Digital Engagement with Medieval Collections:

Designing and Evaluating the *Tears of Our Lady* Prototype for The Burrell Collection

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Abstract

Medieval Christian artefacts were inherently interactive, engaging both the body and the mind. The prevalent practice of museums, however, to present medieval artefacts as decontextualised works of art engenders an often-irreconcilable distance between viewer and viewed not just physically, through glass vitrines, ropes, and demarcated pathways, but above all, intellectually and emotionally. By bringing together the latest research into the materiality of late medieval art and devotion (c.1250-1550), museology, and digital cultural heritage studies, this thesis investigates how digital technologies may be used to bridge that distance, and foster, instead, enhanced public engagement with medieval devotional artefacts beyond the formal, aesthetic qualities that normative curatorial practices tend to stress. In so doing, this interdisciplinary research investigates the following three research questions:

- How are digital technologies currently used in the interpretation of late medieval Christian collections in public display settings?
- How can the original reception and use of late medieval Christian objects inform their digital interpretation today?
- What is the impact of digital interpretation of late medieval Christian objects on visitors' experience and engagement?

To answer these questions, this thesis adopted qualitative research methods with a practice-based approach. Carried out as an Applied Research Collaborative Studentship (ARCS, 2017-22) in collaboration with The Burrell Collection, Glasgow, this practice-based project saw the design, development, and evaluation of the *Tears of Our Lady* prototype, a digital interpretation devised specially for this project. Based on a digitally augmented replica of *The Lamentation of Jesus Christ* (ID Number 1.24), a fifteenth-century alabaster relief panel from the Burrell, the *Tears of Our Lady* prototype was used to explore how the interactive (intellectual, somatic, emotive, and imaginative) engagements medieval devotional objects would have engendered in the past may be used to support digital engagement with them in the present.

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Tears of Our Lady Installation Video: [Link has been removed due to potential Copyright restrictions]

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Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Printed Name: Lynn Verschuren

Signature:

Chapter 1 Introduction

1.1 Introduction

> […] this creature saw a beautiful image of our Lady called a Pietà. And through beholding that Pietà her mind was fully occupied in our Lord Jesus Christ's Passion and in the compassion of our Lady, St Mary, by which she was compelled to cry very loudly and weep very bitterly, as though she were going to die. Then the lady's priest came to her, saying, 'Madam, Jesus is long since dead.' When her crying had ceased, she said to the priest, 'Sir, His death is as fresh to me as though He had died this very day, and I think it ought to be so to you and to all Christian people. We ought always to have in mind His kindness and always think about the doleful death that He died for us.[1]
>
> (*The Book of Margery Kempe,* ll.4957-66)

Medieval Christian artefacts were inherently interactive, engaging both the body and the mind. Few anecdotes capture that interactive relationship more vividly than Margery Kempe's encounter with a Pietà, the only such surviving account of a specific image in England to which a response is singled out.[2] The practice of modern museums of displaying medieval devotional collections as decontextualised works of art, however, has promoted the idea that these artefacts were no more than looked at, thus making it all too easy, especially for non-specialist

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[1] *The Book of Margery Kempe: Annotated Edition*, ed. Barry Windeatt (Cambridge: Brewer, 2004), lines 4956-4966. The original quotation reads: "[t]his creatur sey a fayr ymage of owr Lady clepyd a 'pyte'. / And thorw the beholdyng of that pete hir mende was al holy ocupyed in the Passyon of owr Lord Jhesu Cris and in the compassyon of owr Lady, SeyntMary, be whech sche was compellyd to cryyn ful lowde and wepyn ful sor, as thei sche schulde a deyd. Than cam to hir the ladys preste seying: / 'Damsel, Jhesu is ded long sithyn.' / Whan hir crying was cesyd, sche seyd to the preste: / 'Sir, hys deth is as fresch to me as he had deyd this same day, and so me / thynkyth it awt to be to yow and to alle Cristen pepil. We awt evyr to han mende of hys kendnes and evyr thynkyn of the dolful deth that he deyd for us."

[2] Richard Marks, *Studies in the Art and Imagery of the Middle Ages* (London: Pindar Press, 2012), 559.

audiences, to forget the embodied and emotive engagements that would have once marked encounters between these objects and devotees.

Taking Margery's reaction to the Pietà as a starting point, this thesis explores the dynamic subject-object engagements (intellectual, somatic, emotive, and imaginative) at play in interactions with medieval Christian objects in the past, and the museological questions these raise for digital engagement with them in the present.

1.2 Research Problem: The Contemporary Display of Late Medieval Art

The twenty-first-century museum visitor experience with which this thesis is concerned is, of course, far removed from fifteenth-century Norwich in which the above episode is thought to have taken place. And yet, one cannot help but notice the striking discrepancies between Margery's viewing experience of the Pietà, on the one hand – which extended beyond basic acts of looking to engage both her body and her mind – and, on the other, the disembodied, even dispassionate ways in which modern viewers often approach similar objects in contemporary display settings, the contexts in which these vestiges of the medieval past are most commonly encountered today. Removed from their original, devotional contexts, typically arranged taxonomically by period style or medium, traditional museum displays primarily draw visitors' attention to the exquisite materials and craftsmanship of the medieval period, but, in the process, often preclude them from having any deeper, meaningful engagements with the objects on display beyond their immediate formal dimensions. As David Morgan states:

> Prohibited from touching the object and constrained to admire it within the bounds of civil decorum, with hushed consideration of its self-contained completeness, mounted on a pedestal and lit for maximum visibility, shorn of original context, location, and use, the

> viewer is compelled to regard the object as if it were made for such ahistorical, rarefied contemplation.[3]

What Morgan here describes is a shift in how objects are engaged with once they are extracted from their original locations and re-positioned within the secular museum space. Thus, whereas in the Middle Ages it was the object itself that elicited somatic and affective responses in the beholder, today, it is the museum's established museological framings that give it meaning and prescribe engagement.[4] The result of this "museum effect", however, is that, instead of engaging the beholder in reciprocal exchange, contemporary curatorial practices impose an often-irreconcilable distance between viewer and viewed, not just physically, through glass vitrines, ropes and demarcated pathways, but above all, intellectually and emotionally, in order to allow for objectified, disinterested viewing.[5]

As Margery Kempe's encounter with the Pietà above illustrates, however, medieval Christian artefacts were made for more than just objectified, intellectually detached contemplation. Instead, most of what

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[3] David Morgan, *The Embodied Eye: Religious Visual Culture and the Social Life of Feeling* (Berkley, CA.: University of California Press, 2012), 75.

[4] Morgan, *Embodied Eye*, 75; James Clifton, *The Body of Christ in the Art of Europe and New Spain, 1150-1800* (Munich: Museum of Fine Arts Houston and Prestel Verlag, 1997), 11-2; Nancy Netzer, "Collecting, Re/Collecting, Contextualizing and Recontextualizing: Devotion to Fragments of the Middles Ages," in *Fragmented Devotion: Medieval Objects from the Schnütgen Museum in Cologne*, eds. Nancy Netzer and Virginia Reinburg (Boston: Boston College, 2000), 17; Steph Berns, "Sacred Entanglements: Studying Interactions Between Visitors, Objects and Religion in Museums," (PhD thesis, University of Kent, 2015), 51, https://kar.kent.ac.uk/50505/.

