form of text and images into digital form and explore how museums could bridge and bond the still distinct "camps" of information practice centred on collections data and content management (Besser, 1997). In addition to Besser, David Bearman (2008) foresaw how collections data and interpretation would take on "a life of their own," and museums would need to reconcile museum knowledge. The questions big data bring into cultural institutions are an extension of those historical insights examined with newer technology processing and analytics capabilities.

Whilst there is a case to be made for museums to share data between each other, there is an urgency for cultural institutions to look to the past and questions asked to review data organisation, to prevent siloes of information capture and analysis and understand what data they have (how it is stored, the problems considered and the people who can manage and interpret the data collected) and how insights are turned into actions before common links are defined and shared with other institutions or community partners. Perhaps it is Jennifer Trant (2008) who more accurately challenged museums to expand their role in the ecosystem by reimagining their role with information ecology:

> But to play this role they need to be connected, organized, available, engaged and of relevance: connected to each other and to many communities that they serve; organized, so that the content in their care remains connected to related content in other institutions; available to a wide range of users in many different contexts; engaged with the active interpretation and documentation of their collections; and relevant because they are responsive to user needs and interests. (Trant, 2008, p. 288)

Information challenges and needs have been expressed by the museum sector for decades, and it is now that the sector has the ability to begin to tackle these requirements in earnest as technology has matured. Using history as the guide, institutions can share these data sets and foster information ecology ripe for testing and learning (Figure V.1.1).

When operating with big data, we see the importance of the museum incorporating data collection and use as a strategic objective. If you recall, in Step 1, "Developing a 'single source of truth'," museums are identifying their single source of truth. Then, in Step 2, "Establishing ever-connected and augmented experiences," museums are bridging these new media elements to form experiences. Once the museum has a basic understanding of their data landscape, they then begin to visualise the strengths and weaknesses of the data quality and connections in Step 3, "Creating trustworthy dashboards and scorecards." It is after this understanding that museums may identify and strategically choose the narratives the museum uses to describe how and why this data is valuable. The data then begins the transformation from its raw state to be packaged into information and knowledge to improve the visitor experience.

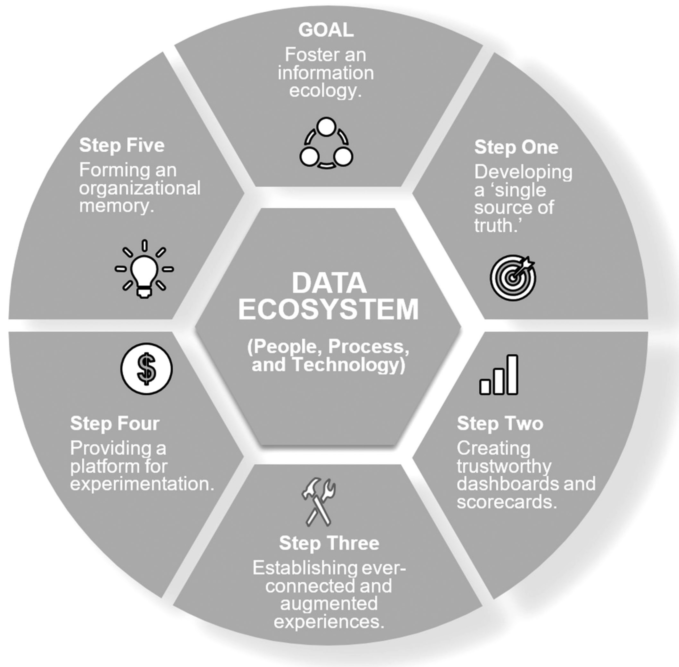

Figure V.1.1 The Data Ecosystem.

Step 4: Providing a platform for experimentation

As Nardi and O'Day (1999, p. 53) remark on the characteristics of a healthy ecology, "balance is found in motion, not stillness." Big data does not equate to big thinking or action. As Disney displayed, the "think big, act small" approach is based on focused data challenges, hypothesis and actions. The Norman Rockwell Museum in Stockbridge, Massachusetts, is an example of a small museum embracing a test-and-learn environment to consistently learn from and evolve as a result of the data being collected and interpreted. The museum knew they had a group of profitable visitors returning each year, but as this visitor group aged, their return to the museum became annual instead of multiple times a year. The museum started gathering data and listening to their customers. Using transactional data, the museum parsed out patterns of visitor behaviour and began to test data rules and product recommendations through email communications. In the span of a 90-day test in 2013, the museum increased second-time purchasers of art by 150 percent, delivered $20,634 incremental revenue (a 49 percent increase) versus 2012, and delivered an overall 77 percent increase of annual revenue during campaign weeks (Olavsrud, 2014). This type of experimentation may begin with smaller projects and data sets and then mature into an always-on concept baked into the testing of new ideas and larger data sets.

Museums are also tapping into crowdsourcing, as a test-and-learn method, by inviting the community to participate in the selection or interaction of the collection. The Brooklyn Museum has several examples of crowdsourced exhibitions and interplay they are using to influence what they display and how the institution participates with and in the community (Gamerman, 2014a). The goal of such projects is to explore how the industry can better understand visitor behaviour and scale participation. Cultural institutions of all shapes and sizes are exploring ways to open and access data that have significant impact and influence on developing

and promoting culture. The culmination of this data, gathered indirectly or directly across these four steps, results in an information ecology with a rich history and future growth potential due to interconnecting people, tools and processes (Nardi & O'Day, 1999).

Step 5: Forming an organisational memory

An accumulated body of data, information and knowledge created in the course of existence is referred to as organisational memory. The direct link between new forms of media and communication, the data produced and the structure to connect such information is evident with the final industry example in this chapter. Beginning in 2002, the Cleveland Museum of Art (CMA) embarked on a $350 million capital campaign to physically revamp and expand the permanent collection. The museum made a resolute effort to rethink its collection and how it would be displayed and to forge new relationships between the objects and the local community as new additions and changes were being made to CMA galleries. The CMA had a desire to build on the visitor behaviour theories and direction of museum communication specialist John Falk, with a digital strategy lens and mission to transform the museum for the 21st century (Alexander, Barton, & Goeser, 2013). In 2009, the CMA partnered with a research firm to study the visitor behaviour in the then newly renovated European and American Art Galleries. The research targeted answers to two questions: how can we hook visitors as they browse, and how can we provide the kind of interpretation that will open up our expectations and honour visitors' browsing behaviour (Alexander et al., 2013)?

The research findings led to the CMA launching the Gallery One project in December 2012 to test a transformative digital strategy, objectives and collaboration mindset. The analysis revealed people felt intimated by art museums and found those types of institutions to be elite, old and boring (Alexander et al., 2013). The CMA wanted to seize an opportunity to give people the toolsets to engage with art on their own. Gallery One is a 40-foot multi-touch MicroTile screen in the United States displaying over 3,800 objects from the CMA Collection. Visitors may interact with the MicroTile Collection Wall and other interactive spaces, using indoor wayfinding technology and an accompanying Art Lens iPad application, to filter the art they want to see and create personalised tours of the museum (Alexander et al., 2013).

The entire information technology infrastructure was re-imagined to support the Gallery One screen and interactive spaces. In the midst of renovation challenges that kept parts of the CMA collection off view or in temporary storage, the Museum discovered a desire to see all objects by theme in one location and immediately know if the object was available to be viewed in the open physical space (Alexander et al., 2013). A cascading Collection Management System (CMS) approach governs the CMA dynamic data management with weekly refresh of object-related metadata to the main Digital Asset Management (DAM) system, and then information is passed onwards to the Collections Online DAM and Gallery One CMS (Alexander et al., 2013). The final design of Gallery One is the product of an internal collaborative vision brought together by the technology, education and interpretation, design, curatorial and collections management departments (Alexander et al., 2013).

The applications team then committed to meeting routinely to discuss all ongoing and future projects, as well as how the technology will interact in the back-end and how these projects will fundamentally impact all areas of the museum. The Gallery One infrastructure was created to address the challenges of universal access and unnecessary social media and digital platform sign-ins. The design of the data flow indicates the CMA was intent on creating a museum prepared for the future by thinking about a digital strategy that would enable sustainability, modularity and scalability and support evolving hardware and software needs (Alexander et al., 2013). The

CMA addressed a gap and need for supporting technology platforms to connect across the institution and is collecting valuable data about how its visitors are interacting with the physical objects.

Today, museums have the opportunity and challenge to link the participatory experience with the museum's customer relationship and visitor behaviour information. Legacy platforms have given way to newer technology solutions for small data study, and while big data is still managed by large platform vendors, new and affordable solutions are being created so organisations can operationalise big data one data set at a time. Cultural institutions may approach data collection and analysis incrementally to build trust with visitors and take the necessary time to build an information ecology based on researched patterns in data to understand visitor interaction across an interconnected system of media and communication.

Thinking big, acting small

This chapter has attempted to outline the process of defining actionable insights from raw data. As we saw highlighted in the Disney example, data collection and use requires a well-nourished ecosystem of interconnected people, processes and technologies. The aim of this chapter has been to review the advent of big data in the industry and how such museums may begin to plan and resource for an ever-connected ecology through the application of the five-step framework. Big data is not limited to big museums. Any size cultural institution may benefit from the understanding of its current data landscape. Once the museum has taken the first step to clarify the "single source of truth" of data collection and how the museum uses this data, the museum may move to the second step of the process and craft smarter experiences. To better understand visitors and act on this data, museums need to visualise what the information is and find ways to communicate the impact of this data to internal and external stakeholders. Once a structure and data collection and use routines are established, the museum's staff is then freed up to experiment with the possibilities of what they can learn from this data and explore innovative and relevant exhibitions and communications initiatives. No one individual or department can take on the burden of solving for all steps by themselves. Instead, as new methods are explored, information policies revised and technology evolves, knowledge must be documented and continuously updated. It is this last step that is the most vital to the success of the museum. By sharing the research context, successes and failures, museums can expand and enhance their data skills and capability as museum staff transition to new roles and staff without any such background step into the museum and must learn from the organisational memory.

The five steps may be acted upon in sequence or in parallel to build a data-informed culture, test-and-learn different engagement approaches and share valuable visitor behaviour across the organisation. Having access to and investing in the analysis of all types of data moves museums into taking actions based on what people want to see and do in their spaces.

For the future of communication and media use in the museum, big data represents a new way museums can learn from each other. However, like information ecologies, the terroir of the museum results in many and unique data types and sets, requiring time, patience and constant cultivation. New forms of media and communication are generating new forms of data, and it is data which can be leveraged and harnessed to give insights into visitors. Data yields a number of interpretations or stories, and it is up to a museum to take the time and resources to understand the specific wants, needs and challenges of the communities they serve. Knowing and understanding visitor behaviour and analysing in real time yields insights that can be promptly used. In order to take advantage of this opportunity of big data, museums are confronted with acknowledging and understanding that these new (or newly combined) data sets are part of a

wider information ecology. With the advent of big data, museums have the opportunity to challenge scholarship, reach into the past and build on the questions (originally posed by Besser, Orna, Pettit, Trant and others) to look and think forward about how data is structured and shared amongst museum professionals. Through data, museums have the power to determine how visits to their institutions can become magical and repeatable experiences.

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V.2
The proliferation of aura
Facsimiles, authenticity and digital objects

Sarah Kenderdine and Andrew Yip

When mobilised through augmented and virtual reality platforms, high-fidelity digital facsimiles of cultural artefacts and landscapes present new paradigms for engagement by which museum visitors may access and interpret objects via sensorial and embodied investigation. Technologies of reproduction are able to record objects and sites in sufficiently high resolution to produce visual replicas with a spatial and structural integrity that respects the original's materiality. Spatial modes of interaction with these replicas, where viewers are immersed in navigable virtual worlds, offer affective, user-driven encounters in which viewers experience not only a form of geographical transportation connecting them with the actual site, but a temporal travel linking present day to historical past. These modalities are not merely didactic strategies; the agency and consciousness of the viewer in encounters with virtual objects are mediums through which networks of meaning and understanding are constructed.

The value of object copies to cultural heritage research and conservation is well established. Indeed, in the case of sites and artefacts threatened by destructive forces such as iconoclasm, climate change and mass tourism, reconstructions may be the only way through which "originals" (objects and physical spaces) may be accessed. However, in the context of museum cultures of display, digital reproductions still occupy an uneasy space. The materialities of digital objects – intangible, reproducible and transmissible – can be perceived of as a threat to traditional institutional claims of the authority of collected objects, as well as to the conventions surrounding their display.

21st-century museums undertake sophisticated digitisation programmes that document artefacts through high-resolution photography, video and analytical scanning. These digital resources initially served as adjuncts to the processes of object collection and conservation. However, as their uses have evolved towards public display and finally as mediums for artistic intervention, it has been argued that digital copies can possess the ability to evoke emotion and memory (Cameron, 2010; Hazan, 2001). These affective responses are often described in similar terms as the sense of the transcendence experienced through a work of art – what Walter Benjamin described as the "aura" of an original (Benjamin, 1936/1968).

This chapter engages with the aura of real, digital and material copies of objects in the context of museum exhibitions to explore the notion of the "proliferation of aura" as digital artworks reverberate with the iconic, original (or primary source) objects they reference.

Following Bruno Latour and Adam Lowe's re-evaluation of the discursive relationship between an original work of art and its facsimiles through which the aura is proposed to *migrate* from one to the other (Latour & Lowe, 2010), in the first part of the chapter we consider critical approaches to Benjamin's conception of aura and authenticity as it has been interpreted and applied in the context of museum and gallery collections and exhibitions. This broader, critical discussion takes place alongside a practice-based case study of an interactive installation.

The second part of the chapter provides a detailed description of *Pure land augmented reality edition* (Kenderdine & Shaw, 2012/2016; hereafter *Pure land AR*), a virtual reconstruction of a Tang Dynasty Chinese Buddhist cave installed as part of the antiquities exhibition *Tang: 唐 Treasures from the Silk Road capital* at the Art Gallery of New South Wales, Australia. Employing augmented reality technology to create interactivity within a virtually reconstructed world, *Pure land AR* presents a form of embodied immersion in which visitors are able to walk around a life-sized cave from the UNESCO World Heritage-listed Mogao Grottoes at Dunhuang, China. This case study presents a unique instance of a high-fidelity digital copy being exhibited in a fine arts museum alongside thematically and historically related cultural antiquities. Through an analysis of visitor perceptions of the installation, we describe the conditions by which the aura of a work of art proliferates in digital materialities though association with the original. In doing so, this chapter builds on emerging models for evaluating affective museum experiences to argue that the authenticity vested in objects is not always solely located in their materiality. In the case of high-fidelity digital copies, authenticity is constructed through a combination of material concerns, digital mediation and viewer perceptions.

Re-siting the aura of virtual encounters

Discussions of auratic affect in media theory inevitably begin with Walter Benjamin's seminal essay, "The work of art in the age of mechanical reproduction." Here, he asserted that in spite of the fact that artistic cultures of copying predate mechanical means, what "withers in the age of mechanical reproduction is the aura of the work of art" (Benjamin, 1936/1968, p. 223). For Benjamin, the aura of a work – its unique, sublime presence in the eye of the beholder – is bound to the object's authenticity, located in the projection of a sense of a unique and grounded cultural history. It is rooted in the mystical, ritualistic origins of art and its essence is "all that is transmissible from its beginning, ranging from its substantive duration to its testimony to the history which it has experienced" (Benjamin, 1936/1968, p. 223). He argues that this authenticity is destabilised by mechanical reproduction through two core processes. First, reproduction substitutes the singular existence of the original for a multitude of identical instances. Second, it allows the original to be contacted by the viewer outside the sphere of its site-specific origination or belonging, severing it from its historical and cultural context.

From the standpoint of the museum, these conditions present a quandary, for even while the museological mission is well served by the promotion of access to cultural material through digital reproduction and dissemination, the presence of the copy represents a challenge to traditions of object-based curatorial custodianship. The implications, as Andrea Witcomb describes, "are a loss of aura and institutional authority, the loss of the ability to distinguish between the real and the copy, the death of the object and a reduction of knowledge to information" (Witcomb, 2010, p. 35). These ideas will potentially persist until the institution reinvents itself or until new forms of media are subsumed into the historical canon. What Benjamin identified, therefore, was perhaps not the irrevocable loss of aura through reproduction but a point at which rapid technological transformations precipitated a "crisis" that continues to this day "in which the experience of aura is alternately called into question and reaffirmed" (Bolter, Macintyre, Gandy,

& Schweitzer, 2006, p. 22). Questions surrounding the authority and aura of objects resurface at the arrival of new forms of media that facilitate novel paradigms of object mediation.

Recent debates have re-configured the interplay between original and copy to be a discursive relationship in which the copy exists as one form of the material "trajectory" of the object's cultural career. Philosopher Marcus Boon in his book *In praise of copying* offers us a summary of contemporary critical theory in relation to ontologies of the original and its copy – ranging from Gilles Deleuze, who observed that the Platonic Ideal is always accompanied by a swarm of simulacra, fakes and copies that threaten and distort it, through to Baudrillard's famous *Simulations*: a world of "copies without originals" (Boon, 2010, p. 24). Within the conventions of exhibition, art theorist Boris Groys questions the validity of "original" aura, arguing that "a museum piece is an object minus its invisible aura" (that is its relationship to time and space). On the contrary, he maintains that digital archiving "ignores the objects and preserves the aura." The object is absent but its metadata about the here and now of its original inscription is preserved. The museum object has always required interpretation to substitute for its loss of aura, and digital metadata creates an aura without an object (Groys, 2016, p. 4).

A parallel argument is mounted by Latour and Lowe in a process they describe as the "migration of the aura" (Latour & Lowe, 2010). Rather than causing the aura of an original to wither, the authority and desirability of the original increases with the availability and accessibility of its high-fidelity copies (indeed, the word copy comes from the Latin *copia*, meaning "abundance," "plenitude" or "multitude"). The copying of the original can benefit from a symbiotic relationship with its replicant rather than suffer a diminished existence. Thus, "the real phenomenon to be accounted for is not the punctual delineation of one version divorced from the rest of its copies, but the whole assemblage made up of one – or several – original(s) together with the retinue of its continually re-written biography" (Latour & Lowe, 2010, p. 278). The "re-written biography" of an artwork is its evolving cultural trajectory over time and the processes by which it is reproduced, conserved and exhibited in various contexts. In order to describe this state, Latour and Lowe borrow from anthropology the expression "career." It is against this career that the value of a particular work and its copies should be determined, regardless of the particular materiality of the original.