[5] Morgan, *Embodied Eye*, 74; Morgan, "Exhibition Review: The Critical View "Visuality and the Question of God in Contemporary Art," *Material Religion* 3, no. 1 (2007): 142, https://doi.org/10.2752/174322007780095753. Morgan refers to this distancing effect as a "traditional aesthetic of distance," see "Exhibition Review," 142.The museum effect has been variedly discussed, see Susan Pearce, *On Collecting: An Investigation into Collecting in the European Tradition* (London: Routledge, 1995); Barbara Kirshenblatt-Gimblett, *Destination Culture: Tourism, Museums, and Heritage* (London: University of California Press, 1998); and Svetlana Alpers, "The Museum as a Way of Seeing," in *Exhibiting Cultures: The Poetics and Politics of Museum Display*, eds. Ivan Karp and Steven Lavine (Washington, DC.: Smithsonian Institution Press, 1997), 25-32.

we call art objects today served practical functions which extended far beyond their artistic merit which contemporary displays generally tend to stress today.[6] *Devotionalia* such as ornate rosaries, illuminated books of hours or statues, to name but a few, were touched and handled, processed, kissed, and sometimes even ingested. However, interaction need not necessarily have been physical: images and objects of all media and sizes, ranging from stained-glass windows and wall paintings to smaller devotional pieces, such as the Pietà above, elicited intense imaginative and emotional responses within their beholders as if present at the events depicted.[7]

With this interactive potential in mind, this thesis argues that by primarily stressing the formal qualities of these late medieval devotional artefacts, contemporary curatorial practices are missing a vital opportunity not just for enhancing public understanding of the meanings these objects would have had in the past, but also – and arguably more importantly – for creating new avenues for engagement with them in the present. The surge in digital technologies over the last few decades, in particular, provides cultural heritage institutions with a range of new interpretive opportunities for promoting enhanced audience accessibility and engagement with dimensions of an object's biography that traditional interpretive media cannot accommodate. However, personal observations of museum displays across Europe which instigated this research project,

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[6] This is not to imply that medieval artists (as well as patrons and/or viewers) were not interested in aesthetics in a modern, post-Kantian sense. Rather, "beauty and artistic virtuosity [as James Clifton puts it] were generally subordinate to or intended to complement and enhance the didactic and devotional functionality of the works." See James Clifton, *The Body of Christ in the Art of Europe and New Spain*, 12.

[7] Sarah Blick and Laura D. Gelfand coined the term "devotional interaction" to account for and encompass the wide array of interactive and experiential encounters (physical, spatial, emotional and imaginative) that constitute devotional practice. See Blick and Gelfand, eds., *Push Me, Pull You: Imaginative, Emotional, Physical, and Spatial Interaction in Late Medieval and Renaissance Art* (Leiden: Brill, 2011). For a more recent study on devotional interaction, see Elisa Foster, Julia Perratore and Steven Rozenski, eds*., Devotional Interaction in Medieval England and Its Afterlives* (Leiden: Brill, 2018).

suggest that rather than pushing normative, aesthetic display practices, the digital is used to reinforce them, in the process leaving much of the potential of the medieval artefact(s) as well as that of the digital itself unlocked.

1.3 Research Context and Questions

This interdisciplinary project draws on the latest scholarship into late medieval (c.1250 - 1550) art and devotion,[8] museology, and digital cultural heritage studies to investigate how digital technologies may be used to bridge the distance (intellectual, somatic, emotive and imaginative) that normative museum display practices impose on the contemporary, twenty-first century viewing experience of medieval Christian artefacts.

In order to address this overarching aim, this thesis focusses on the following three research questions (RQs):

- **Research Question 1:** How are digital technologies currently used in the interpretation of late medieval Christian collections in public display settings?
- **Research Question 2:** How can the original reception and use of late medieval Christian objects inform their digital interpretation today?
- **Research Question 3:** What is the impact of digital interpretation of late medieval Christian objects on visitors' experience and engagement?

To answer these questions, this thesis adopted primarily qualitative research methods with a practice-based approach. Conducted as an Applied Research Collaborative Studentship (2017-2022), this practice-

[8] This research focuses on the "Latin West" only, that is, the images and objects produced by the Latin-speaking, Catholic peoples of North-Western and Central Europe. Artistic products from the Greek-speaking, Orthodox peoples of the Eastern Mediterranean region, including Byzantine art, are not discussed in thesis unless otherwise stated.

based research was carried out at the University of Glasgow, in collaboration with the University of Strathclyde and Glasgow Museums, specifically so The Burrell Collection. When this doctoral project was first conceived (i.e., early 2017), The Burrell Collection had just embarked on a major capital redevelopment project, known as the Burrell Renaissance Project (October 2016 – March 2022), which, besides the repair and modernisation of the museum building, saw the complete redisplay of the Collection.

Thus, informed by the Burrell Renaissance's wider interpretive strategy for which digital is core, this research project began with a survey (see Phase I, Chapter 3.4.) into the current adoption and use of digital provision in public displays of late medieval art across Europe and North America. In a second phase (see Phase II, Chapter 3.5.), this thesis then moved to the main, practice-based component of the research, namely the design, development, and evaluation of a specially curated digital interpretation, referred to hereafter as the *Tears of Our Lady* prototype and interpretation. Based on a digitally augmented replica of *The Lamentation of Jesus Christ* (ID Number 1.24), a fifteenth-century alabaster relief panel now held at the Burrell, the latter was used to examine how the interactive, particularly emotive, engagements that medieval devotional objects would have engendered in their pre-accession existence may be used to inform contemporary digital interpretation practice, and to evaluate its impact on audience understanding and engagement.

Investigating past experiences in the present – especially those that were religiously inspired – does not come without problems. Some critics may even question the extent to which, if any, ideas, experiences, and emotions original beholders attached to devotional artefacts, such as the Burrell Lamentation (ID Number 1.24), can be "recreated" in

contemporary contexts, be those within museum settings or beyond.[9] In an important essay on medieval art history, Herbert Kessler, for instance, addressed those curatorial efforts that try to evoke within the exhibition space the "authentic" environment in which medieval artefacts would have been experienced, arguing:[10]

> Though a commendable motive to reestablish an original environment underlies it, the approach is destined to fail because it must inevitably "recreate" a context that never existed and, of course, because the essential ingredients of liturgy, consecration and faith are always lacking. To recreate the psychological aura needed to provide the historical dimension of medieval art, a spectator's *informed* imagination is better than mock apses and piped plainsong.[11] (emphasis added)

For some spectators, devotional objects may indeed retain some of their "original", historical essence, that is, the psychological aura that Kessler refers to here.[12] But what about the many presumably "uninformed" visitors who, unlike Kessler (or Margery, for that matter), come to the museum without comparable historical information, either because they lack ready knowledge or interest in the medieval objects on display (as the former suggests) and/or do not have faith ties to Christianity (as it is the case for the latter)?

That capturing and recreating past experiences in the present, as Kessler argues, is epistemologically impossible, is clear. However, and more importantly, without assuming that these experiences are historically authentic, this thesis, in line with a rich (and extending) body of

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[9] Richard Marks, *Image and Devotion in Late Medieval England* (Stroud: Sutton Publishing, 2004), 10. See also, Joan Braham, "Sacrality and Aura in the Museum: Mute Objects and Articulate Space," *The Journal of the Walters Art Gallery*, 52/53 (1994/1995): 33-47, https://www.jstor.org/stable/20169093.

[10] "On the State of Medieval Art History," *The Art Bulletin* 70, no. 2 (1988): 179, https://www.jstor.org/stable/3051115.

[11] Kessler, "On the State of Medieval Art History," 179.

[12] Kessler, "On the State of Medieval Art History," 179.

interdisciplinary research in the area, argues that there is nonetheless much to be gained from such interactive and experiential encounters with the past (both tangible and intangible).[13] It puts forth that for some audiences, these experiential *mises-en-scène* – whether analogue through the inclusion of "mock apses", subdued lighting and muted colour schemes, or digital, via immersive soundscapes and animations as explored as part of the *Tears Of Lady* interpretation here – may indeed present vital ways into these often theologically complex objects by infusing them with a resonance that they might lack if displayed on their own or through standard interpretive means (e.g., traditional object labels outlining date and provenance).

With that in mind, this research project is less about digitally recreating a devotional encounter per se but rather about opening up a space for the historical imagination of the dynamic networks at play in the reception and use of the many, now seemingly static material remnants of the later Middle Ages. In so doing, it makes a case for the creative and imaginative use of digital interpretive media, in which the above epistemological shortcomings, instead of irrevocable barriers to

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[13] Fiona Griffiths and Kathryn Starkey, "Sensing Through Things" in *Sensory Reflections: Traces of Experience in Medieval Artifacts* (Berlin: Walter de Gruyter GmbH, 2018), 12; Elisa A. Foster, Julia Perratore and Steven Rozenski, "Introduction," in *Devotional Interaction in Medieval England and Its Afterlives* (Leiden: Brill, 2018), 13. See also, Jennifer Borland, "Encountering the Inauthentic," in *Transparent Things: A Cabinet*, eds. Maggie M. Williams and Karen Eileen Overbey (Brooklyn, NY.: Punctum Books, 2013), 17-38; Johanna Green, "Digital Manuscripts as Sites of Touch: Using Social Media for "Hands-On" Engagement with Medieval Manuscript Materiality," *Archive Journal* (2018), https://www.archivejournal.net/essays/digital-manuscripts-as-sites-of-touch-using-social-media-for-hands-on-engagement-with-medieval-manuscript-materiality/; Heather S. Mitchell-Buck, "Restored, Revived, Remixed, Reified? Our Devotion to the Medieval Past," in *Devotional Interaction in Medieval England and Its Afterlives*, eds. Elisa A. Foster, Julia Perratore and Steven Rozenski (Leiden: Brill, 2018), 372-97; and Brendan O'Neill and Aidan O'Sullivan, "Experimental Archaeology and (Re)-Experiencing the Senses of the Medieval World," in *The Routledge Handbook of Sensory Archaeology*, eds. Robin Skeates and Jo Day (London: Routledge, 2019), esp. 454-55.

contemporary visitor experience, emerge as an "enabling force"[14] for providing the broader public with novel avenues for interrogating and engaging with the medieval past, its people, and practices.

1.4 Thesis Outline

This thesis is divided into six chapters. Having introduced the research project, its overarching aims and research questions in this chapter, **Chapter 2** provides a literature review of the main disciplinary strands that this thesis draws upon, namely medieval studies, museology (especially the public display of religious heritage), and digital cultural heritage. Divided into three subsections, it reviews the latest developments in each strand. Chapter 2 concludes with a summary of the key research gaps identified in the literature and how the present thesis seeks to address these.

Chapter 3 outlines the research methodology used in this project. Beginning with a contextualisation of the research project, its academic and institutional partners, this chapter presents the research approach and methods applied in this study and discusses the rationale behind these. In particular, it justifies and presents the phased research design (**Phase I** & **II**) adopted as part of this project, before discussing the methodological approach underpinning Phase I and II in turn.

Chapter 4 discusses the overarching interpretive approach that governed the design of the *Tears of Our Lady* prototype and interpretation. Moving from initial conceptualisation to final implementation, this chapter details the digital content development process. In the process, it contextualises the individual design choices and decisions within the wider theoretical

[14] Christopher Marshall, "From Altar to App: Displaying Devotion in the Contemporary Museum," *Journal of Curatorial Studies* 4, no. 3 (2015): 473, http://dx.doi.org/10.1386/jcs.4.3.458_1.

framework of this study. The chapter closes with a step-by-step visual description of the *Tears of Our Lady* interpretative narrative.

Building on Chapter 4, **Chapter 5** presents the findings of the evaluation of the *Tears of Our Lady* prototype and interpretation. Drawing on semi-structured interviews and questionnaires conducted with 17 participants via Zoom between October 2020 and January 2021, the chapter analyses the impact of the digital interpretation on participant engagement.

Chapter 6 discusses the main contributions of this research. It summarizes the main research findings (including the wider museological questions these raise) and discusses how they respond to each of the research questions in turn. The thesis concludes with a discussion of the lessons learned from this project. This includes a review of the limitations of this study as well as its contributions to existing scholarship and cultural heritage practice.

Chapter 2 Literature Review

2.1. Introduction

Having introduced the research project, its context and research questions in the previous chapter, this chapter presents and contextualises the theoretical frameworks that inform this thesis and to which it aims to contribute. As this research is underpinned by the aim of bringing together literature on late medieval (c. 1250 – 1550) art and devotion, museology, and digital cultural heritage studies to explore how they may meaningfully inform each other to enhance visitor engagement with medieval artefact collections, an interdisciplinary approach is warranted.

In line with this interdisciplinary emphasis, this chapter is divided into three consecutive sections. The first sub-section of this chapter maps the current methodological trends in medieval studies, paying particular attention to the burgeoning scholarly interest in devotional material culture and materiality that instigated this research in the first place. In so doing, it introduces the study of material religion. Through reviewing how the latter allows for attending to the complex interactions between religion(s) and material culture, material religion is put forth as a distinctly fruitful lens for approaching not only the academic study of medieval Christianity but similarly – and arguably more importantly for this thesis – for addressing, and indeed, re-dressing, how its physical remnants, and the embodied, sensory, and emotive modalities through which they were experienced, are displayed in museums today.

Section 2 of this literature review then turns to an examination of religion(s) in museums and explores the complex matter of displaying religious “stuff” in secular museum spaces. Approaching the subject from a global perspective, Section 2 starts with a review of the extensive body of research on the museumification of non-Western religions before

moving on to a discussion of the public display and interpretation of medieval Christian heritage.

The review of museological research into Christian art and devotion paves the way for an investigation, in Section 3, of the latest digital projects pertaining to medieval material culture both within the museum and without, and the opportunities and drawbacks of emergent digital technologies for public understanding of and engagement with medieval heritage.

The chapter concludes with a summary of the main findings as well as the research gaps identified in the scholarship that this research aims to address.

2.2. The Materiality of Religion

2.2.1. Material Religion: On the State of Things

Material culture is nowadays an indispensable component of the academic study of religion.[15] And yet, modern Western definitions of religion often tend to downplay this material dimension, describing it instead as what someone believes; an individual's interior disposition and adherence to a set of creedal teachings and doctrines.[16] Geared to a transcendental "beyond" that is immaterial by definition, scholars of

[15] Peter Bräunlein, "Studying Material Religion from a Non-Anthropocentric Perspective? Some Considerations on New Materialisms," *Material Religion* 15, no. 5 (2019): 622, https://doi.org/10.1080/17432200.2019.1666582.

[16] David Morgan, "Introduction: The Matter of Belief," in *Religion and Material Culture: The Matter of Belief* (Oxon: Routledge, 2010), 1. See also Talal Asad, *Genealogies of Religion: Discipline and Reasons of Power in Christianity and Islam* (London: John Hopkins University Press, 1993); Donald S. Lopez, "Belief," in *Critical Terms for Religious Studies*, ed. Mark C. Taylor (London: The University of Chicago Press, 1998), 21-35; Webb Keane, "The Evidence of the Senses and the Materiality of Religion," *Journal of the Royal Anthropological Institute* 14 (2008): 110-127; Robert A. Orsi, "Belief," in *Key Terms in Material Religion*, ed. S. Brent Plate (London: Bloomsbury, 2015), 17-23.

religion have long framed spirituality and materiality as fundamentally antagonistic thereby reducing material culture (as well as practices, emotions and spaces) to no more than outward or secondary manifestations of prior, internal beliefs, but not central to their inner workings.[17]

Over the past several decades, however, religious studies have witnessed a shift away from the signification and belief-centred approaches that long dominated the field towards a more systematic engagement with the materialities of lived experience and practice of religion.[18] Stimulated by debates in the aftermath of the "material turn" that has taken hold of the humanities and social sciences since the mid-1980s – which itself, in turn, emerged in opposition to earlier, idealist presumptions that reduce the material world to mere signs and ideas – scholars of religion have increasingly been calling for the materialisation, or rather, the *re*-materialisation of the study of religion (the latter predicated on the

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[17] Dick Houtman and Birgit Meyer, "Introduction: Material Religion – How Things Matter," in *Things: Religion and the Question of Materiality* (Fordham Scholarship Online, 2013), 1-5; Hans H. L. Jørgensen, "Prostheses of Pious Perception: On the Instrumentalization and Mediation of the Medieval Sensorium," in *The Materiality of Devotion in Late Medieval Northern Europe: Images, Object and Practices*, eds. Henning Laugerud, Salvador Ryan and Laura Katrine Skinnebach (Portland, OR.: Four Courts Press, 2016), 146; Morgan, "Introduction: The Matter of Belief," 1-17. On the genealogy of the notion of religion as belief and the resultant devaluation of material culture in the study of religion(s), see, among others, Asad, *Genealogies of Religion*; Lopez, "Belief," 21-35; Robert A. Orsi, *Between Heaven and Earth: The Religious Worlds People Make and the Scholars Who Study Them* (Princeton, NJ.: Princeton University Press, 2005); Orsi, "Belief," 17-23; Keane, "The Evidence of the Senses and the Materiality of Religion," 110-127; Manuel Vásquez, *More Than Belief: A Materialist Theory of Religion* (Oxford: Oxford University Press, 2011); and Birgit Meyer, *Mediation and the Genesis of Presence: Towards a Material Approach to Religion* (Inaugural lecture, Universiteit Utrecht, Faculteit Geesteswetenschappen, 19 October 2012), https://www.uu.nl/sites/default/files/gw_meyer_birgit_oratie_definitief.pdf.