A culture of copying is proof of the fecundity of the original – evidence of the ability of the object to evoke continuing engagement. Thus, as Latour and Lowe suggest, the question should not be whether a viewed object is a copy or not, but "Is it *well* or *badly* reproduced?"; a badly-reproduced object risks disappearing, while the authenticity of a well-copied original is enhanced (Latour & Lowe, 2010, p. 278). The artistic gesture of copying has also become an interrogative practice, exemplified by works such as Takashi Murakami's collaboration with Louis Vuitton, whose handbags have been called the most copied object in the world. Infamously, Murakami sold "fake fakes" of handbags to bring attention to the phenomenon of counterfeiting, the production of illegal copies and value (Boon, 2010, p. 13).

Evidently, the criteria by which good reproductions are assessed are not limited to materiality alone. In the domain of archaeology, Siân Jones has led arguments about authenticity that have moved away from purely materialistic traditions around which positivist research methods assess and confirm value, towards a constructivist position in which authenticity is culturally construed dependent on the context and viewer (S. Jones, 2010). Jones argues that authenticity is vested when truthful relationships are formed between a network of objects, people and places. Copies can also be vested with authority through the agency and acceptance of the communities in which they were made. To illustrate this, Jones draws on the example of the excavation of the lower section of the 8th-century Hilton of Cadboll cross slab in Scotland. While the object was rediscovered outside its primary context, village locals expressed a deep connection

to the associations it generated with the local environment. Furthermore, Jones suggests that a reconstruction of part of the cross acquired authentic qualities in locals' eyes because it had been carved in the village, creating a relationship between the object and the community of its creation.

In studies of conservation practice, Jones also demonstrates that authenticity emerges through complex interactions between expert practitioners and material conditions (Jones & Yarrow, 2013). Critiquing Jones' position, Cornelius Holtorf argues for greater emphasis on object materiality by suggesting that an object might exhibit authenticity through the construction of "pastness" – an evaluation of perceptible material clues such as traces of decay that connect the audience to a plausible historical narrative. Borrowing from Alois Riegl's concept of the affective "age value" of an object, he asserts that what matters is people's perception of pastness in the context of its viewing (Riegl, 1982). Object, buildings and monuments can evince pastness even if they were created recently. Holtorf suggests that regardless of the date of its construction, a church might acquire pastness via allusions to Romanesque or Gothic architecture – tropes that conform to a viewer's stylistic expectations of historicity.

The ability to explore the original by activating its biography is central to the power of the copy to extend aura rather than dilute it. For an increasing number of cultural heritage sites and objects, the facsimile provides the only means of public access and may even provide a superior viewing experience due to the necessary constraints on visitors to the original. True-to-scale physically built models (it seems necessary to distinguish these from virtual, rendered models) of caves and subterranean sites, enabled by high-fidelity digital registration, include the Lascaux Caves, Altamira Caves and the Tomb of Thutmose III. Replicas of the Arch of Triumph of the Temple of Bel (Baal) in the ancient Syrian city of Palmyra destroyed by Isis in 2015 are copies – real "fakes." In collaboration with UNESCO, the Institute for Digital Archaeology (IDA), Harvard University, the University of Oxford and Dubai's Museum of the Future developed a 3-D computer model of the arch to be rendered in stone and installed in London and New York in 2016. IDA director of technology and founder/executive director Roger Michel stated:

> ISIS was hoping to destroy the arch forever, to erase it from the surface of the earth and from our memory. Instead, they made it the best-known piece of ancient architecture in the world. Pictures of it have appeared on television and in countless newspapers and magazines. Thousands of people visited our model arch in London. We'll be sending our 3-D files all over the world so that other arches can be created. (*New York Times*, 2016)

Yves Ubelmann, whose images of Palmyra feature in the exhibition *Eternal sites: From Bamiyan to Palmyra* at the Grand Palais, Paris, echoed this sentiment:

> The terrorists were uploading videos with them blowing up monuments and smashing statues to manipulate public opinion. … We felt the best response was to magnify the pictures of these places and show their splendour and their importance to the culture. It became a war of images. (As cited in Simons, 2016)

Institutionally proliferated, the images and replicas erected around the world carry something of the auratic experience of the Palmyra site but are imbued with the significance of loss. The depth of engagement with the site is enhanced by similar projects such as #newpalmyra, a collaborative and interdisciplinary open data project to crowd-source a virtual reconstruction of the site. These instances of heritage art as political intervention or statement interact with authenticity in particular ways – here, the "migration of aura" is a necessary and conscious

collaboration between cultures and heritage workers globally rather than a result of consumerism and "copy culture." The context that is crucial to an experience of the Palmyra replicas is, importantly, one that is defined by distance and absence. It is the inauthentic nature of the replica that highlights its removal from the conflict in Syria; the absence of the destroyed arch triggers a palpable relation with loss, resulting in the resurrection of aura.

While such high-fidelity digital copies offer unique opportunities for exploration, they have until recently struggled to escape the stigma of being data-driven, didactic visualisations. Stuart Jeffrey argues, for example, that digital objects have been perceived to possess an inability to inherit aura due to a neglect of creative imagination (Jeffrey, 2015). Digital interaction, he argues, represents a conceptual break from interacting with the world and its history, which unless mitigated alienates the copy from its original. He identifies five key traits that digital objects must overcome: their lack of physical substance compared to real objects, their lack of native location, the ease of their infinite reproducibility, their inability to degrade and the difference between original ownership and digital licensing.

Algorithmic augmentation and authenticity

There is another sense in which digital reconstruction may rupture cultural history. That is, by making virtual the agency of the artist in the creation of the original, as occurred in *The next Rembrandt*. Purportedly devised by advertising executive Bas Korsten as part of an advertising campaign for ING Bank in 2016, *The next Rembrandt* is the product of a program that utilises data derived from 168,263 Rembrandt painting fragments to compose and 3-D-print a textured, "painted" image (Brown, 2016). *The next Rembrandt* is a new work of "art" in the sense that it is not a composite of features from Rembrandt originals but the result of a pattern recognition program that has generated new features. It is, then, authentically *not* a "copy." In spite of the earlier development of artificially creative software, the arrival of *The next Rembrandt* has been polarising. Korsten hoped the project would be "the start of a conversation about art and algorithms," but there were mixed responses to the images, signifying the depth and prevalence of traditional concepts of fine art, genius and authenticity and the continued attachment to and reverence for a masterpiece. The inevitable comparison between *The next Rembrandt* and actual Rembrandts resulted in the accusation of fakery and the presumption that Korsten and his team have been engaged in an attempt to reduce artistic "genius" to a series of imitable features. Jonathan Jones of *The Guardian* wrote:

> What a horrible, tasteless, insensitive and soulless travesty of all that is creative in human nature. What a vile product of our strange time when the best brains dedicate themselves to the stupidest "challenges," when technology is used for things it should never be used for and everybody feels obliged to applaud the heartless results because we so revere everything digital. … What these silly people have done is to invent a new way to mock art. (J. Jones, 2016)

In spite of Korsten's insistence that he has "creat[ed] something new" through algorithmic processes and that "only Rembrandt could create a Rembrandt," Jones resents the perceived implication that "great art can be reduced to a set of mannerisms that can be digitised" (Brown, 2016; J. Jones, 2016). For detractors like Jones, several key structures of high art are at stake in *The next Rembrandt*: first, the aura of the masterpiece, that which is deserving of the "Rembrandt Shudder" and the intangible impact of the artist's psyche on the work of art. Second, the exclusive rights of the original and authentic art object to be a result of "genius." The possibility of

artificial processes for creation calls into question which aspects of the context and provenance of a work of art are most important to the category of "art." Jon McCormack and colleagues ask, "Why dismiss outright that a machine and a human might share experiences that result in something meaningful and worth communication?" (McCormack et al., 2014, p. 135). Korsten puts this more simply and aptly: "Do you need a soul to touch the soul?" Besides the implication that the creators have attempted to pilfer a portion of the aura of a Rembrandt, the sheer resemblance of the computer-generated piece to that of an actual Rembrandt calls into question the importance of authentic experience. Jones's outrage is at least in part motivated by the notion that *The next Rembrandt* is a fake – even though it is not a copy or computer-generated duplicate of an extant composition.

In other instances, the fake or the copy carries with it entirely different attachments. Engineering an artificial experience of the lost original appears to be more universally acceptable as a mode of technological intervention into art and cultural heritage. For example, where a digital reconstructive tool is used to augment an original where some loss has occurred, such as is the case with Mark Rothko's Harvard Murals in the USA. Significantly damaged, the murals have rarely been exhibited since they were removed from display in 1979 (Khandekar, 2014). In 2014, a digital projector was used to augment five faded paintings by the artist (Stenger et al., 2016). Based on studies of an undamaged original and Ektachrome photographs of the works taken in 1964, projected light digitally "restored," pixel by pixel, the light-sensitive pigment lithol red, which give Rothko's murals their deep crimson hues. The projectors were switched off every day at 4PM in order to highlight the effect of the projectors on the faded paintings, allowing visitors to "experience a transformation that took many years in a few seconds" (Menand, 2015).

This passive restoration technique, while expected to incite debate around conservation and restoration methodologies (Sheets, 2014), interacts with the materiality of the original in a referential way that appears to carry none of the controversy of acts such as *The next Rembrandt*, or even active forms of restoration such as physical in-painting used in conservation. As Thomas Lentz of Harvard Museums asserts, the crucial distinction is that "we are not restoring the paintings, we are restoring the *appearance* [emphasis added] of the paintings. Even in their unconserved state they are really these kinds of magnificent runes. They are very powerful" (as cited in Walsh, 2014). Christopher Rothko, son of Mark Rothko, remarked that "they still felt like real paintings" (Sheets, 2014). This affective response that the paintings still "feel" like paintings is important, and the transformative effect of the projectors being a temporary one seems crucial to the delicate evocation or amplification of the original work. Nothing is removed from the "site" of authenticity (the canvas itself), and nothing is really added – it is an installation that may be considered as a virtual heritage project that powerfully brings the work back into focus, and, with it, some re-invigoration of the auratic experience.

As the Harvard Mural installation demonstrates, the sensorial shortcomings of digital interventions might be mitigated when they are encountered via modes of immersion that stimulate a sense of co-presence with the cultural biography of the original. These encounters are tied to the specific exhibition environments in which they occur as relational exchanges between viewer and object (Dziekan, 2012). This sense of presence, a feeling of being convincingly immersed in an alternate world, has long been a staple measure for researchers of virtual reality (Sheridan, 1992; Kenderdine, 2013a, 2013b, 2013c). However, it has been argued that auratic experiences in virtual encounters are contingent on not only maintaining presence but on creating a sense of "distance-through-proximity" (Bolter et al., 2006). This is a reparsing of Benjamin's definition of the aura of natural phenomena, which he describes as "the unique phenomenon of a distance, however close it may be … [following] with your eyes a mountain

range on the horizon or a branch which casts its shadow over you" (Benjamin 1936/1969, pp. 224–225). In virtual encounters, Bolter et al. argue, aura is transmitted when the immediacy of the experience makes the subject appreciate the cultural and historical significance of the site.

Digital, embodied encounters are particularly apt vehicles for enacting historical connection, as they require viewers to negotiate meaning within the environment. This negotiation can take place through an individualised immersive experience, in the case of head-mounted virtual reality platforms, or through social interaction, in the case of augmented reality installations that further emphasise the temporal link between past and present. As Christopher Tilley argues, bodily immersion necessarily introduces time as a contingency: "any moment of lived experience is thus orientated by and towards the past, a fusion of the two" (Tilley, 2004, p. 12). It is this negotiation that remediates one final aspect of Benjamin's construct. In his discussion of the loss of aura between stage and cinema, Benjamin focused on modes of spectatorship. While stage acting involves an interplay between subject and viewer, cinematic viewing predetermines the gaze through the camera's lens and removes both the agency of the viewer and the influence of the actor. Embodied interaction restores this field of negotiation between viewer and subject, and it is through this agency that embodied virtuality emerges as a key medium by which the aura of an original might be vested in its digital copy.

Evaluating auratic experience

Relatively few audience studies of auratic experiences in museums have been conducted, let alone on the question of whether copies of objects of historical or cultural significance are perceived differently from originals (Hampp & Schwann, 2014b). The first steps towards formulating a methodology for observing auratic museum experiences were taken by Catherine Cameron and John Gatewood, who hypothesised that not only do people visit museums to seek a form of transcendent experience, but that historic sites and exhibits can conjure emotional responses that link museum visitors to a historical past (Cameron & Gatewood, 2000, 2003). They described a framework for analysing what they termed "numinous experiences" characterised by three traits: deep engagement or transcendence, empathy through affective connection, and awe or reverence akin to spiritual communion.

Kiersten Latham further developed this model with reference to Louise Rosenblatt's work in literature on transactional theory wherein external texts generate internal associations (Latham, 2007; Rosenblatt, 1978). In 2013, Latham conducted a study of numinous visitor experiences in five museums of various disciplines (art, history, living history, and state history). After phenomenological analysis, she identified four themes essential to numinous experiences: a unity of the moment, a link to the object, a sense of transportation and the formation of a connection beyond the individual. While Latham's findings supported the formulations of Cameron and Gatewood, she nuanced and developed them, concluding that museum objects held a central role in linking viewers to "other dimensions, perceptions, thoughts and feelings," and that temporal and embodied experiences were essential to establishing this sense of transcendence (Latham, 2013, p. 12). A unique finding of this study was that the numinous experience was dynamic and transactive between visitor and object, employing both the sense and the intellect – a relationship of exchange tested in the case study of *Pure land AR* that follows.

More recent studies by Constanze Hampp and Stephan Schwan tested perceptions of authentic and inauthentic objects in science museums. In the first study, focused on objects of mundane status in a context where functionality was paramount, they found that the perceived authenticity of an object did not play a prominent role in the visitors' evaluations of them (Hampp & Schwan, 2014a). The second focussed on objects with iconic historical significance – a moon

rock and a space suit – presented at the Deutsches Museum in Munich in a context that focused on history, myths and uniqueness. Representing each object either as authentic or a replica to participants, Hampp and Schwan found not only that the most important evidence for authenticity was the fact of the objects' presentation in a museum, but that personal responses to the objects depended more on the type of object rather than whether or not it was a replica:

> Surprisingly, objects perceived as replicas were able to induce similar thoughts and feelings of excitement as objects perceived as originals. … Thus, it seems as if the "aura of the original" indeed is able to devolve upon the replica, as described by Latour and Lowe. (Hampp & Schwan, 2014b, p. 363)

These findings corroborate a constructivist view of authenticity as a negotiation between the object and viewer. However, they are contingent on the context of the investigation and its terms. For example, a 2013 study at the Deutsches Museum concerned with the investigation of aura used mobile eye-tracking devices to gauge viewer fixation patterns on museum objects in showcases. The results suggested that perceived authenticity was affected by whether an object was exhibited with positive or negative associations (Fantoni, Jaebker, Bauer, & Stofer, 2013).

Hampp, Schwan and Latham acknowledge the particular contexts of their studies and urge continuing research in different contexts with different content and visitor demographics. This is particularly necessary in the context of fine arts museums, where attributions of authorship and provenance carry particular weight, and the presence of the copy occupies a more contested space. In the fine arts museum, virtual copies and digital object mediations – or high-fidelity material reconstructions facilitated by advanced digital imaging techniques – have traditionally been evaluated against a culture focused on original materiality.

Pure land augmented reality edition (2012/2016)

The case study of *Pure land AR* that follows takes place amongst this constellation of concerns about originals and their copies in fine arts museums. It builds on previous studies by assessing visitor perceptions of a virtual copy of a historically significant cultural site in the context of its exhibition in a fine arts museum alongside historically contemporaneous objects at a time in which access to the original site is impossible. The principles of numinous, auratic museum experiences remain applicable to this context: transportive, embodied exchanges evoked by the digital object are central to the construction of authenticity and the transmission of aura. In addition, this particular case study allows us to investigate whether it is possible for a high-fidelity digital copy to proliferate a sense of aura through the evocation of affective experiences and consequently to gain an understanding of how viewers evaluate a digital copy in the context of its exhibition alongside real object counterparts.

Pure land is a virtual reconstruction of Cave 220 at the UNESCO World Heritage-Listed site of the Mogao Grottoes in Gansu Province, China. The grottoes consist of around 750 caves on five levels, hewn into an escarpment in the desert 25km southeast of the town of Dunhuang. In total, 492 of the caves feature mural paintings totalling more than 45,000 square meters. The grottoes also contain 2,000 painted clay figures of Buddha and bodhisattvas, the largest of which measures 100 feet and dates to the Tang Dynasty (Larmer, 2010).

Since 1999, the Dunhuang Academy has been undertaking an ambitious programme to digitise the grottoes through high-resolution photography and laser scanning. The data from Cave 220 has been transformed into a range of virtual experiences by Sarah Kenderdine and Jeffrey Shaw and their team of visual effects artists at the City University of Hong Kong (Kenderdine, 2013a).

These include the augmented reality version of *Pure land AR*, which uses tracked, tablet-based navigation inside the virtual world to simulate navigating the cave (Figure V.2.1).

The structure of the installation consists of a four-walled-room erected to scale corresponding to the real cave. The interior walls are covered with life-size prints of a polygonal mesh derived from the Dunhuang Academy's laser scans of the cave. High-resolution photographs of the cave's paintings and sculptures are digitally rendered onto this polygonal mesh inside a virtual model to create a composite 3-D representation of the cave, including its ceiling and floor. The 3-D visualisation of the north wall is augmented by four animations, determined from an interpretive script stipulated by the Dunhuang Academy, that emphasise the cultural significance of the painting's iconography for lay viewers.

Viewers interact with the cave by taking a tablet into the installation and holding it up to the walls, guided by visual cues from the polygonal mesh (Figure V.2.2). As they explore the space, 24 infrared cameras placed atop the walls track the position and orientation of the tablet while computers render the corresponding view of the digital cave and transmit it to the tablet screen in real time via Wi-Fi. The tablet screen acts as a framing device that forms a direct link between the gaze of the viewer and their physical movements in navigating the physical space. It thus moves beyond being a televisual environment to an embodied social performance.