[18] Bruno Reinhardt, "Don't Make it a Doctrine: Material Religion, Transcendence, Critique," *Anthropological Theory* 16, no.1 (2016): 75, https://doi.org/10.1177/1463499615625012. See also David Morgan, "Material Culture of Lived Religion: Visuality and Embodiment," in *Mind and Matter: Selected Papers of NORDIK 2009 Conference for Art Historians* 41, ed. Johanna Vakkari (Helsinki: Society of Art History, 2010), 14-31; and Vásquez, *More Than Belief*, 231-57.

understanding that material culture has never been truly absent from religious studies but has only been unduly looked *through* by scholars).[19]

Referred to collectively as "material religion", this distinct scholarly approach directs attention to the lived, embodied practice(s) of religion, paying particular attention to material "things" and their use in the everyday life of believers.[20] The eponymously titled journal *Material Religion: The Journal of Objects, Art and Belief* (hereafter referred to as *Material Religion*), in particular, has emerged as a vibrant forum of discussion in the area.[21] Having itself developed in an interdisciplinary

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[19] Birgit Meyer, David Morgan, Crispin Paine, and S. Brent Plate, "The Origin and Mission of Material Religion," *Religion* 40, no. 3, (2010): 210, https://doi.org/10.1016/j.religion.2010.01.010; Bill Brown, "Thing Theory," *Critical Inquiry* 28, no. 1 (2001): 4, https://www.jstor.org/stable/1344258; Houtman and Meyer, "Introduction," 11. On the material turn in the humanities, see, for instance, Daniel Miller, ed., *Materiality* (Durham, NC.: Duke University Press, 2005); Dan Hicks and Mary C. Beaudry, "Introduction. Material Culture Studies: A Reactionary View," in *The Oxford Handbook of Material Culture* (Oxford: Oxford University Press, 2010), 1-21; Dan Hicks, "The Material-Cultural Turn: Event and Effect," in *The Oxford Handbook of Material Culture*, eds. Dan Hicks and Mary C. Beaudry (Oxford: Oxford University Press, 2010), 25-98; Diana Coole and Samantha Frost, eds., *New Materialisms: Ontology, Agency, and Politics* (Durham, NC.: Duke University Press, 2010). For a discussion of the material turn in the study of religion(s), in specific, see Vásquez, *More Than Belief;* Birgit Meyer and Dick Houtman, eds., *Things: Religion and the Question of Materiality* (New York: Fordham University Press, 2012); Sonia Hazard, "The Material Turn in the Study of Religion," *Religion and Society: Advances in Research* 4 (2013): 58-78, https://doi.org/10.3167/arrs.2013.040104; Peter J. Bräunlein, "Thinking Religion Through Things: Reflections on the Material Turn in the Scientific Study of Religion\s," *Method and Theory in the Study of Religion* 28, no. 4/5 (2016): 365-99, http://www.jstor.org/stable/44645820; and David Morgan, "Materiality," in *The Oxford Handbook of the Study of Religion*, eds. Michael Stausberg and Steven Engler (Oxford: Oxford University Press, 2016), 271-88.

[20] Berns, "Sacred Entanglements," 44.

[21] Since the inaugural publication of *Material Religion* in 2005, "materiality" in general, and "material religion" in particular have become staple thematic emphases in scholarly publications in the arts and humanities with scholars and practitioners approaching the subject from a multitude of methodological stances, ranging from architecture and the senses to emotion and technology. See, for instance, Elisabeth Arweck and William Keenan, eds., *Materializing Religion: Expression, Performance, and Ritual* (Oxford: Ashgate, 2006); David Morgan, ed., *Key Words in Religion, Media and Culture* (London: Routledge, 2008); Birgit Meyer, ed., *Aesthetic Formations: Media, Religion and the Senses* (New York, NY.: Palgrave, 2009); Matthew Engelke, "Material Religion," in *The Cambridge Companion to Religious Studies*, ed. Robert Orsi (Cambridge: Cambridge University Press, 2012), 209-29. https://doi.org/10.1017/CCOL9780521883917.012; Sally M. Promey, "Religion, Sensation, and Materiality: An Introduction," *in Sensational Religion: Sensory Cultures*

way through the combined efforts of scholars from across a wide range of academic disciplines and professional fields, such as anthropology, archaeology, art history, and curatorial research and practice, the editors of *Material Religion* "set out to consider religion through the lens of its material forms and their use in religious practice".[22] Central to this material approach is taking "seriously the often downplayed, material dimension of religion" for understanding how belief actually *happens* in the lives of adherents, that is, how it is practiced, felt and experienced.[23]

Scholarly interest in material culture in the study of religion is obviously far from new. Archaeologists and art historians specialising in religion, for instance, have scrutinized and interpreted the material traces of religion(s) long before the material turn.[24] What has changed, however, is an acknowledgement among scholars of just how integrally engaged material

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in Material Practice (London: Yale University Press, 2014), 1-21; S. Brent Plate, ed., *Key Terms in Material Religion* (London: Bloomsbury Academic, 2015); Diane Apostolos-Cappadona, ed., *Religion: Material Religion* (Farmington Hills, MI.: Macmillan Reference USA, 2016); Tim Hutchings and Joanne McKenzie, eds., *Materiality and the Study of Religion: The Stuff of the Sacred* (Oxon: Routledge, 2017); Jessica Hughes and Graham Harvey, eds., *Sensual Religion: Religion and the Five Senses* (Bristol, CT.: Equinox Publishing, 2018); and James S. Bielo, *Materializing the Bible: Scripture, Sensation, Place* (London: Bloomsbury Academic, 2021).

[22] "Editorial Statement," *Material Religion* 1, no. 1 (2005): 5, https://doi.org/10.2752/174322005778054474. For formative publications in material culture studies and visual culture studies, see Christopher Tilley, ed., *Reading Material Culture* (Oxford: Blackwell, 1990); Colleen McDannell, *Material Christianity: Religion and Popular Culture in America* (New Haven, CT.: Yale University Press, 1995); David Morgan, *Visual Piety: A History and Theory of Popular Religious Images* (Berkeley, CA.: University of California Press, 1998); and Morgan, *The Sacred Gaze: Religious Visual Culture in Theory and Practice* (Berkeley, CA.: University of California Press, 2005).

[23] Birgit Meyer, "Materializing Religion," in *Material Religion* 4, no. 2 (2008): 227, https://doi.org/10.2752/175183408X328325; "Editorial Statement," 8-7; Meyer et al., "Origin and Mission," 209.