Pure land AR was first exhibited at the Hong Kong Art Fair in 2012, followed by the Shanghai Biennale in 2013. The iteration under evaluation in this essay was installed as part of the exhibition *Tang: 唐 Treasures from the Silk Road capital* (hereafter *Tang*), held at the Art Gallery of New South Wales, Australia (April 9–July 10, 2016). Three key features of this iteration distinguished it from earlier versions. First, this was the only time the installation had visualised all four of the cave walls – previous iterations visualised only three (Figure V.2.3). The cave entrance served as a threshold between the real and the virtual, conditioning visitors to anticipate an alternate reality by partially obscuring the interior of the cave and by requiring visitors to participate in the architectural fiction by ducking beneath the entrance lintel. Second, proximity-triggered animations were added to the installation, drawn from the panoramic virtual reality iteration

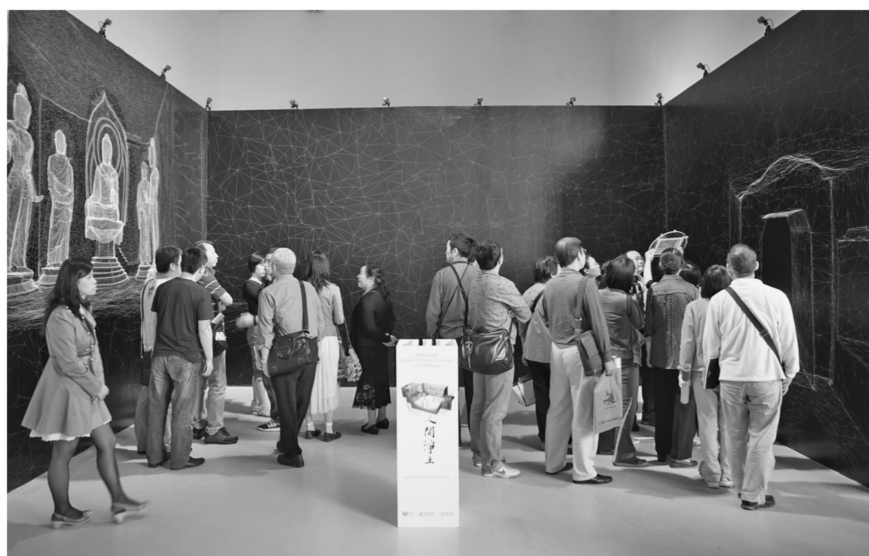

Figure V.2.1 *Pure land AR* (2012). 9th Shanghai Biennial, Power Art Museum, Shanghai, China, 2013. Photograph Sarah Kenderdine.

Figure V.2.2 Visitors exploring *Pure land AR* (2016) as part of *Tang:* 唐 *Treasures from the Silk Road capital*. Art Gallery of New South Wales, Sydney, 2016. Photograph Jenni Carter/Art Gallery of New South Wales.

Figure V.2.3 Cave entrance to *Pure land AR* (2016) at the Art Gallery of New South Wales. Photograph Sarah Kenderdine.

of *Pure land* in order to create a connection to related iconography appearing elsewhere in the exhibition (Figure V.2.4). Third, for the first time, *Pure land AR* was shown in conjunction with Tang-era objects.

To investigate auratic effects of *Pure land AR*, the experiences of visitors to the installation were surveyed and data was collected digitally on iPads using the visitor survey app *I Sho U* (Figure V.2.5), developed to derive quantitative data from qualitative museum experiences (Kocis & Kenderdine, 2014). In designing the survey tool, a key consideration was the

Figure V.2.4 Augmented content showing dancers from the Beijing Dance Academy in *Pure land AR* (2016). Photograph Jenni Carter/Art Gallery of New South Wales.

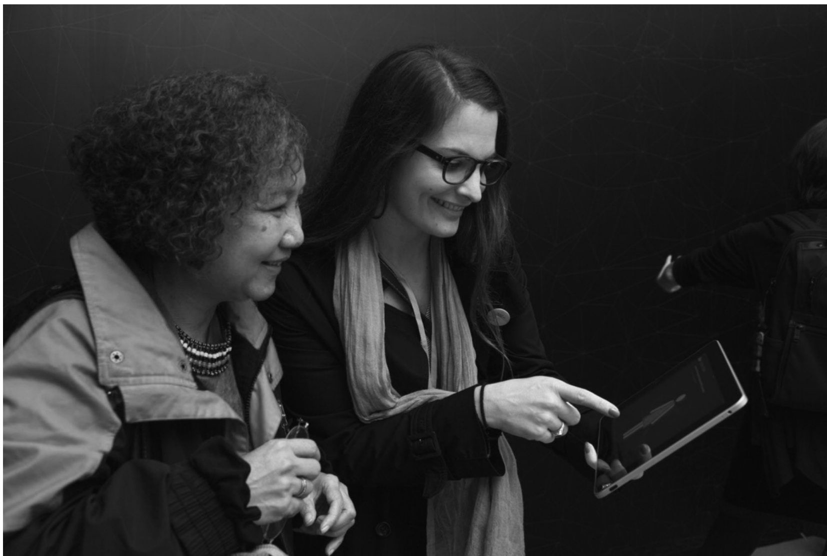

Figure V.2.5 *I Sho U* evaluation tool used to evaluate *Pure land AR* (2016) at the Art Gallery of New South Wales, Sydney, 2016. Photograph Sarah Kenderdine.

development of a vernacular to investigate auratic experience that elicited authentic responses while avoiding specialist jargon. To this end, questions were designed to test sensorial perception, and particular attention was given to open-ended responses as delivered by participants in the following discussion. Two broad areas formed the basis for our investigation: the question of whether or not the installation was able to convey a transportive sense of historical co-presence, and the manner in which viewers perceived the virtual copy in the exhibition context.

Spatial temporal immersion

When asked to describe their experience of *Pure land AR*, participants conveyed a pattern of immersive experiences characterised by a sense of physical and temporal transportation, which was evident in 43% of responses. Of the 10% of participants who reported having been to the real Dunhuang Caves, three respondents favourably compared their virtual experience to their memories of their actual journeys. One recalled that "sixteen years ago I went to the Dunhuang Caves, and this experience has brought back to life all that I was seeing there at that time." Another stated that it was "a wonderful experience. I have been to the caves and this reminds me of what I saw there." Others who had not been to the Dunhuang Caves also felt transported to and immersed in the site. Both group and individual responses recorded a general sensation of presence in the virtual environment: "we feel as if we're actually visiting the cave"; "it was fascinating and entirely absorbing, and it felt like I was really present in the cave."

An interesting result was that for some people, the installation's modes of interactivity and the proximity between viewer and object enhanced the experience: "[*Pure land AR*] transports you to the place and makes it easier to see and imagine how it is like to be there, and also you can see everything up close, which probably you won't be able to see if you were actually there." Such responses that refer to the agency of the viewer are particularly interesting in light of the fact that the installation provides public access to a site that is no longer physically accessible. In many ways, viewing the high-fidelity model up close provides a technically superior viewing experience to a real-life visit, where most murals are covered by protective glass and during which the only light is provided by the torch of a tour guide. *Pure land AR*'s tablet interface thus provides a window onto the world that surpasses the viewer's ability to encounter the original (Kenderdine, 2013a).

Several visitors had a conscious awareness of a "living" history and culture evoked by the experience. A typical response in this category was to feel "transported": "[I] felt like I was actually in the virtual cave, and it was an amazing experience to be able to feel and see so much. It's almost like the living past." Linked to a development of historical understanding, these findings of a multi-layered experience of physical immersion corroborate the premise of "distance through proximity" that underpins Benjamin's aura of natural phenomena as applied to paradigms of virtuality by Bolter et al. (2006). The responses suggest that embodied immersion in the cave allowed viewers to not only appreciate the aesthetics of the artworks but to make deductions about the cultural significance of the site and the reasons for its preservation.

These responses were consistent with the results of the question, "Did the virtual experience feel like being there?" to which 88% of people responded "yes." Interestingly, none of the participants who critiqued physical or technical aspects of the installation answered "no" to this question, suggesting that the shortcomings they perceived in the experience did not wholly break their sense of immersion. This was acknowledged by one participant who recorded that "it actually feels like being in the [cave]; the only difficulty is getting used to the technology of using the device and also understanding the process of beginning the animations. But the overall effect is really amazing. You do really feel as if you're there." Nor did the presence of mediation through the augmented animations on the north wall seem to break immersion or negate the authenticity of the original paintings. They were referenced positively in responses, though one participant found viewing them physically difficult due to their location low on the wall (corresponding to the appropriate section of the mural in the real cave).

Context

Results to the question, "How does *Pure land AR* relate to the rest of the exhibition?" reflected a positive perception of the installation's relationship to the original artefacts and other exhibition materials in the context of their co-exhibition.[1] Participants overwhelmingly found that the installation enhanced and extended the exhibition, with few opining that the digital intervention devalued the artefacts. These results corroborate the argument that it is possible for real and facsimile objects to function in tandem, each acting as an alibi for the other by maintaining and strengthening historical links (Cameron, 2010).

Some participants expressed the sense of awe or wonder that one associates with the auratic reception of fine art objects, marvelling at both the aesthetics of the cave paintings and the augmented elements of the installation, evidenced in responses such as: "I just felt it was quite overawing, I've not ever done anything like that before and I thought it was magical and extraordinary." These responses lend weight to the notion that digital copies can escape categorisation as didactic strategies to be considered on their aesthetic merits. There was also a general appreciation of the technologies employed. However, in spite of the general acceptance of the installation, one participant questioned the value of the particular medium of the installation, questioning whether "it was any better than just seeing a large mural photograph, as per the other mural photographs elsewhere in the exhibition."

The general positive reception to *Pure land AR* should of course be read against arguments that museum viewers can accept authenticity based on the institutional authority of the exhibition context (Lowenthal, 1992, 2008). The processes by which objects are selected for digitisation and display by museums naturally ascribe value to those objects. Yet it is also the case that the reverse is true, that museum practices gain currency through the critical approval and acceptance of their audiences. For example, in response to the 2012 exhibition of the 360-degree 3-D version of *Pure land AR* at the Freer Gallery of Art, Smithsonian Institute, *Washington Post* critic Philip Kennicott said:

> A decade or more of efforts to use virtual reality to reproduce aesthetic experiences have generally led to unsatisfying, cumbersome and distracting technologies. The transient buzz of interactivity overwhelms the actual content or educational value. But the "Pure Land" cave is different … it points the way forward, demonstrating how the immersion environment can be used to let visitors actively explore and understand complicated cultural objects. … At last we have a virtual reality system that is worthy of inclusion in a museum devoted to the real stuff of art. (November 30, 2012)

Kennicott's remarks suggest that digital mediation without immersion – technology for technology's sake – results in an unsympathetic union of content and platform. This could perhaps be rephrased as a severing of a work of art from its biography.

Conclusion

It is beyond the scope of this chapter to determine whether visitors to fine arts museums assess virtual copies on equal footing with original objects or accept the display of virtual reconstructions as a core function of museum interpretive practice or pedagogy. Much broader continuing research on these questions is required in a range of museological contexts, and it may be the case that shifts in museum professional cultures may precipitate changes in viewer perception as readily as the accelerating acceptance of new types of digital media as socially-normative

viewing and interactive paradigms. Rather, the perceptions of people who experienced *Pure land AR* in this context validate a particular model developed by theorists of cultures of the copy: that the proliferation of aura in digital objects is contingent on the presence of transportive and immersive exchanges between viewer and object that connect the viewer to the histories and traditions of the object's cultural trajectory.

If, as Jeffrey argues, the acceptance of digital copies as authentic objects is dependent on their ability to evoke aura (2015), this description of *Pure land AR* offers avenues for museums to reconsider larger questions of how collecting institutions might renegotiate the relationship between real and virtual materialities. Copies, virtual or otherwise, will never supplant the role of museums to collect significant objects and, by doing so, document cultural narratives. However, the deployment of auratic virtual experiences – particularly through augmented reality as opposed to more individualised virtual reality experiences – has the potential to extend the function of museums from being only repositories of material traces to being dialogic social spaces in which identities and histories are explored through transportive encounters between viewers and objects. The museum might be understood more broadly as a place of memory collection and sensorial formation (Gurian, 1999). We might then recast traditional assignations of object value from the binary consideration of whether the substance of the object is material or immaterial to an affect-oriented question: has the object maintained its cultural trajectory in the place and performance of its encounter?

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Note

1 Allowed to select up to three words from a pool of eight positive and negative words to describe this relationship, 74% of participants recorded that *Pure land AR enhances* the exhibition, 66% that it *extends*, 50% that it *embodies* and 28% that it *transports*. One participant (0.4%) recorded that it *detracts*, two (0.8%) that it *devalues*, one (0.4%) that it *confuses*. No participants chose the final option, *replaces*.

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V.3

Assets, platforms and affordances

The constitutive role of media in the museum

Kathleen Pirrie Adams

Digital media forms the horizon of much contemporary experience. It surrounds and suffuses family life, education, leisure, market relations, science, statecraft and heritage. Experientially, media permeates our lives at different levels of visibility. Sometimes it is identified as a particular, branded channel; at other times it is spoken about in more general terms, such as social media or the Internet. Increasingly, digital media has the character of infrastructure or source code – invisible but constitutive. By all accounts, digital media has transformed living conditions in the 21st century in ways that have been unpredictable and are now irreversible.

Museums and other heritage institutions inhabit this complex world of overlapping and intersecting media and, as custodians of public memory, have in recent years found it necessary to take this context into account in rendering their public service. At the same time, museums have undergone internal transformations in response to the challenges of the digital revolution. Today the influence of the digital is visible in the organisation of the museum's conversations with its audience; in the tools and techniques that it uses to put its collections in order; within the materials used to animate its exhibitions; and in the organisation of professional roles and workflows. Thus, now as we begin to see traces of digital technology becoming "normative" in organisations, we are challenged to re-think a number of our assumptions about the museum's structures and strategies (Parry, 2013). One way of answering such a challenge is by proposing a new vocabulary for describing the core provision of the museum. By using a vocabulary drawn from the language of software, computation, and interface design, it is possible to develop a conceptual framework that presupposes digital media's presence not only in the museum's surroundings but within its core provision as well. Specifically, what is proposed here is that we think about the collection as comprising "assets," exhibitions as "platforms" and interpretative activities as being about the management of "affordances."

In recent discussions of the epoch-making technologies of the current era, some media scholars have discussed the centrality of computation and networks as central to both emerging world systems and dominant symbolic forms (Hayles, 2007; Castells, 1996; Mansell, 2017, Berry, 2011). In *The language of new media*, one of the foundational texts for this line of inquiry, Lev Manovich (2001) offers an analysis of the general principles of new media to "understand the effects of computerisation on culture as a whole." He speaks of a "process of 'conceptual transfer' from the computer world to the culture at large" and makes explicit reference to Panofsky as an

inspiration for understanding what this entails. Unlike Panofsky, however, Manovich does not employ an art historical method that focusses on finished objects "as reflecting larger cultural patterns." Rather, he offers a detailed examination of the software tools, their organisation, and the default settings through which the objects of digital culture are constituted and uses this to distil five core principles of new media: numerical representation, modularity, automation, variability and cultural transcoding. Describing his method as "digital materialism," Manovich asserts that as the computer becomes more integrated within media production of all sorts, "the computer layer will affect the cultural layer." Thus, Manovich provides a model approach for examining media that takes into account both its symbolic forms and its materiality.

This chapter uses the language of computation and interface design to suggest a way of aligning core museum provision with the symbolic forms of the prevailing culture. It first and foremost proposes a conceptual framework for understanding how media reconfigures a particular existing institution: the museum. It begins with the assumptions that the computer layer and the culture layer exercise mutual influence (Manovich, 2001) and that digital media has become hegemonic. It does not see the process by which the computer layer comes to suffuse cultural communication as inevitable, but it does recognise it as pervasive and highly influential. It presents evidence of the influence of the computer layer on the cultural layer of the museum and notes how this builds on a history of previous media encounters that have informed its structures and strategies. It also suggests that within the context of "the digital," the symbolic forms associated with it can sometimes be seen within contexts where digital media are insignificant or even absent.

The introduction of this new vocabulary is more than simply a matter of metaphor. The terms "assets," "platform" and "affordances" in fact operate metonymically, serving as both figures for and links to existing museum practices. They highlight aspects of exhibitions and museum infrastructures that reflect the reconfigured hierarchies of knowledge and experience set in motion by ubiquitous digital media while also offering tacit acknowledgement of what media archaeology has demonstrated – that media itself is a material process (Chun, 2011; Ernst, 2013; Parikka, 2012). It uses examples from a diverse set of institutions, including the MoMA (New York), the Experience Music Project (Seattle), and the Wellcome Collection (London), and refers to artists and curators who are well known for having pioneered approaches that extended the conventional boundaries of the museum.

Because the proposed terminology of "assets," "platforms" and "affordances" presupposes the digital dimension of contemporary reality, it offers a perspective on what constitutes heritage that is directly informed by media and communication studies. In highlighting the mutability of the museum, the proposed terminology resonates with debates within the museum and art worlds about the institution's changing social responsibilities and the role media technologies and participatory social practices play in fulfilling those responsibilities. And, in taking an interdisciplinary approach, hopes to demonstrate the value of media studies for museology. Thinking in terms of computational and interface-design structures is, most centrally, useful for dramatising the difference between the additive and the constitutive role of media for the museum. By highlighting the latter, it is my hope that this chapter will resonate with those whose understanding of culture and digitality are inextricable, and perhaps provide them with a useful point of entry into the ongoing dialogue about the future shape of the museum. While this future belongs to those who will inherit and re-invent it, it remains meaningful to those whose work over the past decades has sought to define the museum as a sphere of vital public engagement. A place where prevailing social narratives are contested and rethought; where demands for increased access and accountability have found passionate support; and where innovation and experimentation find thoughtful embrace. In addition to facilitating an intergenerational

dialogue about the future of the museum, the act of translation that this chapter proposes will, it is expected, help illuminate the continued relevance of the museum as both a heritage institution and as a medium for cultural communication.

The collection comprises "assets"

For many years, museums have been viewed as "institutions based on objects" (Hooper-Greenhill, 1995, p. 10), and it has even been said that "museums are not museums if they are not centrally about material culture" (Moore, 1997, p. 23). The term "assets" proposes a reconsideration of such assumptions by providing a generic term that describes the contents of a collection in a manner that highlights the co-existence of a variety of entities. Objects, texts, images, media and records of immaterial culture all assemble beneath the canopy of the term "assets." Its use here also intentionally highlights the links between the museum and other fields of practice that use this term: specifically, media production and information management. Thus, the museum is situated on a continuum of media practices rather than ensconced in any primary opposition.

The emergence of "asset thinking" can be traced back to the MoMA (New York)'s early efforts to integrate media into its collection, well in advance of the advent of the digital. It is also prefigured in early conversations about museum computing that began in the 1960s and can be seen to have reached a defining moment when the Experience Music Project (Seattle) devised its innovative informational infrastructure at the end of the last millennium.

Use of the term "assets" within the museum context raises two central concerns that merit consideration. The first questions the fate of the collection once the museum's traditional object-based epistemology gives way to another with increased emphasis on the informational aspect of the artefact, and it introduces apprehension about how this might result in a loss of the sensory, tactile power of the "real" thing. The second concern arises as a consequence of the association of the term with the realms of finance and commercial culture and flags the potential for confusion of market and heritage value.

The most familiar use of the term "asset" refers to a resource controlled by a distinct entity that can expect to reap future benefits from its use or exchange. The term is applied to real estate, livestock and other material belongings, as well as intangibles such as patents, copyrights and stock investments. The association with market value is evident not only in this everyday use of the term but also becomes increasingly prominent in the academic world. And, it is manifest in the efforts of scholars in the field of economics to establish valuation models for cultural goods and heritage assets (Mazzanti, 2002; Held, 2014; Zorloni, 2013; Zeybek, Yozgat, & Gurunlu, 2016). Concern about the loss of a sense of intrinsic value resulting from the inundation of neoliberal values within the arts and humanities is not unfounded. The creation of financial products specifically focussed on art as an "asset class" with superior market performance, and the undermining effect that overheated markets have on public life and shared cultural heritage, for instance, give weight to this disquiet. Perhaps the most poignant example of this in recent years is seen in the attempt on the part of trustees of the state of Michigan in 2013 to initiate the sale of the renowned collection of the Detroit Art Institute to pay off municipal debts. But the proposed use of the term here has less to do with a notion of value as something dormant until reaped through a process of liquidation than it does with a performative understanding of value.

Within the context of media production workflow, the term is commonly used to describe elements (photos, videos, sound files, animations, 3-D models, etc.) that are integrated into a single presentation. When stored in the database, such elements might be described as "assets." However, once they are in use, they are reconfigured as content. A website, for instance, is essentially a set of assets that have been "deployed" when addressed by a user. This process of activation

has been discussed in reference to the "real-time" character of the Internet (Lovink, 2012; Berry, 2011) and can be summarised as the "processing of information … at such speed that it allows for access without perceptible delay" (Weltevrede, Helmund, & Gerlitz, 2014, p. 128). This technological transformation of time is one of the central effects of the "computational turn" (Berry, 2011). And, it has been the subject of detailed research relating to the underlying structures that sustain it (Gehl, 2011), its broad social effects (Hassan & Purser, 2007) and the platform-specific configurations that embed specific temporalities in the "back-end" (Weltevrede et al., 2014). While new media intensifies a set of questions relating to immediacy, museum collections, as storehouses of history and memory, have always been concerned with time. Thus, it is possible to see that each era in museum history reflects a unique temporal framework. Early efforts by museums – such as the V&A (London), the Smithsonian (Washington), the George Eastman Museum (Rochester), and the MoMA (New York) – to collect "new media" cultural materials such as photography, music and film, not only stretched the conceptual boundaries of the collection, they also refashioned the kinds of temporal experience associated with the museum. And it is within such efforts that we can see an early instance of the relevance of "asset-thinking." Perhaps the most striking example of which is visible in the history of the MoMA (New York)'s Department of Film and Video.

Established in 1935 at the behest of Alfred Barr Jr., the museum's original director, the MoMA (New York)'s film department was "tasked with saving and exhibiting films that were in danger of being forever lost to public view" (Wasson, 2005, p. 1). Under the leadership of British film critic Iris Barry, the museum began to collect, preserve, restore and screen film "classics" and related artefacts. This undertaking proved to be no simple operation, as the museum was also regularly required to justify its relevance and cultural value.

The product of photochemical processes, the "film object" possessed a highly unstable materiality, one that existed in a "perpetual state of decomposition" (Slide, 2000, p. 3). As a time-based medium, it was also a dormant object that required playback to disclose its cultural significance. Thus entailing acquisition or use of another set of objects for its display: the projector, screen and sound system. As film historian Haidee Wasson (2005, p. 8) succinctly puts it, "the film object was like no other cultural object." As a mass medium, film brought questions about the original and the copy directly into the archive, along with challenges relating to the system of legal rights that defined it as an object of the entertainment industry. Early on, the collection also began to amass the ephemera of film history – posters, fan magazines, business documents and production materials – as the archive sought to preserve and make sense of "film history's sprawled and varied remains" (Wasson, 2005, pp. 114, 4).

The archiving of film changed the ephemeral condition of its cultural and material life and made possible new forms of attention arising from repeated viewing (Wasson, 2005, p. 6). Removed from the production and consumption cycles of the commercial ethos, the films of the collection were relocated within new temporal frameworks informed by historical reflection and "the formation of a creative and critical community around cinema" (Wasson, 2005, p. 105). At the same time as the cultural identity of film was being transformed by its inclusion in the museum collection, it was, in turn, exerting a modifying influence on some of the conventions of its new habitat. As a time-based medium that had to be played to be seen, film introduced the new temporality of the screening into the museum. It also challenged conventional thinking about the museum's collection because of the copyrights that attached to many of the films it acquired. With this medium, the ownership of copyrights often remained distinct from the possession of the material artefact. Ownership of the object did not automatically entail the right to its public display.

Collecting and exhibiting film realised Barr's ambition of "inserting the museum into the ephemeral dialogues that characterise modernity" (Wasson, 2005, p. 85). For, through its film

programmes, the MoMA (New York) expanded its audience both for the actual museum (helping to increase overall attendance by one-third) and at the national level through its travelling programmes and broadcast partnerships (Wasson, 2005, p. 155–162). Despite resistance and outright opposition from "untrusting trustees," and notwithstanding the voices within the popular press questioning whether film belonged in the museum alongside more respectable cultural endeavours (Wasson, 2005, p. 120–27), the MoMA (New York) was, over time, successful in integrating the new media into its remit. And this served to inspire other institutional efforts (such as those of the Motion Pictures Division of the U.S. National Archives, the British Film Institute, the Worker's Film and Photo League, and the Harvard Film Foundation) to collect, preserve and exhibit film.

Thus, the museum's commitment to collecting film had relocated a number of its institutional boundaries: both practical and conceptual. As a form of mechanically reproducible recorded media, film challenged certain presumptions about materiality and object-hood even though, as an analogue media, film could still fulfil certain traditional expectations regarding the museum's identification with its material objects. It also began to redefine how the museum thought about and communicated with its audience. In keeping with the vision of the museum's director, the inclusion of a new medium within the museum collection involved it in a broader cultural conversation. As the museum's first time-based media content, film played a pivotal role in changing institutional thinking about cultural value. Its inclusion in the museum led to the reorganisation of certain exhibition routines and stretched the definition of the museum object. Similarly, the integration of computers within the museum's collections infrastructure had a profound effect on the possibility of imagining collections in terms of "assets." Principally, it radicalised thinking about what might constitute an artefact, moving it away from a strictly material conception toward a more informational one. Also, the museum's efforts to introduce automation to collections management quickly led to the spread of supportive networks of knowledge and expertise sharing, some of which evolved into formal professional associations.

Recoding the museum: Digital heritage and the technologies of change, Ross Parry's account of the early history of museum computing, examines the explorations of collections automation undertaken by the Smithsonian Institute, Museum Computer Network project, the Information Retrieval Group of the Museums Association. It situates these initiatives within a context of the rapid expansion of the heritage field and increased demands for access that gave rise to the juggernaut of standardisation and sharing within the museum sector (Parry, 2007, p. 15–28). Parry's narrative highlights how the development of systematic general information structures and the notion of interoperability by museum computing professionals transformed the collection from a container to a part of a network. Parry also points out how a comparison between museum collections and those of libraries, a related public memory institution similarly tasked with massive record keeping, made obvious one of the museum's distinguishing features. For libraries, it was mainly the information of the title page that needed to be captured. But once written up as a record, such information remained essentially static. In contrast, the museum record had to reflect the ongoing development of knowledge about a given item. Museums had unique objects, not standard and duplicated items. And, unlike libraries, museums needed to document the history and the meaning of that object (Parry, 2007, p. 23). Thus, even in its most fixed material form, through the lens of the new computerised collections management tools, it became strikingly evident that the museum object possesses a dynamic social character.

For some, the expansion of the museum's media infrastructure represented an unsettling drift away from the traditional understanding of the museum as an institution necessarily rooted in materialism. And this gave rise to a sense that the sensory, tactile of the "real" thing was at risk to the "virtual" (Parry, 2007). However, while both computation and time-based media present

challenges to the museum's traditional object-based epistemology, the outcome of those challenges has been far from a simple demotion of the material object. What has emerged, instead, has been a new emphasis – visible in the work of scholars like Sandra Dudley (2010) and Helen Chatterjee (2008) – on the material object as something "consist[ing] of an enmeshing of the physical thing and human sensory perception of it." And a deepening concern for how "the object's sensible attributes still speak in the absence of information" (Dudley, 2010, p. 6–11). Thus, rather than being demoted, the particularity of the physical artefact becomes more pronounced within the context of abstract equivalence provided by "asset-thinking." The distinguishing value of the physical presence of the object is understood as being precisely about its potential for hosting embodied encounters that have the ability to excite awareness of our own sensory, spatial experience, and to welcome the affective and subjective understandings upon which experiences of awe, wonder and absorption rest.

The emergence of the notion that a museum collection might comprise "assets" rather than objects or artefacts is rooted in the museum's digitisation of its collections infrastructure and its integration of time-based media objects (including documentation of intangible and performance-based cultural heritage). For many museums, these sorts of developments are grafted onto pre-existing structures grounded in the object-based epistemology. For others, such as science centres and children's museums, the traditional understanding of the collection has already been reinterpreted through the lens of "the experiential" (Hein, 2000). As a result, these types of museums have proven more amenable to the idea of the museum as an "information utility," an institution in which artefacts, audio-visual materials, databases, staff expertise, oral histories, replicas, re-enactments and live performances are understood as complementary, layered and overlapping communicative resources (MacDonald & Alsford, 1991). Perhaps the most striking example of a museum that puts this information-oriented approach into practice is the Experience Music Project in Seattle, Washington. It is here that we can see not only the collection conceived of as assets but also the development of a model of its use that puts the collection in direct contact with the museum's audience in a way that reimagines the dynamic of deposit and deployment.

The Experience Music Project (Seattle) grew out of Microsoft co-founder Paul Allen's efforts to establish a museum to honour the legacy of another Seattle native, Jimi Hendrix. Allen initially conceived the museum as an establishment that would house his collection of music memorabilia. The group that Allen assembled to develop and design his "Hendrix museum" included a curator from the Museum of History and Industry, several architects and two popular music experts. The team sought to actively re-think the provision of the museum to welcome a general audience and take full advantage of the opportunities represented by new technology (Bruce, 2006, p. 132). They immersed themselves in an intense period of research, suspending all presuppositions about the centrality of the material artefact and allowing questions of audience engagement to take centre stage. When the process was complete, what emerged was a museum designed with the Internet as its conceptual model: "non-hierarchical and multilayered, with 'browser' capabilities for vast amounts of information 'available to all'" (Bruce, 2006, p. 148). Exhibitions were designed to let "visitors explore their own creativity" rather than have them follow the historical narrative set out by the museum (Blecha, 2005, p. 85), and networked with the collections so that visitors could "bring the museum's activities directly into the home" (Woog, 2000, p. 13). To this end, the Experience Music Project (Seattle) created the digital collection interface in such a way that "storytelling capabilities were facilitated by the symbiotic relationship between the museum's cataloguing system and workstation in the Digital Lab and the Web" (Andolsek & Freedman, 2001). Another important element in this information ecosystem was the Museum Exhibit Guide (MEG): a handheld device that provided access to

enhanced artefact descriptions, broadcast-quality videos, music and oral histories which visitors could bookmark and call up later online. In short, the system provided each museum visitor with "tools to build their own pathways" (Parry, 2008, p. 180) and facilitate the creation of "drillable" follow-up opportunities in which they could undertake a focussed and concentrated exploration of content (Jenkins, Ford, & Green, 2013). The MEG system was retired in 2006 because of its resource-heavy demands: the 2,500 custom hardware devices requiring daily maintenance to transfer visitor data to the website, update content, clean and recharge (Andolsek & Freeman, 2001). Nevertheless, it made a significant contribution to the reconceptualisation of several aspects of the museum collection, including what the collection might comprise and how the collection might interface with other core provisions of the museum. It had successfully introduced an approach that blurred the traditional distinction between artefact and document, fostering the emergence of hybrid objects and flexible taxonomies.

Because the term "assets" provides a non-specific and non-hierarchical description, it allows for the coexistence of various elements or entities. Using the word to describe the contents of the museum's collection thus suggests a way to think about how media, material and immaterial culture co-exist within it. And it highlights how these various elements operate in concert and how heritage value manifests itself within a wide range of contexts for public engagement – including exhibition, tagging, liking, commenting, researching, linking, circulating and sharing. This ecumenical, medium-agnostic approach to collecting, on the one hand, emphasises the equivalence of the items in the collection in the latent state of deposit, while on the other stressing their particularity when deployed or put to communicative use. Although earlier the term "assets" was set apart from markets and money, the term "assets" nevertheless retains the suggestion that there is latent within it the possibility of reaping future benefits from use or exchange. The museum's holdings are its assets in the sense that they have potential use in the occasioning of heritage. Thus, thinking about the museum's collection as its assets serves to reinforce the institution's legitimacy as the custodian of a shared cultural property.

Exhibitions are "platforms"

Thinking about exhibitions as "platforms" provides a clear illustration of how the 21st-century museum has been moving away from a transmission model of communication and replacing it with transactional and participatory models (Drotner & Schrøder, 2013). Like the term "assets," the term "platform" brings with it connotations from the various contexts in which it has previously been used, including software development, theatrical and multi-modal models of exhibition design and its politicised use within the context of contemporary art. A platform is a place where something assembles, and as such, it implies a performative or active making of meaning. In today's culture, the idea of actively making meaning is routinely associated with social media and the forms of participation associated with it. The value of the term "platform" finds illustration in two contemporary exhibitions of art and culture – *Nirvana: Taking punk to the masses* and *12 ballads for the Huguenot House* – while simultaneously taking into account some of the critical discussions of participation that help clarify the contours of "platform thinking."

In the context of computing, a "platform" is the site of a software application's execution. It is both structured and dynamic, which differentiates it from a device (a thing made for a particular purpose), but not purpose-made, which differentiates it from software. Although it has a functional infrastructure, it is one that hosts or is responsive to multiple inputs or options in a manner that operates more or less invisibly. For instance, when in use, mobile applications tend to obscure the operations of the smartphone or tablet platform that hosts them. The user engages with the app rather than the phone, the sociability of which is strengthened by its being part of

a network. And, there is something important in this for, indeed, the structure of a platform is unlike that of a monopoly or monolith in that it accommodates the activities of various others (users, apps, agents, etc.) according to shared standards for compatibility rather than controlling action or predetermining outcomes. In fact, the term "platform" helps re-conceptualise museum exhibition precisely because it implies both a performative dynamic and an underlying structure.

Recent scholarship focussing on exhibition design suggest a growing interest in the need to develop conceptual models that will explain and address aspects of exhibition experience that are marginalised by textual or narrative models. Rather than conceiving of exhibitions as a form of "storytelling," they entertain conceptual models that reference scenography, spectacle and the creation of dramatic intensities (Crawley, 2012; Bruce, 2006; Skolnick, 2012), and characterise exhibitions as labyrinthine or prismatic (Basu, 2007; Peña Ovalle, 2009) spaces of navigation (Hillier & Tzortzi, 2007). Such discussions often take for granted the role of media, looking at it not as something that operates in isolation but as part of a complex of forces at play in shaping and reshaping display conventions in ways that are dynamic, nonlinear and reconfigurable. In the context of exhibition-making, the term "platform" calls to mind the theatrical aspects of public presentation that see the museum "become a site for the production of new experiences" (McQuire & Radywyle, 2010, p. 17). In Seattle, the Experience Music Project's *Nirvana: Taking punk to the masses* is an exhibition characterised by such properties. And, as such, it provides an excellent opportunity to observe "platform thinking" at work.

Nirvana: Taking punk to the masses is a dynamic, multi-media history of the emergence of the underground music into the mainstream in the early 1990s. It brings together artefacts, oral histories, interactives, graphics, music and video to tell the story of the band Nirvana's rise to fame, situating it within a broader social history. The exhibition is organised in a manner that emphasises a cultural narrative that includes the band's influences, fans, ambivalent involvements with the music industry and, to some extent, the political landscape of the early 1990s.

The exhibition occupies a u-shaped space organised to communicate the overlapping narrative threads. One strand traces the evolution of the local scene in which a network of musicians, fans, promoters and journalists created the culture from which Nirvana emerged. The other makes reference to an overarching constellation of musical influences and inspirations that extended well beyond Seattle in the late 1980s, connecting that world to other faraway times and places such as the mid-'70s New York of Patti Smith and Television, or the Southern California hardcore scene of the early 1980s. The idea is made manifest in spatial terms by unscrolling the two stories along the inner and outer walls of the exhibition space and offering the visitor a path through the content, but no vista from which to collect it as a single visual panorama. Behind the inner wall of the passageway resides a chamber in which fan testimonials are recorded and screened. The exhibition includes more than two hundred labelled artefacts and more than four hours of audio-visual material. As a layered and variegated experience involving artefacts, expository text, screened and projected video, touch-screen kiosks, infographics, listening stations, a recording booth and an ambient soundtrack, the exhibition has a density that is immersive but far too rich and too complex to consume in even the most extended visit. Instead, the exhibition offers the visitor a context in which to engage in open-ended and self-directed sense-making activities, and, in so doing, the museum withdraws from the role of narrative authority and moves toward that of experiential information resource. The history of Nirvana is presented here as one without a single, authoritative narrative through-line, as a set of overlapping life-worlds involving both imagination and practice, the local and global: a fragmented history in need of assembly by the visitor.