[24] Meyer et al., "Origin and Mission," 209; David Morgan, "Materiality, Social Analysis and the Study of Religions," in *Religion and Material Culture: The Matter of Belief* (Oxon: Routledge, 2010), 55. On archaeology and religion see, for instance, Timothy Insoll, *Archaeology, Ritual, Religion* (London: Routledge, 2004); Yorke M. Rowan, "Beyond Belief: The Archaeology of Religion and Ritual," *Archaeological Papers of the American Anthropological Association* 21, no. 1 (2011): 1-10, https://doi.org/10.1111/j.1551-8248.2012.01033.x; Julian Droogan, *Religion, Material Culture and Archaeology* (London: Bloomsbury Academic, 2013).

things and phenomena – that is, the practices, spaces, bodies, emotions, media and technology that embody and enact them – are in forming people's religious identities, and the limitations of purely exegetical, belief-centred approaches for accounting for these.[25] As the editors of *Material Religion* rightly remind us, any religion (even the most fundamentalist movement amongst them) is more than just the abstract engagement with doctrine, or the passive, disembodied recitation of creeds and mantras:[26]

> Religion is not […] something one does with speech or reason alone, but with the body and the spaces it inhabits. Religion is about the sensual effects of walking, eating, meditating, making pilgrimage, and performing even the most mundane of ritual acts. Religion is what people do with material things and places, and how these structure and color experience and one's sense of oneself and others.[27]

(Re)materialising religion thus entails a critical re-thinking of religion no longer just as "why" someone believes but "what" people do, "when", "where" and "how".[28] Inherent in a material approach to religion then is taking material things and phenomena as *primary* evidence for understanding religion as lived experience.[29]

Thus expanding scholarly emphasis beyond "belief" and "meaning" as guiding concepts in the study of religion, however, does neither mean supplanting all prior interest in interior, spiritual religiosity nor does it imply abandoning the traditional methods such as textualist or stylistic/iconographical analysis, methods which have been used for so long, and indeed continue to remain effective for the discipline. On the

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[25] "Editorial Statement," 1.

[26] "Editorial Statement," 5.

[27] "Editorial Statement," 4.

[28] Morgan, "Materiality," 272; Morgan, "Introduction: The Matter of Belief," 6-7.

[29] "Editorial Statement," 8; Meyer et al. "Origin and Mission," 208; David Morgan, "Material Analysis and the Study of Religion," in *Materiality and the Study of Religion: The Stuff of the Sacred*, eds. Tim Hutchings and Joanne McKenzie (Oxon: Routledge, 2017), 15.

contrary; focusing on the materiality of religion, as Birgit Meyer asserts, should not be taken to imply "a simple reversal, a substitution of mentalism for materialism;" doing so would merely entail a reproduction of the very same normative hierarchies and dichotomies (material vs. spiritual, transcendental) which scholars of material religion seek to displace.[30] Rather, materialising religion entails a working method that approaches religion in a non-hierarchical manner; one that, instead of prioritizing ideas and dogmas as the irreducible core of religion, situates the material and immaterial, animate and inanimate into dynamic dialogue.[31] At the very heart of such an integrated, relational approach lies the understanding that material things and phenomena – objects, practices, spaces, bodies, emotion, media and technology – are neither peripheral nor supplementary to sacred sentiment but *intrinsic* to its very essence, both enabling and enacting it.[32]

2.2.2. The Materiality of Late Medieval Devotion

The methodological shift in the study of religion(s) from one that privileges belief to one that explores both the material and immaterial as constitutive forces in its formation have proven particularly useful for the critical exploration of late medieval Christianity. Indeed, although it is now accepted that material objects, and the bodily and sensory modalities through which they were experienced, formed an intrinsic tenet of medieval devotional practice, scholarly discussions, and analysis of material culture (and materiality at large) did not routinely feature as part

[30] Birgit Meyer, "Materializing Religion," 227; Meyer, "Mediation and the Genesis of Presence," 12; Orsi "Belief," 21; Vásquez, *More Than Belief*, 257.

[31] Meyer et al., "Origin and Mission," 209: Meyer, "Mediation and the Genesis of Presence," 12-23; Promey, "Religion, Sensation, and Materiality: An Introduction," 15.

[32] Meyer et al., "Origin and Mission," 209-10; Keane, "The Evidence of the Senses and the Materiality of Religion," 124; Houtman and Meyer, "Introduction: Material Religion – How Things Matter," 17; Morgan, "Materiality," 273; Morgan, "Introduction: The Matter of Belief," 7-12; Orsi, "Belief," 23.

of the early academic study of (late) medieval Christianity.[33] In recent decades however – under the impetus of the material turn introduced above – the study of medieval art and devotion has witnessed a broadening of (art-)historical methods and approaches away from earlier questions centring on production, form, style, and artistic intention alone, to embrace concerns of audience and reception.[34]

Foundational work by Hans Belting, David Freedberg, and Jeffrey Hamburger for instance, opened up new avenues for understanding the power of images in religious acts.[35] In so doing, these scholars heralded a paradigm shift away from interrogating what images and objects depicted, that is, their intrinsic meaning(s), to a consideration of the effect(s) they might have had on the beholder, as well as the social, cultural and religious contexts in which these objects were used, including among the laity and particularly women (both echelons which

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[33] Beth Williamson, "Material Culture and Medieval Christianity," in *The Oxford Handbook of Medieval Christianity*, ed. John H. Arnold (Oxford: Oxford University Press, 2014), 62, https://doi.org/10.1093/oxfordhb/9780199582136.013.004; John H. Arnold, "Histories and Historiographies of Medieval Christianity," in *The Oxford Handbook of Medieval Christianity*, ed. John H. Arnold (Oxford: Oxford University Press, 2014), 24-39, https://doi.org/10.1093/oxfordhb/9780199582136.013.002.

[34] Conrad Rudolph, "Introduction: A Sense of Loss: An Overview of the Historiography of Romanesque and Gothic Art," in *A Companion to Medieval Art: Romanesque and Gothic in Northern Europe,* 2nd ed., ed. Conrad Rudolph (Hoboken, NJ: Wiley-Blackwell, 2019), 35, https://doi.org//10.1002/9781119077756.ch1. For a historiography of this shift in paradigm, see Madeline Harrison Caviness, "Reception of Images by Medieval Viewers," in *A Companion to Medieval Art: Romanesque and Gothic in Northern Europe*, 2nd ed., ed. Conrad Rudolph (Hoboken, NJ.: Wiley-Blackwell, 2019), 119-45, https://doi.org/10.1002/9781119077756.ch5.

[35] By Hans Belting see, *Das Bild und Sein Publikum: Form und Funktion früher Bildtafeln der Passion* (Berlin: Mann, 1981); Belting, *Bild und Kult: Eine Geschichte des Bildes vor dem Zeitalter der Kunst*, 6th ed. (München: Verlag C.H. Beck, 1990). By Jeffrey F. Hamburger see *Nuns as Artists: The Visual Culture of a Medieval Convent* (Berkley, CA.: University of California Press, 1997); Hamburger, *The Visual and the Visionary* (New York: Zone Books, 1998; Jeffrey F. Hamburger and Anne-Marie Bouché, eds., *The Mind's Eye: Art and Theological Argument in the Middle Ages* (Princeton, NJ.: Department of Art and Archaeology, Princeton University in association with Princeton University Press, 2006). By David Freedberg, see *The Power of Images: Studies in the History and Theory of Response* (London: The University of Chicago Press, 1989).

had received comparatively little academic attention prior to this point).[36] These methodological approaches have resonated especially in the area of sight and seeing, making visuality and perception an extraordinarily strong and dominant strand in the study of late medieval art and devotion.[37] Yet, while sight – as "the most excellent of the body's senses" – did indeed occupy a central (albeit not uncontested) place within medieval devotion, more recently, critical voices have been questioning the isolation of the gaze and the ocular that long dominated modern scholarship, pointing out that medieval devotion was more than just visual, disembodied meditation but incorporated the whole human being, body, its sensorium, and soul alike.[38]

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[36] Beth Williamson, "Material Culture and Medieval Christianity," 66; Caviness, "Reception of Images," 120. Pablo Acosta-García, "A Clash of Theories: Discussing Late Medieval Devotional Perception," in *Touching, Devotional Practices, and Visionary Experience in the Late Middle Ages*, eds. David Carillo-Rangel, David, Delfi I. Nieto-Isabel and Pablo Acosta-García (Cham: Palgrave Macmillan, 2019), 5. "Intrinsic meaning" is a term mainly attributed to Erwin Panofsky and his *Studies in Iconology: Humanistic Themes in the Art of the Renaissance* (New York, NY.: Routledge, 1939).

[37] Williamson, "Material Culture and Medieval Christianity," 66. Scholarly work on medieval perception and sight is extensive. See, for instance, Bob Scribner, "Popular Piety and Modes of Visual Perception in Late Medieval and Reformation Germany," *The Journal of Religious History* 15, no. 4 (1989): 448-69; Michael Camille, *Gothic Art: Glorious Visions* (Upper Saddle River, N.J.: Prentice Hall, 1996); Cynthia Hahn, "Visio Dei: Changes in Medieval Visuality," in *Visuality Before and Beyond the Renaissance: Seeing As Others Saw*, ed. Robert S. Nelson (Cambridge: Cambridge University Press, 2000), 169-96; Hahn, "Vision," in *A Companion to Medieval Art: Romanesque and Gothic in Northern Europe*, 2nd ed., ed. Conrad Rudolph (Hoboken, NJ.: Wiley-Blackwell, 2019), 44-64, https://doi.org/10.1002/9781119077756.ch3; Henning Laugerud, "Visuality and Devotion," in *Instruments of Devotion: The Practices and Objects of Religious Piety from the Late Middle Ages to the 20th Century*, eds. Henning Laugerud and Laura Katrine Skinnebach (Aarhus: Aarhus University Press, 2007), 173-88; Jacqueline E. Jung, "The Tactile and the Visionary: Notes on the Place of Culture in the Medieval Religious Imagination," in *Looking Beyond: Visions, Dreams, and Insights in Medieval Art and History*, ed. Colum Hourihane (Princeton, NJ.: Index of Christian Art, 2010), 203-40; David S. Areford, "Reception," *Studies in Iconography* 33 (2012): 73-88; and Alexa Sand, "Visuality," *Studies in Iconography* 33 (2012): 89-95.

[38] St Augustine, "De Trinitate," in *The Works of St Augustine: A Translation for the 21st Century*, trans. and ed. Edmund Hill (New York, NY.: New York City, 1993), XI. i.1; Laura Katrine Skinnebach, "Practices of Perception – Devotion and the Senses in Late Medieval Northern Europe," (PhD Thesis, University of Bergen, 2013), 16; Skinnebach, "Devotion: Perception as Practice and Body as Devotion in Late Medieval Piety," in *The Saturated Sensorium: Principles of Perception and Meditation in the Middle Ages*, eds. Hans H. L. Jørgensen, Henning Laugerud and Laura Katrine

Approaching late medieval devotion in multidisciplinary, multisensory and even intersensory ways, scholars have been casting new and intriguing light on the *practice* of devotion, and the mental and spiritual, as well as the bodily and material phenomena that underpin it, in the process, making materiality – the body, the bodily senses and material culture – all subjects of recent renewed interest.[39] The work of Caroline Walker Bynum on Christian materiality is paramount here, especially with regard to women's piety, but other scholars such as Beth Williamson, and more recently Laura Katrine Skinnebach among others, have made crucial contributions to this interdisciplinary field of enquiry.[40] Debates centring on the devotional significance of the body,

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Skinnebach (Aarhus: Aarhus University Press, 2015), 152-79; Jeffrey F. Hamburger, *The Visual and the Visionary* (New York: Zone Books, 1998): 19. See also, Eugene Vance, "Seeing God: Augustine, Sensation and the Mind's Eye," in *Rethinking the Medieval Senses: Heritage, Fascinations, Frames*, eds. Stephen G. Nichols, Andreas Kablitz and Alice Calhoun (Baltimore, MD.: The John Hopkins University Press, 2008), 13-29.

[39] On the materiality of medieval devotion, see, for instance, Caroline Walker Bynum, *Christian Materiality: An Essay on Religion in Late Medieval Europe* (New York, NY.: Zone Books, 2011); Aden Kumler and Christopher R. Lakey, "Res et significatio: The Material Sense of Things in the Middle Ages," *Gesta* 51, no. 1 (2012): 1–17, https://doi.org/10.1086/669944; Henning Laugerud, Salvador Ryan, and Laura Katrine Skinnebach, eds., *The Materiality of Devotion in Late Medieval Northern Europe: Images, Objects and Practices* (Portland, OR.: Four Courts Press. 2016); and Aden Kumler, "Materials, Materia and 'Materiality'," in *A Companion to Medieval Art: Romanesque and Gothic in Northern Europe*, 2nd ed., ed. Conrad Rudolph (Hoboken, NJ: Wiley-Blackwell, 2019), 97-117, https://doi.org/10.1002/9781119077756.ch4.

[40] By Bynum, see, for instance, *Christian Materiality*; *Fragmentation and Redemption: Essays on Gender and the Human Body in Medieval Religion* (New York, NY.: Urzone Publishers, 1992); *The Resurrection of the Body in Western Christianity 200-1336* (New York, NY.: Columbia Press, 1995); and *Dissimilar Similitudes: Devotional Objects in Late Medieval Europe*. New York, NY.: Zone Books, 2020. The latter includes a revised version of Bynum's 2013 essay "The Sacrality of Things: An Inquiry into Divine Materiality in the Christian Middle Ages,". For Williamson, see "Altarpieces, Liturgy, and Devotion," *Speculum* 79, no. 2 (2004): 341-406, https://www.jstor.org/stable/20462892; "Material Culture and Medieval Christianity," 60-78; and "Reflections on Sensory Reflections: An Afterword," in *Devotional Interaction in Medieval England and Its Afterlives*, eds. Elisa A. Foster, Julia Perratore and Steven Rozenski (Leiden: Brill, 2018), 249-57. For Skinnebach, see "Practices of Perception"; Henning Laugerud and Laura Katrine Skinnebach, eds., *Instruments of Devotion: The Practices and Objects of Religious Piety from the Late Middle Ages to the 20th Century* (Aarhus: Aarhus University Press, 2007); Henning Laugerud, Hans H. L. Jørgensen, and Laura Katrine Skinnebach, *The Saturated Sensorium: Principles of Perception and Meditation in the Middle Ages* (Aarhus: Aarhus University Press, 2015); and Laugerud, Ryan, and Skinnebach, eds., *The Materiality of Devotion*.

and the theological theorizations of matter that underpin it, were central to medieval Christian thought. Rooted in the paradoxical nature of the relation between the human material body and the divine spiritual soul, questions concerning how to best deal with the body lay at the very core of these reflections, and catechetical programmes flourished that outlined how to Christianise the body and the bodily senses on both a spiritual and somatic level.[41] As Bynum has convincingly shown, however, the result of these concerns was less a rejection of the body – and materiality at large – rather than the elevation of it into an active instrument in the contemplation and knowing of God.[42]

The same applied to the bodily senses as well as devotional images and objects:[43]

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[41] Laugerud, Ryan, and Laura Katrine Skinnebach "Introduction," in *The Materiality of Devotion in Late Medieval Northern Europe: Images, Objects and Practices* (Portland, OR.: Four Courts Press), 2; Kristin Bliksrud Aavitsland, "Incarnation: Paradoxes of Perception and Meditation in Medieval Liturgical Art," in *The Saturated Sensorium: Principles of Perception and Mediation in the Middle Ages*, eds. Hans H. L. Jørgensen, Henning Laugerud and Laura Katrine Skinnebach (Aarhus: Aarhus University Press, 2015), 72-91.

[42] *Holy Feast and Holy Fast: The Religious Significance of Food to Medieval Women* (Berkley, CA.: University of California Press, 1987), 182. See also Bynum, *Fragmentation and Redemption*; *The Resurrection of the Body*; "Seeing and Seeing Beyond: The Mass of St Gregory in the Fifteenth Century," in Jeffrey F. Hamburger and Anne-Marie Bouché, eds. *The Mind's Eye: Art and Theological Argument in the Middle Age*s (Princeton, NJ.: Department of Art and Archaeology, Princeton University in association with Princeton University Press, 2006), 208-40; *Christian Materiality*; Skinnebach, "Devotion: Perception as Practice and Body as Devotion in Late Medieval Piety," 152-179.