Thus, like the "platform," the Nirvana exhibition serves as a place to stage meaning in a manner that is dynamic and non-monopolistic, responsive to multiple inputs, structured but without

narrowly prescribed outcomes. It hosts a range of possible encounters by serving as a point of contact between individual and institution, between the database and the user, between a history (of the band) and those who are invited to make sense of it (the exhibition audience). The limit of this open-mindedness, however, is evident in the online component of the exhibition, where fans are invited to "share their Nirvana" but can only do so on platforms that allow posting but do not support dialogue, exchange or co-creation – the activities usually associated with participatory media. Interestingly, in a context frequently imagined as a site for the untrammelled exercise of the audience's agency, using software with relatively restrictive parameters affords the underlying structures of communication and the institution's agency an unexpected visibility.

The question of "participation" is one that vexes both media theorists (Gehl, 2011; Langois, 2012; Beer, 2013; Mansell, 2017) and critics and curators concerned with contemporary art and museums (Rogoff, 2005; Bishop, 2012; Kundu & Kalin, 2015; Noy, 2016). Academics whose research focusses on the overlap of social media and the museum also seek to understand how participatory media "merges heritage with the every day" (Giaccardi, 2012) and increases visitor involvement (Simon, 2010). Or, how participatory media challenges organisational forms of authority and reflects the interests of the corporations that freely provide the social networking applications (Drotner & Schrøder, 2013). Broadly speaking, the paradox at the heart of the participatory paradigm is one of "agency"; that is, of "the good intentions of recognition" obscuring questions of what constitutes the public realm and defines a consequential claim within that realm (Rogoff, 2005). Nowhere is the issue more thoughtfully illuminated than in José van Dijck's *The culture of connectivity: A critical history of social media* (2013). Here, the author demonstrates how the seemingly naturally occurring, informal and ephemeral communication that takes place within social media is in fact highly engineered and proprietary. And how it exists within a context in which the "pinnacle of a company's success … [occurs] when a brand turns into a verb" (van Dijck, 2013, p. 7). The "veneer of simplicity" that treats the social as self-apparent and perhaps even self-generative does so at the cost of erasing the physical dimension of the network and the central position held by corporations in the historic coevolution of these new public spaces. Having established her analytical framework, van Dijck goes on to systematically disassemble the structure of several branded social media platforms according to their use of technology, user activities, content generation, ownership, governance and business model. By highlighting the distinct structure and use of each platform, the analysis also enacts a significant disassembly of the generic category of "social media" itself and offers in its stead the more precise phrase "platformed sociality."

Of course, a critical analysis such as this has a political agenda. For van Dijck, the objective is to call into question the process of "making sociality saleable" (van Dijck, 2013, p. 14). In part, to resist the marginalisation of those dimensions of communication that are difficult to reconcile with the dominant tropes of "platformed sociality": sharing, trending, following and favouring (or, "favouriting" in the lexicon of life online). This is important because it constitutes these core categories from within the phenomenon, thus limiting the use of overly abstract types such as are found in claims about the "democratising" effects of networks or social media. Although the museum exhibition is not strictly speaking a "branded platform," it is nevertheless important to acknowledge and reflect on the role of the institution as the source of "shared standards" for participation. Thus, the term platform, in addition to emphasising the dynamic process of making meaning, can also bring to light the underlying structures that condition museum communication.

One of the most influential early uses of the term "platform" within the contemporary art world occurred when curator Okwui Enwezor used it to frame a series of five issue-oriented zones of public engagement for Documenta11 in 2002. Here, the term "platform"

was employed to create a space for dialogue but also invoke the infrastructure underlying the exhibition to decentre curatorial authority and bracket its tendency to pursue the conquest of the new and the other (Lamoureux, 2005, p. 72). Enwezor's approach was an "insistently transnational, interdisciplinary and transgenerational … [series of] discursive, public interventions … creating a network of partners, collaborators, and interlocutors." It was seen as having re-conceived the exhibition as an "overflowing abundance of elements" (Lamoureux, 2005, p. 73) and extended the critical positions of earlier practices of site-specificity and institutional critique. By engaging the notion that the work involves collaboration with the audience, Enwezor advanced a line of thinking introduced by Duchamp that has now become widely recognised as a central proposition of contemporary art. Recognition of the polysemous character of art and its inevitable incompleteness (McQuire & Radywyl, 2010, p. 15) suggests that the discursive origin of the notion of the platform is as important as the influence of any particular technology. A further reflection of this attitude is visible in the work of artists such as Lucy Orta, Rirkrit Tiravanija, Olafur Eliasson and Tino Sehgal, for whom the exhibition is defined by what is possible as much as by what is produced. They share an approach to the exhibition that treats it as a framework for initiating experiments and conversations, orchestrating social and phenomenological experiences or instigating audience interaction. In such circumstances, the exhibition provides the platform for the execution of a public act of display, but one without a predetermined outcome.

Theaster Gates' project, *12 ballads for the Huguenot House* (2012), which was produced by the Museum of Contemporary Art (Chicago) for presentation at Documenta13, provides a compelling example of this sort of "platform thinking," even though the exhibition bore no direct relation to digital media. Characterised by one of the participants as a "love song from one vacant building to another" (Preus, 2012), the project involved the transport of materials salvaged from an abandoned residential building and a decommissioned school in Chicago's South Side to another abandoned property: the Huguenot House in Kassel. That neither building belonged to the commissioning museum meant that the institution constructed the "platform" off-site rather than within its galleries. With nine builders living on-site, the Huguenot House was cleaned, repaired and made habitable again. It then became the site for an installation and performance space that hosted performances by The Black Monks of Mississippi, a Chicago-based musical ensemble who have collaborated with Gates for some years. With a background in urban planning, ceramics and religious studies, Gates' approach to art-making is multi-dimensional and interdisciplinary. His projects raise questions about how materials from one place (Chicago) can be relevant to another (Kassel), how materials are transformed through repurposing but also bring meaning with them, acting as stand-ins for people or past times. Gates also talks about how "acts of restoration" create or renew cultural life, and how the "reactivation of sites" provides a context for thinking about how communities are formed (TEDTalks, 2015).

12 ballads for the Huguenot House marks its multiplicity in its title. The songs took shape in a Chicago building during an 18-hour jam session that happened just before demolition workers gutted the building. Video recordings of the Black Monks of Mississippi's performance appear in the rooms of the Huguenot House, bringing with them their power to re-activate the neglected space. Live musicians further augment the animation by staging informal rehearsal-like performances. Despite the quality of the music, its making was suffused with a sense of the ephemeral and even incidental – especially when surrounded by other everyday activities, such as sleeping and cooking, and rendered atmospheric by the steady flow of visitors. Even without any direct or obvious relation to digital culture, the exhibition in Kassel reflects the dynamic character of the platform, an underlying structure upon which things (including concepts and social bonds) can be fashioned.

Imagined as a "platform," the exhibition evokes new associations with shared space, multimodality, multi-media and non-monopolistic agency. It helps reveal the symbolic forms and social bonds that constitute the underlying structures of the exhibition, but it does not erase the sense of the exhibition as a site of staged display. It finds resonance with the discourse of visitor-centred museum but avoids the confusion of cultural expression and democratisation often seen in the celebratory rhetoric surrounding "the participatory." Because the term emerges from the realms of computational and networked communication, it lives comfortably within "the digital" and the related notion of overlapping informational networks. But, because it also takes into account the use of the term within contemporary art to evoke the kind of social space-making that both favours the event over the object and calls into question centralised authority, it does so without making it an end in itself.

Interpretation involves the management of "affordances"

The dynamic relations made evident when the exhibition is reconceived as a "platform" also affect the conventional understanding of the interpretive functions of the museum. One way to account for these changes is to reframe the interpretive activities in reference to "affordances." Historically, the interpretive role has been the monopoly of the museum and its curators. The term "affordances" is imported from the field of user-experience design to release interpretation from institutional authority and render it relational. It is also useful for describing emerging curatorial practices because it draws together both physical and digital aspects of design applications within the same process. This conveniently parallels the evolving communicative routines of the museum, which increasingly involve the production of multi-channelled messaging meant to engage the complex subjectivities of its audiences. Thus, employing this term is one way to begin to answer the questions: How does the museum realise its interpretive provision in light of the emerging forms of digital communication that diffuse the organisation's interpretative authority? And, how can the museum's acts of interpretation mesh with those generated by its increasingly diverse audience?

"Affordance" is a term first used by cognitive psychologist James J. Gibson in his book *The ecological approach to visual perception* (1979/2015) to denote the possibility of action latent in a given environment or object. A stick, for example, affords prying, poking, striking, leveraging and so on, while a cave affords sheltering, hiding or nesting. The central significance of Gibson's development of the idea of affordances is that it shifted thinking about how humans engaged with their environment, and especially the objects that populated it, away from the self-apparent character of functional interaction toward a more adaptive and improvisational understanding. A decade later, designer Donald Norman gave the term a slightly different emphasis when he established the principles of user-centred design for human-machine interactions (1988). Here, the discoverable possibility for action is tied more directly to practical design problems and thus more directly associated with the clues a given design provides the user. In thinking about the guidance that design offered to action, Norman also encouraged an increased awareness on the part of the designer of the conceptual models that people bring with them to the encounter with the thing. By highlighting the relational character of design communication, the complex dynamic between the actual and the possible, he redefined design as a process of invitation rather than prescription. Thus, the user's habitual or improvisational response becomes an important part of what the term "affordances" references. Here, again, we employ a term that includes but is not limited to any particular medium, but that is part of the spectrum of communication in today's world – including but not restricted to the contemporary museum.

If the introduction of the notion of affordances evokes the concept of the interface, it is not by coincidence. Whereas once scholars spoke about "media and the museum" or "media in the

museum," today we see the claim made the museum itself is a media-form (Henning, 2006). As a result, awareness of the mediating being done by the institution heightens, and the tools, techniques and traditions that facilitate its mediations become more readily apparent to both critics and those tasked with guiding its communications strategies. Like an interface, the museum promotes the contact between different components; it is a point of intersection. It "delimits a cultural space, within which a specific set of relations may occur" (Hookway, 2014, p. 17). An interface conditions the making and circulation of information and meaning according to its surface arrangement, its connectivity, depth, responsiveness and reconfigurability. The way an interface positions itself between things is dynamic but creates thresholds and boundaries that condition what may occur – it is not "randomly extended" (Chun, 2011). Because the museum operates as an interface, its interpretive provision thus becomes the management of affordances with the curator assuming increased responsibility for configuring the museum's public programs as sites for engagement and the negotiation of interpretive possibilities. Consequently, there is a shift in emphasis from a narrative or thesis-driven communicative approach to a practice involving fields of information and perceptual filters. A final example from the Experience Music Project (Seattle) helps illustrate how this is manifest.

The Seattle Band Map is an example of a museum project that successfully realises the interpretive provision by approaching it as an informational field and working with the expectations, attitudes and prior knowledge of its audience. The project consists of two side-by-side 8x12-foot murals that trace the connections between members of the numerous bands that make up the Seattle music scene. One wall summarises the crowd-sourced findings of musician and DJ Rachel Ratner's efforts to document and map the scene's sprawling network of musical collaborations. The other uses a dry-erase board to invite audiences to contribute and continue the project, making additions and amendments. Ratner manages the affordances of this simple, low-tech interface to facilitate a high level of audience involvement. The curatorial minimalism of this project – consisting chiefly of framing a question and then inviting the public to help answer it – reflects a model of practice that is less narrative or thesis-driven than is traditional in the museum world. It is a method that is more open to hypothesis, concerned with affect, less declarative than interrogative, and more amenable to experimentation and collective activity. It starts from a position in which the information it contains can be reconfigured and uses a mode of communication that is inherently dialogic. Thus, the museum's interpretive efforts afford the possibility of audiences sharing their knowledge with one another as well as communicating the institution's recognition of the significance of cultural memory as something that is co-owned with the public.

The management of affordances does not necessarily involve the audience in "hands-on" participation. As a recent exhibition at the Wellcome Collection (London) illustrates, the museum has other ways of manifesting a non-monopolistic approach to interpretation, one that encourages the production of a range of possible meanings. *This is a voice* is an exhibition that explores the properties of the human voice from a variety of perspectives using a diverse set of media. It brings together medical illustrations and devices, ethnographic objects and contemporary artworks by Marcus Coates, Jochen Gerz and Imogen Stidworthy, with documentation of performances by acclaimed vocalists such as Laurie Anderson, Joan La Barbara and Meredith Monk. Two lullabies – one from Uganda, the other from India – play inside a partially enclosed listening cove, creating an intimate and focussed encounter with a musical form that for millennia has been used to facilitate emotional bonding and support language development. Another of the projects in the exhibition documents a performance by the German conceptual artist Jochen Gerz, who has recorded himself standing some distance from the camera shouting "hello" over and over for almost 20 minutes until his voice becomes so hoarse it becomes impossible for

him to continue. Other exhibits include displays of tools used in the diagnosis and treatment of throat conditions; a tubercular larynx and trachea in a specimen jar; and a print of the topography of the Liverpool accent created with voice analysis software. As well, there is a notebook that belonged to Virginia Woolf in which she complains of the "horrible voices" that precipitated her nervous breakdown (Muñoz, 2016).

Interestingly, the "affordance oriented" curatorial practice preserves the value of material culture within its broader medium-agnostic framework. It stages the exhibition of the material or media object according to the particular communicative needs of each for proximity, duration, light level and volume. And, in its interpretive attention to staging, evident in the creation of thematic zones where historically distant artefacts coexist, offering the audience an opportunity to compare, contrast and connect, the "affordance oriented" approach highlights the particularity of each component. Thus, it helps dissolve the "unhelpful" opposition between material culture and multimedia (Witcomb, 2010) that sees the one threatening the value of the other. Rather than viewing media as additive, it offers a perspective that views material culture as a medium and media as having material dimension.

Reframing the museum's interpretive provision as a process entailing the management of "affordances" allows us to envision the role of the curator in terms that directly correspond to the understanding established earlier of the museum's collection as "assets" and its exhibitions as "platforms" for the presentation of art and ideas. Some might see in this a loss of narrative certainty, but the examples of "affordance-oriented" curation offered above make evident the value of an approach to interpretation informed less by text-making and more by a facilitative approach to curation. One in which the curator presupposes that the audience will selectively engage with and appropriate content and fuse it with the information and knowledge they bring with them, or that which they might subsequently pursue on one of the museum's other platforms. Thus, understanding museum interpretation as the management of "affordances" allows for digital media but does so within a broader context of museum communication and audience appropriation. It takes us beyond the transmission model of communication in its recognition of the constitutive role played by the visitor in the making of meaning. And, finally, it situates the museum within a broader context of communication in which digital media has become normative and operates in a manner that results in all media influenced by its structures and symbolic forms.

Conclusion

We began this consideration of the constitutive role of media in the museum with an inversion of the recommendation of an early champion of digital heritage, the museum director George MacDonald. Rather than, as MacDonald recommended, establishing analogies between "the real-world museum" and new media capacities, we have proposed a reverse comparison suggesting that traditional museum provision be rethought in reference to computation and interface design (MacDonald & Alsford, 1997). This inversion is not merely a literary device; rather, it is a declaration about an epistemological shift. The substitution of the terms "assets," "platforms" and "affordances" for collections, exhibitions and interpretation reflect how powerful the new communication technologies have been in shaping definitions of culture, heritage, memory and materiality. These large-scale issues bear across all disciplines and social practices. The culture of the museum and the discipline that studies it are also subject to the seismic shifts of "the digital" that have rearranged mass media, educational institutions, government and the economy. While it is important to imagine these changes in ways that are critical and grounded in actual practice, it is also important to consider how they organise the patterned arrangement of elements,

the forms, that condition experience. According to literary critic Caroline Levine, forms are "abstract and portable organising principles" that limit, differentiate, overlap and intersect, travel and operate within particular historical contexts (Levine, 2015, p. 5–7). They stabilise communication, but because communication takes place in particular historical contexts using specific materials and agents, forms are variable rather than fixed stabilities. And so, to appreciate the range of possible variations, she recommends that we think of forms in both aesthetic and socio-political terms, as assemblages constituted both materially and symbolically.

Throughout this chapter, we have approached the museum as a site of media convergence within which media enlarges and augments the institution's communicative potential. We have seen how media as museum content (film, video, music, games) connects the museum to the entertainment industries in a way that transforms the structure of the collection as well as the status of the entertainment sector's products. We have seen how the museum's digital infrastructure can connect the collection directly to the exhibition and itself become one of the platforms for audience engagement. And, within the context of public presentation, we have seen how the museum's use of media and network help it establish a new range of relations with audiences, redefining interpretive agency and along with it the role of the curator. Thus, this chapter has provided an account of the museum that shows how its absorption of the symbolic forms of digital media match its operational logic to that of the broader mediascape that it resides within. However, several issues that have arisen during the discussion warrant much more detailed consideration than can be provided here. Most significantly, the casually made claims about the inherently democratising effects of participatory media deserve a more sustained critical examination than can be offered here.

And, there remains a pressing need to develop a methodology for media analysis from the concept of "assemblages," which holds promise but at present remains somewhat abstract. Despite such unresolved issues, translating the core provision of the museum into the language of computation and design thinking has opened up a productive space for thinking about the museum's relation to media as one that is constitutive rather than additive.

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V.4

Feeling the exhibition

Design for an immersive and sensory exhibition experience

Maholo Uchida and Jingyu Peng

Sensorially, what does a museum experience "feel" like? We can listen to an audio guide, to background music and to sound effects of an exhibition; we can touch and handle replicas; we can smell the odour of different materials; we may even feel vibration and movement. It is a multi-sensory experience, processed by the human brain through multiple channels (Pascual-Leone & Hamilton, 2001). Consequently, it is reasonable for the museum to consider shaping and creating a multi-sensory visiting experience, one that assumes combinations and interactions through the visual, the auditory, the olfactory, the tactile and other senses.

Inspired by what it sees as a "sensory turn" in both museum studies and museum practice, this chapter aims to understand in-gallery technology from a sense perspective. The chapter considers research relating to the human sensory experience as set out, in particular, within the humanities and social sciences, reflecting on the implications of this work for the subject of museum studies. By reviewing a range of current examples of vivid and creative digital practice, what emerges is a new sensibility to both multi-sensory and immersive experiences within the museum. The discussion here starts by thinking through the evolving relationship between in-gallery digital technology and visitors' sensory experience, and what this means for mediated communication within the museum. It highlights an emerging approach to thinking about and designing digital installations. Specifically, it is suggested here that the concept of "scenography" – a term with a theatrical background – may provide a compelling means through which to design the museum's "technologies of display" (Parry & Sawyer, 2005). Building upon the concept of "time-based media," our discussion aims to explore (and to some extent project forward) a notion of "time-based scenography" within a museum context. It is proposed that, using the dynamic nature of media technology, time-based scenography can be a powerful bridge between museum collections, space and visitor experience. Working from this assumption, what is offered here is an overview of the influence and effect of time-based scenography in the exhibition, including the use of interactive and sensory media, as well as the use of new virtual reality technologies and 360-degree viewing systems. To assist this, we will look though two instances of a time-based scenographic approach being used in practice: *Geo-cosmos* at Miraikan (The National Museum of Emerging Science and Innovation, Tokyo); and *Björk digital*, the world's first VR album and exhibition tour.

The "sensory turn"

In the realm of the humanities and social sciences, a discursive shift has taken place, especially over the last 30 years, to recover a comprehensive understanding of the body and the senses. The understanding of the sensual has been limited, with no clear set of canonical theory to guide its thinking (Howes, 2005). It is an academic discourse that we might trace back to the 20th century, and to works such as *Les cinq sens,* by French philosopher Michel Serres (1985), and its conception of a human body built through its senses (Connor, 2005). The great American naturalist Henry David Thoreau held a similar perspective, proposing that the body should be free and enjoy sensations at leisure (Friesen, 2005). Equally, McLuhan (1961) reminds us that "sense" can be understood as not just a product of biology and psychology, but can also carry social and cultural significances. Indeed, according to Classen (2005a), sensory experience is seen as completely permeated with social values – smells, sounds and touch all having their underlying personal and shared meanings. Here the sensory becomes a tool for people to express themselves and to communicate with others; in Classen's (2005a) words, it is something one lives.

Increasing attention has been paid to the study of the human sensorium and senses from many disciplines within the humanities and social science, starting from history and anthropology in the 1980s, then spreading to sociology, geography, archaeology and other subject areas (Howes, 2013). Enlivened and defined by multi-disciplinary and cross-disciplinary perspectives, at the end of the 20th century, the academy saw the emergence of a defined field of "sensory studies," driven by key scholars such as anthropologist David Howes, historian Constance Classen and sociologist Antony Synnott, and their pivotal work at the Centre for Sensory Studies, Concordia University in 1988 (Howes, 1991, 2005; Classen, 2005b).

The field of museum studies too has been affected by this prosperity of sensory studies. We see Pye (2007) rethinking the role of touch in museums and proposing ways of thinking about the impact of object handling on participation and accessibility. We see Chatterjee (2008) exploring the value of object encounters, attempting to establish a conceptual framework for understanding the benefit of touch on learning and enjoyment. Similarly, the works of Candlin (2010) and Black (2005) have highlighted the importance of touch to the museum experience. Beyond the sense of touch, we see authors within museum studies addressing issues of sound, smell and taste. For example, Clutt (2014) examines the use of sound in exhibits over the past 50 years and summarises the development of sound as a curatorial theme; Stevenson (2014) highlights the importance of the "forgotten" sense of smell and analyses how it could help to enhance multisensory museum experience for all patrons, especially for those with sensory impairments. Additionally, we find studies examining other sensations and feelings. Pallasmaa (2014), for instance, has demonstrated how architecture and design of exhibits could influence the overall perception and feelings of the physical presence of exhibits. And Dudley (2010) has expanded our current understanding of objects, sensory experience and embodiment in her work. Rooted in contemporary museum studies and informed by diverse disciplines, she highlights the importance of aesthetics and affect in museum settings and provides a way of thinking about sensory and cognitive engagement with objects (Dudley, 2010).

This whole turn towards the sensory has not been exclusive to academic studies, but has also – crucially – been manifest in museum practice as well. A growing number of museums have continued to work co-operatively with research institutions to address and discuss issues of sensory and museum experience. Notably, we see Art Beyond Sight (ABS) working with the Metropolitan Museum of Art on Art Beyond Sight: Multimodal Approaches to Learning conferences, where researchers and professionals from various disciplines, including museum studies, neuroscience, psychology and many others, come together to discuss research of multisensory

learning in art education (Levent & Pascual-Leone, 2014). Museum researchers continue to draw upon (and work alongside) expertise from other related disciplines, and to seek a deeper understanding of the human sensory experience from different intellectual perspectives.

Foregrounding the sensory experience of museum media

In the context of museum studies and museum practice, this turn to the sensory has been characterised by an essentialism, and an idea of stripping away media and returning to the fundamentals of confronting the object – unmediated. And yet, concurrently, as this discourse around the sensory has grown, the practice of visitor studies has also continued to reflect upon the experience of confronting communicative media (particularly that which is digitally-based) within the museum. Here, in contrast to stripping media away, it is the media technologies themselves that are seen to add to the sensory experience, and that have, consequently, been the focus of study and practice. Typically, within visitor studies practice there have been two routine perspectives when analysing and understanding the impact of in-gallery technology: the educational value and usability. With, today, education the defining characteristic of the modern museum (Hooper-Greenhill, 1992, 1994, 2007; Hein, 1998), educational issues have become, consequently and fittingly, the key measure when assessing the effectiveness of in-gallery interactives. We see this default emphasis on educational value of interactive technology typified in works, for instance, of interactive systems specialist Maria Roussou (2009), examining the effects of immersive virtual reality environment on leisure and learning, and in Falk and colleagues (2004) and their investigation of short-term and long-term learning outcomes of using interactives. Alongside this emphasis on educational value sits an equally strong and enduring predisposition towards the usability of digital media in museums. This theme defines the studies of a number of writers (Reich, 2006; Keramidas, 2015; Mason, 2013) who each have attempted to explore questions around the design of interfaces, interactives and digital installations in exhibitions.

In contrast to this orthodoxy around measuring learning outcomes and usability (the two traditional lenses through which to look at exhibition technology), the sensory turn in museum studies, instead, inspires us to look anew at in-gallery communicative media. In other words, one possible consequence of the sensory turn in museum studies and museum practice is that we start to understand in-gallery communicative media from another perspective – the perspective of sense and sensory experience. Viewed from this new sensory vantage point, we notice distinct characteristics of modern museum exhibition design, particularly design that harnesses digital communicative media. Specifically – and as we will now consider here respectively in more detail – we recognise the rise in multi-sensory, immersive and multi-user exhibition scenarios.

Today, digital technology enables museums to communicate, sometimes concurrently, through multiple senses (American Alliance of Museums, 2014). For instance, in interactive digital exhibitions, such as the *Universe of sound* (designed by the Science Museum of London in partnership with the Philharmonia Orchestra), we witness the framing of a multi-sensory gallery experience. In this case, by using large screens, unconventional projecting surfaces, touchscreens, motion-tracking technology and 360-degree projections, the exhibition created a high-definition and multi-sensory experience, enabling visitors to feel like a musician, conductor or composer in the orchestra. Likewise, in exhibitions such as the *Venus* simulator (opened in the end of 2016 at the National Space Centre (NSC), Leicester (UK)), visitors experience wrap-around projections, surround-sound and a vibrating floor to create an audio-visual sensation of travelling through the Venusian atmosphere, including the physical feeling of "landing" on the planet's surface.

At the same time, multi-sensory experience is also used today by many museums as a tool to increase accessibility. By using emerging technologies, especially 3-D printing, museums can engage visitors with physical impairments or who would ordinarily be disabled by ineffective design and improve their visiting experience. For example, Brooklyn Museum's sensory tours created a unique experience for individuals with visual impairments. Through feeling 3-D printed objects and engaging in multi-sensory experiences in a series of tours, individuals who are blind or partially sighted are able to encounter art through other sensory channels.

Another key sensory characteristic of digital installations in contemporary exhibitions is the aspiration to create a highly immersive (and, in turn, inherently multi-sensory) experience (American Alliance of Museums, 2014). Immersive exhibits typically adopt technologies that utilise multiple sensory channels in order to generate special atmospheres, environments and senses of space. We see, for instance, installations such as *Rain room* (Random International) situating visitors within an engaging, multi-sensory, immersive environment of falling water. Exhibited in the Barbican (London), MoMA (New York), Yuz M (Shanghai) and LACMA (LA), *Rain room* uses a 3-D tracking camera to detect the real-time movement of visitors so that they can both see the water, hear the sound of the shower and have the sensation of walking in the rain – all without getting wet.

Apart from exhibitions like *Rain room*, giant projections and screens are, today, a familiar tool within exhibition design to create immersive environments. We witness displays such as *We are stars!*, at the NSC (Leicester), plotting its journey from the beginning of the Universe to the evolution of life, whilst immersing its audience within a 360-degree full-dome screen completely filling the visual field. Likewise, in exhibitions such as *Transcending boundaries* in the Pace Gallery London (working cooperatively with the teamLab), as waterfall cascades around the visitor, water appearing to "wash" over the visitors' feet, large projections on the wall and floor create an experience that is defined by its immersiveness as much as by its interactivity. In this digital immersive exhibition, a waterfall travels down from the wall, escaping across the floor, and gently "washing" over viewers' feet.

But as much as we see the multi-sensory and the immersive, a third trend in modern exhibition design involves the use of in-gallery interactives that can be manipulated by multiple users. As the influential museum digital practitioner Seb Chan (2014) explains, museums today are moving away from designing programmes for a single-person to focussing on activities that simultaneously can engage multiple users. It is no longer atypical today to encounter in museums touch-screen tables that can be used by multiple users. A much-documented example of using this type of multi-touch interactive table is the Churchill Museum, Imperial War Museums London. A 17-meter-long touchscreen table was installed in the central area of the museum displaying the lifeline of former British Prime Minister, Sir Winston Churchill. This interactive table allowed multiple users to view thousands of texts, images, film clips and documents about Churchill and his life. And yet, less augustly, but no less impactfully, we also see multi-touch tables being used in playful and capricious ways. The Computer History Museum in Mountain View, for instance, has applied "Frog Pond," a multi-touch interactive tabletop game to assist users in learning computer programming. This innovative game can introduce complex computer programming processes to visitors while they are playing; a complex abstract process immediately rendered fun and accessible.

Beyond tables, we can also discover museums designing multi-user experiences by using other parts of the architecture – such as interactive walls. For example, "Gallery one" in the Cleveland Museum of Art has used a 40-foot interactive multi-touch wall displaying all the works of art of the museum's permanent collection and 20 separate interfaces across the screen

wall at the same time. Additionally, with RFID the Collection Wall can be connected to other mobile devices. A signal of the success of its design, the grandeur of its execution and indeed the value that communicative media can have in a museum, this giant interactive wall became a signature item of the museum.

Across all of these examples – from simulated rain showers to animated walls, and from hemispheric films to interactive tables – museums continue to encourage and explore the importance and the possibility of the sensory. In particular, it is the qualities of the multi-sensory, the immersive and the multi-user experience that perhaps distinguish our modern exhibition design mode. This turn to (and celebration of) the human sensorium has been enabled by the intellectual framing of the sensory turn and the new sensibility to the senses within museological practice, but also – crucially – by the emergence of communicative media (particularly digital technology) that can support and realise these complex and ambitious designs.

A role for time-based scenography

However, inspired by the sensory turn, and enabled by the capabilities of a new generation of in-gallery media, exhibition design today needs new approaches through which to imagine, design and deliver interactive exhibitions. With more ambitious and more overt aspirations to deliver a sensory experience (one that is immersive, multi-sensory and multi-user), the museum may now need to look to other frameworks to conceptualise its exhibition design. To practice with sense and sensations in mind, and to conceptualise museum experience more vividly and holistically as a combination of senses, space and communication within the space, we might need to reconsider and re-evaluate the method and approaches used in exhibition design. Therefore, a design method and approach such as "time-based scenography" might be transformative, enabling us to conceptualise immersive and multi-sensory experiences and mediated communication within the exhibition space.

Historically – and somewhat ideally – "scenography" derives from the word sceno-graphic in Greek. According to theatre director Pamela Howard (2002), it describes a holistic approach to design theatre from the visual perspective. She defines scenography as "the writing of the stage space – l'écriture scénique … Scenography is the seamless synthesis of space, text, research, art, actors, directors and spectators that contributes to an original creation" (Howard, 2002, p. 130).

Situating scenography in a contemporary context, art professional Margaret Choi Kwan Lam (2014) states that it is an artistic practice rooted from contemporary theatre in the 19th century. Similar to the definition given by Howard (2002), Lam also describes scenography as a word to emphasise a unity of all aspects in theatrical stages, including space, application of media, narrative and other elements. While stepping into the 20th century, the concept of scenography has subsequently developed (Lam, 2014). The boundary of the use of scenography is no longer restricted in theatrical context and has expended to a transdisciplinary design and other related fields. Nowadays, scenography cross-pollinates into both museum theory and practice (Lam, 2014). It, we suggest, provides a transformative model for us to curate and design exhibitions and offers us an ideological lens to think about visitors' experiences.

Based on the understanding of "scenography," instead of considering objects, text and digital interactives independently, or viewing visual, auditory and other sensory experience separately, "time-based scenography" refers to the technique to create exhibition and visitors' experience from an entire view of all elements. Moreover, when we start to consider all elements in an exhibition as a whole, time-based media would free us from designing for the "planar experience"

but a seamless and holistic experience within the space. Other forms of media, such as books, film, television and radio, have a fixed format from beginning to end. Whereas for exhibition, visitors can control the pace, choose what they want to view and how they view it. Visitors may walk around in the space freely and view exhibited objects from different angles and directions. Time-based scenography helps us to productively and creatively design our exhibitions with the notion of time and space in mind, and in doing so it encourages an approach that thinks beyond designing for a series of fixed planes.

Taking the approach of time-based scenography to exhibition design, some formats of non-planar technology are particularly helpful, such as VR and 360-degree sound and vision. VR gives us the opportunity to access multiple sensory channels. It can represent space from 360 degrees, accompanied with visual, auditory and sometimes even tactile stimuli; while 360-degree sound and vision systems particularly contribute to a sense of immersive experience. When designing exhibitions using the approach of time-based scenography, we see museums and exhibition designers reaching for a new set of non-planar media tools. One vivid illustration of this challenge to the planar tradition is *Geo-cosmos* at Miraikan – the National Museum of Emerging Science and Innovation in Japan. *Geo-cosmos* opened to the public on 10 July 2001, as the world's first full-colour spherical display (Machida, 2002). *Geo-cosmos*, *Geo-scope* (interactive touchscreen tables for users to search information about the earth), *Geo-palette* (an online service that allows users to design their own world map) and *Geo-prism* (an AR data visualisation system) were four tools in Miraikan's "TAUNAGARI" Project, which aims to promote the understanding of links among life forms on Earth and the relationship between Earth and individuals. In this project, *Geo-cosmos* was specially designed to show the beauty of the blue planet. The initial idea of this globe comes from Miraikan's Chief Executive Director, Mamoru Mohri. As a scientist and the first Japanese astronaut, Mohri wanted to share with visitors how beautiful Earth is as seen from space. Instead of presenting on a planar platform, a spherical display was considered more suitable, its unique characteristic providing a natural environment for geo-visualisation (Vega et al., 2014). This shining "globe-like" display is a 6-meter interactive globe that symbolises the Earth, covered by 10,362 organic LED panels with a high precision exceeding 10 million pixels. By using data transmit (provided by the University of Wisconsin and NASA) by weather satellites, *Geo-cosmos* shows near real-time displays of the current image of the Earth with detailed information such as ocean acidification and temperature change (Figure V.4.1).

This exhibition, with an overwhelming spatial scale, brings a unique experience of "feeling," "exploring" and "sharing" rather than simply "seeing." *Geo-cosmos*, similar to the huge dinosaur skeleton at the American Museum of Natural History in New York and Turbine Hall at Tate Modern in London, is designed for visitors to feel the entire space. Working from the assumption of time-based scenography, designers of *Geo-cosmos* conceptualised an environment in which visitors could feel and experience the exhibition and space as a whole. The nature of spherical displays provides an unobstructed 360-degree field for all visitors (Benko, 2008). Compared to traditional forms of display that have a fixed viewpoint, *Geo-cosmos* offers viewers more freedom and invites them to explore the exhibition from different perspectives. Additionally, *Geo-cosmos* is a "shared" display; visitors standing at the first floor to fifth floor are able to view it at the same time. In spherical displays like this, a viewer is only able to see a part of the globe at a time, so walking around the display is an instinctual way of viewing it (Vega et al., 2014). Therefore, while visitors physically navigate the space and look across or around the globe, they can naturally see and interact with others.

Björk digital, the world's first VR album exhibition, which opened in the spring of 2016 in Sydney, then went to Tokyo, London, Reykjavík and beyond, is another example that demonstrates

Figure V.4.1 *Geo-cosmos* at Miraikan. The National Museum of Emerging Science and Innovation, Tokyo.

what exhibitions might be like when designed in an overtly scenographic way. In this immersive digital album tour, designers, artists, scientists and other specialists worked co-operatively to explore the potential of technology using the approach of time-based scenography. Björk started this project out of her curiosity around the relationship between artist and media. She was keen to explore beyond the established boundaries of music sharing (CDs, PVs and live shows) and to test alternative possibilities to deliver her music to listeners. By using the approach of time-based scenography together with VR technology, *Björk digital* created a highly immersive and multi-sensory experience that can directly transfer her music and feelings to audiences. In this "album exhibition," viewers can watch, experience and inhabit four of the 360-degree virtual reality videos from her *Vulnicura* album. The content of each video is different according to the theme of each song. In *Black lake*, by using panoramic visuals and a cutting-edge surround-sound system, viewers can see Björk singing in the highlands of Iceland. While *Stonemilker* is filmed in a remote beach of Iceland and viewable in full 360-degree VR, making the viewer feel Björk is singing solely for them. In the *Notget* video, Björk is transformed by stunning masks into a digital moth giantess. While in the VR video of *Mouthmantra*, viewers are able to see from the inside of her mouth: "this is definitely" one review read, "the most fun you can have inside a gigantic pulsating mouth" (Muggs, 2016). In the exhibition, Björk renegotiated the way she communicated with her fans and her relationship between them. Wearing a VR headset, listeners would step into another world where they could see Björk perform and sing in front of them, and only for them; a unique and intimate way of sharing music. Moreover, to design all of the elements in the exhibition holistically, *Björk digital* not only adopted digital media creatively, but provided a vivid illustration of the possibilities, within an exhibition context, of time-based scenography. Instead of using individual digital media in this exhibition, a strong immersive and seamless experience was designed by turning the whole exhibition into a digital environment; the exhibition "was shaped literally as a digital medium" (Parry and Sawyer, 2005).