[43] The medieval senses have seen much scholarly interest over the years. Publications relevant to this project include, Christopher Michael Woolgar, *The Senses in Late Medieval England* (New Haven: CT.: Yale University Press, 2006); Stephen G. Nichols, Andreas Kablitz, and Alison Calhoun, eds., *Rethinking the Medieval Senses: Heritage, Fascination, Frames* (Baltimore, MD.: The John Hopkins University Press, 2008); Eric Palazzo, "Les cinq sens au Moyen Âge : état de la question et perspectives de recherche," *Cahiers de civilisation médiévale* 55, no. 220 (2012): 339-66; Richard G. Newhauser, ed., *A Cultural History of the Senses in the Middle Ages* (London: Bloomsbury Academic, 2014); Newhauser, "Anthologizing the Medieval Senses: A Methodological Overview," *postmedieval: A Journal of Medieval Culture Studies* 12 (2021): 123-33, https://doi.org/10.1057/s41280-021-00214-y; Annette Kern-Stähler, Beatrix Busse, and Wietse de Boer, eds., *The Five Senses in Medieval and Early Modern England* (Leiden: Brill, 2016). For discussions on intersensory

> Physical movements such as kneeling, lying face down on the floor, lighting a candle, and the employment of the outer senses – beholding an image, touching a rosary or the cold floor against one's face or knees, tasting the Eucharist or the words of prayer in one's mouth or the dryness following hours of recitation, smelling the sweet scent of incense and listening to the names of the Virgin or words from Holy Scripture – were not merely the outer expressions of the inner state of the soul, but devotional actions strategically incorporated for the purpose of affecting the soul.[44]

Instead, then of inherently antagonistic, body and soul, mind and matter were mutually constitutive in medieval devotional practice, unified in their desire to contemplate and access the Divine.[45]

Particularly fruitful for the present study, however, is the more recent scholarship in (late) medieval studies which pushes the study of medieval materiality beyond periodic and disciplinary boundaries to engage in the relationship between the world of medieval art and devotion and the many contemporary, twenty-first-century uses of the remains of the Middle Ages.[46] Building on the extensive research on late medieval material culture and sensory perception mentioned above, these scholars employ materiality as a critical apparatus for exploring the extended

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perception, especially sight as touch, see Camille, *Gothic Art*; Suzannah Biernoff, *Sight and Embodiment in the Middle Ages* (Basingstoke: Palgrave Macmillan, 2002); Biernoff, "Carnal Relations: Embodied Sight in Merleau-Ponty, Roger Bacon and St Francis," *Journal of Visual Culture* 4, no. 1 (2005): 39-52, https://doi.org/10.1177/1470412905050889; Bissera V. Pentcheva, "The Performative Icon," *The Art Bulletin* 88, no. 4 (2006): 631-55, https://www.jstor.org/stable/25067280; Jill Stevenson, *Performance, Cognitive Theory, and Devotional Culture: Sensual Piety in Late Medieval York* (New York, NY.: Palgrave Macmillan, 2010); Jung, "The Tactile and the Visionary"; Morgan, *The Embodied Eye*; Alexa Sand, "*Materia Meditandi*: Haptic Perception and Some Parisian Ivories of the Virgin and Child, ca. 1300," *Different Visions* 4 (2014): 1-28, https://differentvisions.org/issue-four/2019/06/materia-meditandi-haptic-perception-and-some-parisian-ivories-of-the-virgin-and-child-ca-1300/; Jørgensen, Laugerud, and Skinnebach, *The Saturated Sensorium;* and David Carrillo-Rangel, Delfi I. Nieto-Isabel, and Pablo Acosta-García, eds., *Touching, Devotional Practices, and Visionary Experience in the Late Middle Ages* (Cham: Palgrave Macmillan, 2019).

[44] Laugerud, Ryan, and Skinnebach, "Introduction," 2.

[45] Skinnebach, "Devotion: Perception as Practice and Body as Devotion," 152-161.

[46] Foster, Perratore and Rozenski, "Introduction," 14; Heather S. Mitchell-Buck, "Restored, Revived, Remixed, Reified? Our Devotion to the Medieval Past," 372-97.

history of medieval devotional practice, both tangible and intangible. Especially insightful in that regard is the recent edited volume *Sensory Reflections: Traces of Experience in Medieval Artifacts* which explores how modern experience of medieval objects, spaces, and ritual practices can open up thinking about and understanding of the medieval past.[47] In keeping with that line of inquiry, contributors to the volume reflect on their own sensory encounters derived from engagement (sensory, imagined, creative, emotional) with a variety of artefacts (from relics and folding almanacs to plows) and practices to increase understanding not just of the artefacts themselves but also of past meanings, use and experience.[48]

Accessing historic experience through modern experience does, of course, not come without its problems. Thus, not only have many physical remnants of the medieval past been removed from their original contexts, but many other artefacts that are now displayed as artworks in their own right are but fragments of larger works, consequently leaving scholars without definite knowledge about their original locations or emplacements.[49] More importantly, however, the senses, and the interpretation of these senses, are culturally and historically bound so that even if issues regarding the physical and spatial contexts could be

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[47] Fiona Griffiths and Kathryn Starkey, eds. *Sensory Reflections: Traces of Experience in Medieval Artifacts* (Berlin: Walter de Gruyter GmbH, 2018). Another edited volume of interest, here, is Foster, Perratore, and Rozenski*, Devotional Interaction in Medieval England and Its Afterlives*.

[48] See, for instance, the contributions by Cynthia Hahn, "Theatricality, Materiality, Relics: Reliquary Forms and the Sensational in Mosan Art," in *Sensory Reflections: Traces of Experience in Medieval Artifacts*, eds. Fiona Griffiths and Kathryn Starkey (Berlin: Walter de Gruyter GmbH, 2018), 142-62; Jennifer Borland, "Moved by Medicine: The Multisensory Experience of Handling Folding Almanacs," in *Sensory Reflections: Traces of Experience in Medieval Artifacts*, eds. Fiona Griffiths and Kathryn Starkey (Berlin: Walter de Gruyter GmbH, 2018), 203-24; Richard Newhauser, "'putten to ploughe': Touching the Peasant Sensory Community," in *Sensory Reflections: Traces of Experience in Medieval Artifacts*, eds. Fiona Griffiths and Kathryn Starkey (Berlin: Walter de Gruyter GmbH, 2018), 225-48.

[49] Netzer, "Collecting, Re/Collecting, Contextualizing and Recontextualizing: Devotion to Fragments of the Middles Ages," 17.

resolved, one could nonetheless never reproduce, reconstruct or replicate a historical subject's experience.[50] However, despite these epistemological shortcomings, and, moreover, without assuming that these modern experiences are historically authentic, these scholars show that there are nonetheless many productive insights to be gained from active engagement (sensory, emotional and imaginative) about the medieval past and its objects.[51] For rather than replicating in the present past people's historical experience, sensory engagement and emotional response are about making past and present meaningfully interact, fostering new and creative ways of thinking of and engaging with the medieval past, its practices and objects in the present.

However invaluable these recent scholarly endeavours (theoretically, methodologically, and empirically) are for both medieval studies at large, and this thesis in specific, presently barely any, specifically applied, research exists which explores how these insights into late medieval Christian artefacts, and the embodied, sensory, and emotive modalities through which they were experienced, may be used to inform twenty-first-century public access and engagement. This absence in research is felt particularly strongly in scholarly discussions centring on the display of medieval collections in museums and other heritage sites, the main contexts in which especially non-academic audiences largely encounter the vestiges of the medieval past today.