Conclusion: Discovering sense in museum media and communication

What we see in *Björk digital*, as in *Geo-cosmos*, is the sensory experience of exhibitions being pushed, creatively explored and tested. These are exhibitions that are aligned to a museology of sensation and embodiment. In each case, the curators have assumed (and then explored) the presence of a visitor's sensing body within the multi-channel space of the museum exhibition. Both examples stand, consequently, for us as illustrations of immersiveness, the multi-sensory and the multi-user experience taken to a creative and provocative edge. But in both cases, they also show a designer (here the common practice of Maholo Uchida) using other frameworks from outside of the traditional exhibition canon to curate the exhibition. In this case, notably, the approach of "time-based scenography." Turning to (and extending) scenographic practice and the traditions of designing for the whole visual and sensorial field through time, these examples suggest other ways of understanding how an exhibition works. Therefore, theirs is not just a sensorial challenge to the visitor and a creative challenge around the use of communicative media for designers, but also an intellectual challenge about how we might conceive the very notion of "exhibition." Following the sensory turn, and following the rise of immersive and multi-sensory in-gallery digital media, practice such as this challenges us to think of new conceptual frameworks for our criticality – frameworks that might involve a multi-sensory body, moving through a multi-channel space and an elapsing time. Crucially, it is work that turns our head to other academic and critical informants outside of the museological orthodoxy – not just to theatre, but to gaming and to film. With the discovery of the body and the sensorium comes also the discovery of a new criticality.

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V.5

Museums and cultural diversity

A persistent challenge

Ien Ang

The world is experiencing a kind of museums boom today. According to the International Council of Museums (ICOM), citing the most comprehensive directory of Museums of the World from 2014, there are now more than 55,000 museums in 202 countries. This number is only set to increase as more and more new museums are being established in both developed and developing countries. China, for example, has seen an unprecedented rate of increase in museums in the post-Mao period and is set to become the country with the highest number of museums in the world in the near future (Varutti, 2014).

Considering such a large number of museums spread throughout the globe, it is impossible to generalise about "the museum" as such. Their features, purposes and contexts of operation vary greatly, as well as their size (ranging from very large to very small) or the way they are managed. There are many types of museums, focussing on different kinds of cultural objects: some of the most well-known ones are art museums, history museums, science museums and ethnographic museums. What all museums do have in common, however, is – in broad terms – what they do or claim to do: they are all, in one way or another, in the business of collecting, preserving, interpreting and displaying items of artistic, cultural or scientific significance for public education and consumption.

ICOM provides the following definition of a museum, adopted in its Statutes in 2007: "A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment" (ICOM, online). Yet this definition is highly idealistic, reflecting more an ideology of the museum – an ideal image of what a museum is and does – than how museums actually work and what they actually achieve. The definition does highlight that communication is an important core activity of museums, at least in theory.

This communicative activity purports to contribute to the education of the public by making available to this public displays of cultural objects deemed of common importance or significance for society at large, or even humanity as a whole. To go beyond this general (ideological) claim, we need to problematise generalised references to "the public." In other words, we need to ask: who is this "public" that museums claim to communicate with? And how is

the configuration of exhibitions and displays – the museum content – determined and decided upon? Finally, if museums are supposed to play an educational role, how is this accomplished?

This chapter takes up these questions by focussing on the challenge of cultural diversity as it pertains to and manifests itself in relation to museums. Cultural diversity has emerged as a challenge – or problem – for the museum sector since the last two decades of the 20th century, at least in developed Western countries, when it became undeniable that the "public" which museums tend to attract is by no means representative of the broader society. This demographic deficit has long been acknowledged with respect to class and level of education, as the influential sociological work of Bourdieu (1984) has pinpointed, but in more recent times it has been problematised particularly in relation to race and ethnicity. As Western societies have become more racially and ethnically diverse, mostly as a consequence of non-European immigration, museums are faced with the challenge of having to communicate with a much more diverse, multicultural audience if they are to be true to their claim to serve the whole "public" in society. In other words, the demographic deficit has also been seen as a democratic deficit: a marker of social and cultural inequality that museums are being called upon to address (Sandell, 2002).

For example, at the 19th meeting of its General Assembly in 1998, the International Council of Museums passed a resolution concerning museums and cultural diversity, advocating "the development of museums as sites for the promotion of heritage values of significance to all peoples through cross-cultural dialog" (Silverman & Fairchild Ruggles, 2007, p. 6). In this regard, museums are asked to play a brokering role in reconciling national societies with the diversity in their midst, a social and political issue perceived as urgent in today's irrevocably interconnected world with the rising threat of intercultural conflict and disharmony.

In the next section, I will discuss the way in which the museum sector has attempted to counteract the socio-demographic bias in their audiences through a strategy of targeting under-represented groups. I will describe the limitations of this strategy, pointing to the need for a more fundamental change in the representational strategies of museums towards inclusiveness of plural perspectives in and on the nation. Finally, I put the idea of museums as sites for "cross-cultural dialog" to the test. How does the rhetoric (or ideology) of the museum as a broker for cross-cultural understanding match with the realities of visitor experience?

Diversifying museum audiences: The limits of "targeting"

Survey after survey have consistently shown that ethnic minorities and immigrant populations are underrepresented among museum audiences in Western, liberal democratic societies, where going to the museum has remained a practice predominantly engaged in more by white people with higher education levels and higher incomes. For example, according to recent British data, over three in five adults (61.4%) in the upper socio-economic group visited a museum or gallery in the year ending June 2013, compared to only 39.9% in the lower group. Interestingly, the data also showed that while visitation had increased amongst most demographic groups, this was explicitly not the case for respondents from black and ethnic minority groups (Department for Culture Media and Sport, 2013). This has been a persistent problem. Almost 15 years earlier, Eilean Hooper-Greenhill (1997, p. 2) remarked that "Black and Asian people are frequently conspicuously absent" from museums. She added that "other less visible minorities are also unlikely to find museums relevant to their own cultures and therefore do not visit them" (Hooper-Greenhill, 1997, p. 2).

In the United States, a 2010 report for the Association of American Museums, entitled *Demographic transformation and the future of museums* (Farrell & Medvedeva, 2010), raised alarm bells about the growing gap between the profile of museum audiences and the overall composition of

the United States population. The report pointed out through a dramatic graphic visualisation (see figure V.5.1) that "the group that has historically constituted the core audience for museums – non-Hispanic whites – will be a minority of the population in the future" and that, if current trends continue, "museum audiences are radically less diverse than the American public, and museums serve an ever-shrinking fragment of society" (Farrell & Medvedeva, 2010, p. 5). In reviewing data from a number of surveys over the years, the report found persistent, significant disparities in museum participation by different racial and ethnic groups. For example, while Hispanics made up 13.5% of the United States population, they were only 8.6% of art museum visitors; while African Americans comprised 11.4% of the population, only 5.9% of them visited museums (according to 2008 data). So, United States museums are serving an ever-shrinking fragment of society. Only 9% of core museum visitors today are of a minority background (that is, not part of the non-Hispanic white population). This compares poorly with the situation in society at large, where non-whites make up 34% of the total population. If the trend continues, the situation will only worsen in the decades ahead: the percentage of non-white populations has steadily increased from the 1970s onwards and is projected to comprise 46% of the total population in 25 years' time (Farrell & Medvedeva, 2010, p. 5).

In short, there is ample statistical evidence that (lack of) audience diversity is a problem for museums. In many countries, special initiatives have been put in place to raise the number of ethnic minority visitors, but often without much long-term success. As Weil (2002, p. 177) pointed out for the United States' context, "decades of effort to diversify art museums have shown little result." In the United Kingdom, meanwhile, in 2003 the Government made the funding of Britain's large museums and art galleries conditional on their capacity of attracting more visitors from ethnic minorities and low-income families. Between 2003 and 2006, 18 museums had to raise the number of visitors from these categories by 8 per cent on the previous financial year (Burrell, 2003). By 2008, however, it would appear that this measure had failed to generate the desired results, as figures from the Department for Culture, Media and Sport

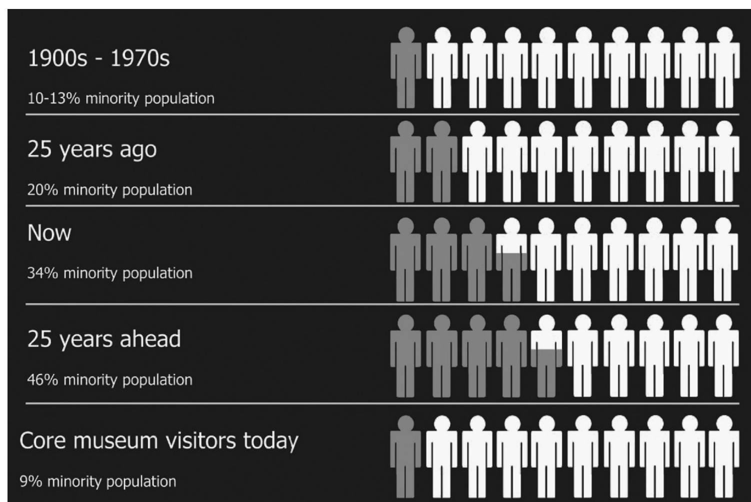

Figure V.5.1 Disparity in the United States between percentage of non-Hispanic white population and core museum visitors. Source: Reach Advisors' analysis of census data and survey data, derived from Farrell and Medvedeva: *Demographic transformation and the future of museums*, 2010.

showed that the proportion of ethnic minorities visiting at least one museum and gallery in the previous year had actually fallen (Noakes, 2008).

Much research and theorising has been conducted on the reasons why visitation of museums and galleries tends to remain so stubbornly biased in favour of the white, upper-middle classes. Farrell and Medvedeva (2010, p. 13) have summarised a range of explanations given for the differences in ethnic and racial patterns in museum attendance, and why significant sections of the population do not use museums. First, there may be historically-grounded cultural barriers that make museums feel intimidating or exclusionary to many people. Second, some groups may lack the specialised knowledge and cultural capital to appreciate the cultural objects displayed in museums, especially in art museums. Third, there may be no strong tradition of museum-going habits among some groups, whether fostered in childhood or within the family. Finally, the influence of social networks and peer groups may discourage some from museum-going in favour of other leisure activities. Structural factors such as where people live, museum locations, transportation options, time constraints and financial barriers are also mentioned as reasons that work to limit museum attendance.

It is interesting that all these explanations refer to potential impediments which prevent some groups of people from visiting and frequenting museums. From this perspective, the remedy to be adopted would be initiatives aimed at facilitating access to museums by lowering the barriers, that is, by making museums less intimidating and more relevant or attractive to those who are not usually part of the museum audience. In fact, this is exactly what museums – especially the large, flagship museums with national remits – have generally tasked themselves to do: developing strategies to turn non-visitors into visitors in a bid to diversify – and thus democratise – their audience base beyond its loyal, white upper-middle class core. Charges of elitism levelled at museums (and particularly art museums) have long irked museum leaders, and they are at pains to counter such accusations by demonstrating their commitment to communicate with non-traditional visitor categories, especially minority groups.

A preferred method in this regard is the *targeting* of particular groups or communities through focussed relationship-building efforts, public programmes and educational activities, especially in connection with special exhibitions which are thought to be of particular interest to such groups or communities. For example, when the Art Gallery of New South Wales in Sydney, Australia, decided to mount a large temporary exhibition on Buddhist Art in 2003, huge effort was dedicated to bringing Asian migrant communities into the museum, on the assumption that the art on display was relevant to these communities because it reflected "their" culture (Ang, 2005). Similarly, the British Museum appointed a special-liaison person for the local Chinese community during a China exhibition it mounted (Noakes, 2008). Such strategies are commonly deployed to recruit specific minority audiences, and they can be reasonably successful. For example, when the National Media Museum in Bradford, an English city with a very large South Asian population, hosted an exhibition on popular Indian cinema in 2007, the number of visitors from ethnic minorities rose by 17% (Noakes, 2008). Since then, the museum has repeated this successful targeted approach by presenting an exhibition on Bollywood Icons in 2013.

While such strategies can work to bring people from minority backgrounds into the museum for specialist temporary exhibitions, however, it is highly questionable to which extent they succeed in turning such people into regular museum visitors. On the contrary, staging special exhibitions of particular relevance for specific groups may in fact heighten the belief that "normally" the museum is not for them. Indeed, this kind of "targeting," while laudable as an attempt to make the museum more relevant to minorities, can inadvertently entrench a divide between the mainstream, core audience – those for whom the museum is a naturalised space to visit – and

"non-traditional" minority audiences – those for whom going to the museum is a rare, special occasion, only contemplated if there is an exhibit which is specially intended to attract them.

Targeting strategies may also lead to a narrow understanding of what might be of interest to ethnic minority visitors, limiting exhibits and programmes to cultural expressions that celebrate and reinforce their notional community identities. Not only would such strategies result in forms of ethnic pigeon-holing, they would also run the risk of homogenising minority communities, e.g. "Hispanics" or "Blacks" or "Asians" or "Muslims" – as if they were undifferentiated, unitary entities. This tallies with Hooper-Greenhill's (1997) questioning of the effectiveness of targeting as an audience development strategy for museums wishing to cater for minority audiences. She observes that, although some people do fall into clearly definable groups with defined locations and cultural or religious characteristics, most others may belong to a number of cross-cutting groups or communities with no clear-cut cultural identities. In short, targeting tends to reinforce what Rogers Brubaker calls groupism – "the tendency to take discrete, sharply differentiated, internally homogenous and externally bounded groups as basic constituents of social life" (Brubaker, 2004, p. 8). While targeting minority groups is conceived as a positive form of affirmative action, then, it may in fact perpetuate the marginalisation of such groups from the national mainstream. In this way, it may contribute to further cultural segregation rather than integration, where minorities are recognised as being an integral part of society as a whole.

Rather than singling out specific groups for targeting, a more vexed and complex challenge for museums is to develop collections, exhibitions and programmes with inherently mixed and diverse audiences in mind. There is no doubt that there is a place for targeting as a museum strategy to compensate for the underrepresentation of particular segments of the public. However, the development of pluralistic strategies which are able to be relevant to multiple constituencies at once – both majority and minority audiences – is perhaps a more important task for museums today.

Contemporary Western countries are increasingly complex, multicultural societies in which racial and ethnic diversity is an intrinsic feature. At the same time, tensions in these societies are rising as majority populations are struggling to come to terms with the arrival of large cohorts of new migrants with very different racial, cultural and religious backgrounds, especially in Europe. The question is whether museums can play a role in addressing some of these tensions. In other words, can museums develop strategies which address "the public" in ways which recognise the internal divisions and differences within it, and work to bridge or surmount them? This question raises two issues. First, it is important to ask how "the public" has historically been constructed in museums. This takes us to the modernist origins of museums as conveyors of national culture and identity, and as such, as agents in creating a national public. In this context, the second issue to be raised is how, in a time when national cultures and identities are in flux as a consequence of globalisation and transnational people flows, museums can contribute to cross-cultural understanding amongst a much more diversified public: a goal or objective which is regularly claimed to be an important educational role for museums in contemporary multicultural societies.

Diversifying representation: Inserting difference and diversity into the national story

As an institutional form, the museum is intimately linked to the rise of the nation-state in the 19th century, and as such, museums are often enlisted as vehicles for the authoritative representation of national culture. History museums and national art galleries, in particular, have long been positioned as storehouses for the authoritative representation of national identities, serving to constitute a national "public." This newly generated public would, with the assistance

of museums (as well as other cultural technologies such as the census, the map and the newspaper), be constructed as a national "imagined community" (Anderson, 1991), "a self-identifying collectivity in which members would have equal rights, a sense of loyalty to one another, and freedom from previous tyrannies and exclusions" (Macdonald, 2003, p. 2). National identities and national publics were defined through difference from other nations, and as territorially bounded and internally coherent, if not homogeneous (in terms of ethnicity, language and culture). Museums were suitable institutions to perform this work of national identity construction through the literal and symbolic "objectification" of the national culture through the collection and display of objects and artefacts which are deemed significant for the "national story." As Macdonald puts it:

> Public museums … were from their beginnings embroiled in the attempt to culture a public and encourage people to imagine and experience themselves as members of an ordered but nevertheless sentimentalised nation-state. They invited people to conceptualise a sense of national or racial difference from others; and to experience their own worlds as relatively and reassuringly governed ones. They helped to convey senses of both stability and progress. … They helped to think identities as bounded and coherent. (2003, p. 5)

In this regard, instilling a sense of cultural nationalism is a central rationale of museum communication, especially in developing countries, which, upon becoming independent nation-states, were generally faced with the challenge of creating and nurturing a coherent national identity. Almost every country around the world has at least one official national museum, dedicated to the representation of the nation's culture and history. In postcolonial nation-states, the establishment of a national museum was often a major governmental priority, while in some countries, the formation of such institutions occurred relatively late. The National Museum of China in Beijing, for example, was established only in 2003 through the merger of two previous museums and reopened in 2011 after extensive renovations that tripled the previous exhibition space and introduced state-of-the-art exhibition and storage facilities. It is said to be the largest national museum in the world to date, containing two permanent exhibitions: Ancient China and the Road to Rejuvenation, presenting China's ancient, pre-modern and contemporary history (*China Economic Review*, 2011). The grandeur of this new museum – and the proliferation of museums in China more broadly – indicate the extent to which museums in China are used for patriotic, nationalist purposes, and to preserve the Communist Party's state legitimacy in a rapidly commercialising and modernising China (Vickers, 2007; Varutti, 2014).

However, in today's globalised world, the very notion of a distinct and coherent national culture and identity, shared equally by a cohesive national public, is increasingly difficult to sustain. As discussed in the previous section, it is widely recognised today that "the public" is not only highly diversified but also internally fragmented. Moreover, in this process of diversification and fragmentation, the idea of the national itself is unsettled; it is no longer dependable as the stable cultural anchor for nation-state sovereignty but is deeply entangled with multiple global others, including those who now reside inside the nation. The question then is how, in a time when the nation and the world have become increasingly interdependent and interconnected, a more cosmopolitan ethos can be inserted into the national narratives that museums tend to convey. Can museums adapt to these more postcolonial, multicultural and transnational times?

To be sure, national museum landscapes have never been exclusively focussed on the national cultural self. As Jan Nederveen Pieterse (2005) has argued, narratives of national "others,"

especially non-Western others, have generally been told in ethnological or ethnographic museums, which have served as counterpoints for the prestigious national history museums and art galleries – and more recently, modern art museums – where the apex of national culture and history is housed. Ethnographic exhibits tended to be "display windows of empire, indirect testimonies of national grandeur" (Nederveen Pieterse, 2005, p. 164), where "other cultures" were routinely represented as "traditional" or "primitive," through collections and displays "overwhelmingly of the shield, spear, boomerang, war-canoe type" (Hudson, as quoted in Nederveen Pieterse, 2005, p. 164). As such colonial gestures of "othering" have become less acceptable today, it has unsettled ethnographic museums in the West and, to some extent, made them obsolete. Meanwhile, ethnographic objects began to enter mainstream museums in large-scale exhibitions in the late 20th century, such as "Primitivism" in 20th-century Art at the Museum of Modern Art in New York in 1984, which included displays of tribal works that influenced modern (Western) artists. However, as Nederveen Pieterse remarks, displaying "ethnographic objects set apart in glass vitrines under boutique lighting" (2005, p. 166), as is typical in art museums, is a form of aestheticisation which demonstrates an assimilationist appropriation of the cultural other into the Western discourse of Art. The 1989 Paris exhibition "Magiciens de la Terre" was partly designed to counter the perpetuation of the Eurocentric, colonialist mentality by featuring 50% Western and 50% non-Western artists shoulder-to-shoulder in an equal manner. By the early 21st century, modern and contemporary art museums more routinely included non-Western art into their exhibitions and programmes, as exemplified by the popularity of Australian Aboriginal art and contemporary Chinese art. But this pluralism still confines the inclusion of the non-Western other to the realm of Art – a specifically Western category which has now become globalised.

Museums that deal with history and society, however, are pre-eminent spaces of representation where nations and their relationship to the world get imagined, and the style of this imagining can be more or less inclusive, more or less pluralistic, more or less cosmopolitan. Cosmopolitanism is a contested concept, but in broad terms we can define it as an openness to difference and a willingness to engage with cultural others (Appiah, 2007; Delanty, 2009). As nations are becoming more diverse and have increasingly porous boundaries, the need to nurture cosmopolitan skills and capacities has become ever more urgent. In this regard, there is a disjuncture between the continuing dominance of the nation as the anchor for social identity, on the one hand, and the growing transnationalism of people's experience, on the other. This is the case not just for newly-arrived migrants, but also for local citizens, who – even though they have not moved beyond their national contexts – have to deal with the presence of cultural foreigners in their midst on a daily basis. As Peggy Levitt (2015, p. 5) remarks, "The social contract between state and citizen is national, but people's lives are not." Levitt argues that museums are arenas "where countries might diversify their self-portraits and re-create themselves as more cosmopolitan nations" (Levitt, 2015, p. 5). So how can they do this? How can museums cosmopolitanise the stories they tell about the nation?

In her book *Artifacts and allegiances*, Levitt (2015) explores this issue by analysing the production of museum displays in a range of countries around the world. Her conclusion is that, although some countries tend to imagine their national identities in more cosmopolitan ways than others, ultimately the national story holds sway everywhere. This is the case even in a country such as Sweden, where the existence of a museum such as the Museum of World Culture in Gothenburg, which opened in 2004, is evidence of the country's cosmopolitan commitment to understanding the world beyond the nation. On the "About us" page of its website, the Museum of World Culture is described as "a meeting place with exhibitions and programs about current questions in the world around us."[1] As Levitt (2015, p. 29) observes,

"The Museum of World Culture creates cosmopolitan Swedes, which eventually strengthens the nation." However, while cosmopolitanism here is embraced as an openness to the world at large, the immigrant experience – that is, the experience of cultural others within the nation – doesn't receive much recognition in Sweden's museum landscape. It is left to the Multicultural Centre, a modest organisation in Botkyrka, a municipality in the south of Stockholm County which has a large immigrant population, to conduct research and stage exhibitions to "promote a society where diversity is reflected in Sweden's national self-image and where migration is a natural part of the Swedish cultural heritage."[2] This suggests that the story of immigration remains separate from the main, national story; no matter how cosmopolitan Sweden's style of imagining itself as a nation, Swedishness continues to be defined in homogenous and exclusive ways and immigrants remain "other." There is thus a persistent epistemological tension between cosmopolitanism and nationalism which cannot easily be resolved: while cosmopolitanism involves the virtual breaking down of national boundaries, nationalism is principally defined by such boundaries (Ang, 2017).

The case of the Botkyrka Multicultural Centre reflects a more general tendency in European countries to address issues of multiculturalism in smaller local museums, often in areas with large concentrations of immigrants. This represents a marginalisation of the immigrant presence – both culturally and spatially – from the mainstream culture, keeping intact the rigorous divide between majority and minority, centre and periphery, within the national imagined community. This cultural separation is reinforced by the establishment of dedicated immigration museums around the world. Not surprisingly, this genre of institutions has first developed in traditional countries of immigration such as the United States, Australia and Brazil, but they have now also started to appear in Europe as well, especially since the beginning of this century. Examples are the Cité Nationale de l'Histoire de l'Immigration in Paris, which opened in 2007, and the Danish Immigration Museum in Farum, established in 2012. Whatever their differences in emphasis and style, immigration museums tend to share similar objectives: to acknowledge the contributions of immigrants to their host societies, to deconstruct stereotypes about migrants, and to raise public awareness and understanding about migration. An International Network of Migration Institutions has been set up by UNESCO and the International Organisation for Migration (IOM) to promote the development of such museums. As the Network's website points out: "This kind of museum would, in particular, help collect, safeguard, highlight and make accessible to the general public certain elements relating to the history and culture of immigration, and to the process of integration of migrant communities."[3] Such immigration museums are obviously a positive development in that they entail a recognition of the contribution of immigrants to the nation; at the same time, their very establishment as separate institutions heightens the sense that immigration is a "problem" and that immigrants somehow stand apart from the broader national society. In this regard, immigration museums could be seen as the contemporary equivalents of the ethnographic museums of the colonial past: they both focus on "the other." The difference is that today, cultural, racial or ethnic others have a recognised presence *within* the nation, and immigration museums, by telling the story of immigrants from their point of view, are thought to ease the acceptance of these others by the nation. While this may be a welcome sign of progress, however, it still tends to reinforce the otherness of immigrants, as if they didn't quite belong within the nation.

What actual impact such museums might have on the integration of immigrants and minorities, and whether they would contribute to a more cosmopolitan understanding of the nation within society at large, would ultimately depend on how museum visitors respond to and make sense of the exhibits and stories told. Would they foster cross-cultural understanding? This is an issue of broader relevance to museums in the contemporary world.

Promoting cross-cultural understanding?

Today's diverse, multicultural societies, where suspicion and hostility against certain minorities – especially Muslims – is on the rise, are in urgent need of public spaces where communication across ethnic, cultural or religious differences can take place in safe, respectful ways. Museums are potentially such spaces. Indeed, in museum theorising, the idea that museums can function as cross-cultural "contact zones" (Clifford, 1997; Schorch, 2013) has been popular for some time. From this perspective, museums would no longer operate as arbiters of "good taste" or authoritative narrative, but as facilitators in the communication of different forms of cultural expression and experience. Karp and Lavine (1991) have argued that, to serve diverse audiences, museums – especially art museums – must abandon their image as "temple" and become a "forum," a place where visitors have the opportunity to learn about different cultural traditions and perspectives. In her interviews with museum professionals around the world, Levitt (2015, p. 8) has found the repeated belief among them that "museums can and should encourage empathy, curiosity, creativity, and critical thinking." Indeed, this belief is strongly held in the museum sector, precisely because it provides a solid rationale for the social value that museums are supposed to provide. In other words, there appears to be consensus among museum theorists and museum practitioners alike that museums should be places where cosmopolitan dispositions are cultivated. But what about museum audiences? Are they equally ready to adopt such dispositions by visiting museums?

In the previous section, we have seen that the museum sector has begun to allow difference and diversity to be represented in their collections and exhibitions, in line with the greater degree of recognition both within nation-states and globally that inclusiveness towards marginalised and disadvantaged minorities is an important aim. But if the well-intentioned message or impact of such representations is one of recognition, respect or cosmopolitan understanding of "the other," we cannot assume that such intentions are automatically reciprocated by visitors who consume such representations when they visit the museum. Indeed, there is no guarantee that the visitor's point of view might coincide with that of the museum professionals. This is an inconvenient truth for those museum professionals such as curators who are responsible for the production of museum content and who typically hold a museum-centric and content-centric outlook. As John Falk (2009, p. 24) has observed, "the belief that [museum visiting] is all about the content is so pervasive in the museum world that the vast majority, perhaps as much as 90%, of all marketing and promotion of museums is content-oriented."

However, Falk (2009) goes on to say that the content is only rarely the single most important factor influencing people's decision to visit a museum. He refers to research that shows that while 60% of a visitor's attention over the course of a visit was spent looking at the exhibitions, approximately 40% of visitors' attention was directed elsewhere (such as on conversations with other visitors or on general observations of the setting). Moreover, not only does the content drive only part of a visitor's experience in the museum; it is also the case that the content the visitor chooses to focus on may or may not bear much resemblance to what the museum professionals who designed the experience hoped they'd attend to (Falk, 2009, p. 25). In short, as Falk notes, "The relationship between visitors and the content of the museum is not simple and straightforward" (2009, p. 27).

This problematises the educational role that museums have conferred on themselves, including the desire to promote cross-cultural understanding. Would exhibitions that feature Islamic art, for example, be able to contribute to greater understanding between Muslim and non-Muslim communities, especially in light of the twin challenges of Islamophobia and Islamist terrorism currently troubling the world? Edmund Capon, the former director of Sydney's Art

Gallery of New South Wales, clearly thinks so. Having staged a highly successful exhibition of Islamic art of the world-famous Khalili collection in 2007, with artworks from Spain, Turkey, North Africa, India, Syria, Iran and China spanning the 7th and 20th centuries,[4] he boasted that "this was one of the most significant exhibitions that this gallery has ever undertaken," referring to the opportunity the exhibition provided for non-Muslims "to know more of the great histories and cultures of the countries that comprise the Muslim world" (as cited in Ryan, 2012, p. 192). His belief in the transformative power of art, displayed in the museum, to overcome distrust between Muslims and non-Muslims was shared by politicians, sponsors and art critics alike, who all praised the exhibition's aim of promoting peace and understanding by showing that Islam is "a religion of tolerance" (Ryan, 2012). In line with the strategy of "targeting," the museum enlisted the involvement of Sydney's Muslim community organisations, who participated in special educational events held at the museum (including lectures, talks and a community day) aimed at encouraging intercultural and interfaith dialogue between Australians of different backgrounds and faiths.

However, in-depth empirical research among visitors of the exhibition by Louise Ryan (2012) revealed that while many visitors did want to be informed about Islam and Islamic culture, many others regarded the trip to the museum as a social outing and not necessarily an educational event. At the same time, while Muslim visitors tended to appreciate the beauty of the artworks, some of them objected to the secular presentation of the exhibition, referring to the Islamic view that all art was made for God and therefore religious. The use of images of the prophet Muhammed (especially his face), forbidden in Islam, was also considered inappropriate and offensive by some. Moreover, while non-Muslim audiences considered the educational events "good value and informative," Muslims tended to be conspicuously absent from these events, making the stated aim of intercultural dialogue an empty one. Ryan (2012) found no evidence of any significant cross-cultural engagement between Muslims and non-Muslims during the exhibition, despite access to Muslim volunteers at information desks. She concludes by questioning the impact of an exhibition such as this on anyone other than the already "converted," those who are wedded to the liberal-humanist vision of tolerance and harmonious coexistence. Of course, it is possible that the potentially enlightening impact of museums would be more likely to occur with schoolchildren – an important visitor group for most museums – who might still have more open and malleable minds than adults, but this potential would have to be explored through empirical research.

That museum exhibits tend to confirm, rather than transform, existing views is also the finding of Laurajane Smith's (2015) research, which has focussed on visitor responses to a range of exhibitions marking the bicentenary of Britain's abolition of the slave trade in 2007. The bicentenary was seen as an opportunity for museums across the country to facilitate the acknowledgement of this "hidden history" in British society and to contribute to public learning and debate about the legacies of this traumatic history. Not surprisingly, Smith (2015) found that visitor responses tended to correlate with ethnic identity. The majority of African Caribbean or Asian British respondents tended to use the exhibition not as a learning opportunity at all, but as a means of validating their own views about the injustice of this dimension of Britain's past and affirming their experiences of racism, past and present. White British and European visitors, on the other hand, tended to insulate or distance themselves from the negative emotions and reflections on history engendered by the exhibitions, avoiding any critical engagement with the exhibition contents through evasive discursive statements such as that this historical episode was just "man's inhumanity to man" or "we must move forward" from the past (Smith, 2015, p. 470). Only a minority of visitors, coming from all ethnic backgrounds, were deeply engaged in the exhibition, confronted by it and moved to alter their understandings of past and present through

empathy and imagination. These findings suggest that overall, the predominant impact of these exhibitions has not been greater cross-cultural understanding but, rather, the confirmation of pre-existing ethnic divides in experience and outlook.

Referring to a broader survey of museum visitors in England, Australia and the United States, Smith (2015, p. 471) notes the pervasive tendency for exhibitions not to change visitors' views but "to simply reinforce the knowledge, feelings, or opinions that visitors held prior to their arrival at the museum." Again and again, interviewees talked about their visit as "reinforcing." Reinforcing what? According to Smith (2015), what is being reinforced through museum visits are visitors' identity, belonging and sense of place: identities of gender, class, race or nation. These confirmations of identity often go hand-in-hand with interpretations or decodings of museum exhibits which go well beyond the messages embedded in the exhibitions by museum curatorial staff. What we need to consider here then is the agency of the visitor rather than that of the museum itself.

Put in the language of communication theory, what needs to be questioned here is the transmission model of museum communication and learning, where museum professionals can presume to imbue preferred meanings and messages on visitors, conceived as passive recipients of those meanings and messages. Instead, visitors are active agents, and the museum visit should be understood as "a cultural performance in which people either consciously or unconsciously seek to have their views, sense of self, and social or cultural belonging reinforced" (Smith, 2015, p. 459). This tallies with Falk's (2009) general argument that the museum visitor experience is neither pre-determined by the exhibition content nor by pre-existing demographic characteristics of the visitor but formed by the confluence of the museum environment (including exhibition content) and the situated, identity-related needs and interests of the visitor.

If this is so, then the whole idea of the museum as a cross-cultural "contact zone" where cultural differences and diverse publics are allowed to meet and interact to establish mutual understanding needs to be qualified. Only for those visitors who are somehow predisposed to be challenged in this way may such cross-cultural boundary-crossing be actualised. This doesn't mean that museum staff should despair and believe they have no control over how visitors respond to their displays. Instead, they will need to develop more realistic understandings of what the educational role of museums might be, based on a greater consideration of the specific affordances of the museum as a place of cross-cultural encounter.

Indeed, a current trend in museum studies is an interest in analysing not just how museum displays construct meaning and representation (the cognitive dimension), but how they can fashion the *affective* dimension of the embodied museum experience by using display strategies and techniques that encourage particular ways of "looking, feeling and listening" to facilitate cross-cultural engagement. What Andrea Witcomb (2015) calls "pedagogy of feeling" would work at the sensorial level, rather than through the explicit communication of rational arguments or positions, "allowing more emotional and embodied forms of knowledge to take their place alongside the traditional faith in reason" (2015, p. 325). In the museum context, according to Schorch, Waterton and Watson (2017), such an approach can nurture an "affective cosmopolitanism" generated by the dynamic interaction between visitors and displays through "the cosmopolitan power of individual objects, the cosmopolitan agency of photographs and the cosmopolitan faces and stories of tour guides" (2017, p. 101). In a discussion of the exhibition strategies of the Te Papa museum in Auckland (New Zealand's national museum) and the Immigration Museum in Melbourne, Australia, they observe that each museum enacts rather than teaches cultural difference by deploying humanised cultural perspectives and multi-sensory displays. Based on interviews with visitors, they argue that the cross-cultural engagement may occur "through the performativity rather than representational function of the displays, on the

one hand, and visitors' interpretive dialectics of reflexivity and empathy on the other" (2017, p. 108), creating momentary, affective-subjective entanglements of self and other which they describe as cosmopolitan affect.

These are recent theoretical trajectories which require further research in our bid to better understand the ways museums might enhance cosmopolitan engagements across cultures.

Conclusion

In the past few decades, museums have been increasingly compelled to address the challenge of "cultural diversity." They have been tasked to diversify their audiences, seen as a prerequisite to democratising these cultural institutions. One prominent strategy to encourage immigrants and ethnic minorities into the museum is to target them as a specific audience category and to entice them with exhibitions thought to be of specific relevance to their cultural heritage and community. The problem is that such a strategy tends to confirm rather than attenuate the marginalisation of such groups, as they continue to be seen as peripheral to mainstream society and culture. To address this problem, diversification at the level of representation is required; in particular, the question is how different kinds of museums might tell more plural, cosmopolitan stories about the nation, allowing multiple perspectives to be heard and made visible. How can museums be inclusive of the voices and faces of cultural "others"? Ironically, the emergence of the immigration museum as a specific institutional genre is not just a sign of cultural recognition of these "others" inside the nation, but also – again – an indication of their continued minority positioning at the margins of the nation, requiring "special treatment." Finally, in pursuit of their purported educational role, museums have sought to establish strategies to promote cross-cultural understanding in increasingly diverse societies. However, visitor research suggests that the capacity of museums in this regard is limited: it would seem that visitors' interactions with museum displays are motivated more by a quest for confirmation or reinforcement of a sense of self and identity than by a desire to reach out to those who are culturally or racially different.

In short, the relationship between museums and cultural diversity is complex, contradictory and uneven. There is no question that museums occupy an important place in the broader cultural ecology of contemporary societies, as they struggle to come to terms with the need to recognise, embrace and represent their inherent diversity. Overly idealistic rhetoric about the museum's role as a vehicle for public learning and education for a cosmopolitan world, however, needs to be counteracted by a more sobering realism about the limits of the museum's communicative power.

Notes

1. http://www.varldskulturmuseerna.se/en/varldskulturmuseet.
2. http://mkcentrum.se/in-english.
3. http://www.migrationmuseums.org.
4. The travelling exhibition, called *Art of Islam: Treasures from the Khalili collections*, was first shown at the Art Gallery of New South Wales (AGNSW), Sydney, from 22 June until 23 September 2007.

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