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[50] Williamson, "Reflections on Sensory Reflections," 252; Fiona Griffiths and Kathryn Starkey, "Sensing Through Things," 11; Mark M. Smith, "Producing Senses, Consuming Sense, Making Sense: Perils and Prospects or Sensory History," *Journal of Social History* 40, no. 4 (2007): 841-58; Foster, Perratore, and Steven, "Introduction," 12-5; Newhauser, "Anthologizing the Medieval Senses," 128-29.

[51] Griffiths and Starkey, "Sensing Through Things," 12; Williamson, "Reflections on Sensory Reflections," 251-56; Foster, Perratore, and Rozenski, "Introduction," 13; Newhauser, "Anthologizing the Medieval Senses," 128-29.

2.3. Material Religion and Museums

2.3.1. Exhibiting the "Stuff" of Religion(s)

A key reason for this lack of scholarly inquiry into the public display of late medieval Christian artefacts is that, until a few decades ago, very little attention was given to the role of religion in museums per se, be that Christian or other creeds.[52] The modern museum – itself a product of the European Enlightenment – was predicated and developed on the intellectual and ideological configurations which abstracted devotional objects from their lived, sensory and material realm and re-inscribed them along modernist, distanced, and disembodied lines.[53] The result was that museums promoted (and, as argued in the introduction above, often continue to do so today) rationalist modes of engagement with religious material culture that prioritise the ideas and information that the objects represent over their embodied, emotive and material properties. For the public display and interpretation of religious artefacts, however, this dematerialised and de-sensualised conception of religion(s) raises difficulties: if, indeed, religions have at "their innermost core a

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[52] Mark O'Neill, "Making Histories of Religion," in *Making Histories in Museums*, ed. Gaynor Kavanagh (London: Leicester University Press, 1996), 188-99; Crispin Paine, ed., *Godly Things: Museums and Religion* (London: Leicester University Press, 2000); Paine, *Religious Objects in Museums: Private Lives and Public Desires* (London: Bloomsbury Academic, 2013).

[53] Promey, "Religion, Sensation, and Materiality: An Introduction," 5; Berns, "Sacred Entanglements," 20; Mark O'Neill, "Religion and Cultural Policy: Two Museum Case Studies," *International Journal of Cultural Policy* 17, no. 2 (2011): 226-28, https://doi.org/10.1080/10286632.2010.545401. On the history and evolution of the modern museum, including its social and political legacies see, for instance, Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London: Routledge, 1995); Carol Duncan, *Civilizing Rituals: Inside Public Art Museums* (London: Routledge, 1995);Tim Barringer and Tom Flynn, eds., *Colonialism and the Object: Empire, Material Culture, and the Museum* (London: Routledge, 1998); Bennett, *Pasts Beyond Memory: Evolution Museums Colonialism* (London: Routledge, 2004); Christopher Whitehead, *The Public Art Museum in Nineteenth-century Britain: The Development of the National Gallery* (Aldershot: Ashgate, 2005); Sally M. Promey, "Foreword: Museum, Religion, and Notions of Modernity," in *Religion in Museums: Global and Multidisciplinary Perspectives*, eds. Gretchen Buggeln, Crispin Paine and S. Brent Plate (London: Bloomsbury Academic, 2017), xix-xxv.

mysterious silence which eludes all expression [is it even possible for museums] to convey the non-material dimension of religion through material objects"?[54] Thus, Chris Arthur asked:

> How do you picture the unpictureable; how do you mount a display about what, at root, is resistant to all forms of expression; how do you convey to visitors that what religions themselves see as of *primary* importance is something which lies *beyond* all the carefully assembled material which museums present for their scrutiny.[55] (emphases added)

While clearly echoing a dematerialised understanding of religion, the state of religious objects in museums has changed considerably in the two decades since Chris Arthur's publication, not least since the rise of material religion discussed above.[56]

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[54] Chris Arthur, "Exhibiting the Sacred," in *Godly Things: Museums, Objects and Religion*, ed. Crispin Paine (London: Leicester University Press), 11.

[55] Arthur, "Exhibiting the Sacred," 2. For an insightful discussion of Arthur, see James Clifton, "Truly a Worship Experience? Christian Art in Secular Museums," *RES: Anthropology and Aesthetics* 52 (2007): 107-115; and Louise Tythacott, "Curating the Sacred: Exhibiting Buddhism at World Museum Liverpool," Buddhist Studies Review 34, no. 1 (2017): 115-33, https://doi.org/10.1558/bsrv.29020.

[56] The journal *Material Religion*, for example, which itself draws on (and aims to contribute) to museum studies, publishes widely on the topic. Of distinct interest to the present study is *Material Religion*'s specially dedicated issue on "Museums and Material Religion" and which includes articles by Crispin Paine, Mary M. Brooks, Gretchen Buggeln, and David Goa. See *Material Religion* 8, no. 1 (2012), https://doi.org/10.2752/175183412X13286288797773. For other contributions of note, see Neysela Da Silva, "Religious Displays: An Observational Study with a Focus on the Horniman Museum," *Material Religion* 6, no. 2 (2010): 166–91, https://doi.org/10.2752/175183410X12731403772878; Eithne Nightingale and Marilyn Greene, "Religion and Material Culture at the Victoria & Albert Museum of Art and Design: The Perspectives of Diverse Faith Communities," *Material Religion* 2, no. 6 (2010), 218-35, https://doi.org/10.2752/175183410X12731403772959; Charles Orzech, "The Material Representation of the Ethereal," *Material Religion* 12, no. 3 (2016): 399-401, https://doi.org/10.1080/17432200.2016.1192145; Crispin Paine, "Religious Theme Parks," *Material Religion* 14, no. 3 (2016): 402-3, https://doi.org/10.1080/17432200.2016.1192146; Patrick J. Donmoyer and Ed Gyllenhaal, "Powwowing in Pennsylvania: An Exhibition of Ritual Material Culture," *Material Religion* 14., no. 1 (2018): 144-47, https://doi.org/10.1080/17432200.2017.1418221; Sonja Hukantaival, "The Materiality of Finnish Folk Magic: Objects in the Collections of the National Museum of Finland," *Material Religion* 14, no. 2 (2018): 183-98, https://doi.org/10.1080/17432200.2018.1443893; John Reeve, "Beyond Belief," *Material Religion* 14, no. 2 (2018): 274-77,

Besides exhibitions on religion(s) in some of the world's most prestigious institutions,[57] academic interest in the area has peaked with a growing corpus of literature exploring different aspects of museums' often complex relationship with religion.[58] Much recent work, for

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https://doi.org/10.1080/17432200.2018.1442195; and Janneke Raaijmakers, "What is the Power of Relics? An Exhibition at Museum Catharijneconvent, Utrecht," *Material Religion* 15, no. 4 (2019), 526-28, https://doi.org//10.1080/17432200.2019.1633083.

[57] In the past two decades alone, this includes but is not limited to, *Byzantium: Faith and Power 1261-1557* at the Metropolitan Museum (2004); *Palace and Mosque, Islamic Art From the V&A* at National Gallery of Art Washington (2004-5); *Sacred: Discover What We Share* at the British Library (2007); *Glaubenssache: An Exhibition for Believers and Non-Believers* at the Musée d'Histoire de la Ville de Luxembourg (2008-7); *Traces du Sacré* at the Centre Pompidou (2008); *Hajj: Journey to the Heart of Islam* at the British Museum (2012); *Yoga: The Art of Transformation* at the Smithsonian Institution (2013-14); and *Living with Gods: Peoples, Places and Worlds Beyond* at the British Museum (2017-18). Museums of religion(s), include the Marburg Museum of Religions in Marburg, Germany; the State Museum of the History of Religions, St Petersburg, Russia; the St Mungo Museum of Religious Art and Life in Glasgow, Scotland; the Museum of World Religions in Tapei, Taiwan; and the Museum of Contemporary Religious Art in St Louis, USA.

[58] Crispin Paine's *Godly Things* (2000) is still considered one, if not the, first extensive study on the subject. Since his publication, however, a wealth of scholarly work has been published. See, for instance, Peter Bräunlein, *Religion und Museum: Zur visuellen Repräsentation von Religion/en im öffentlichen Raum* (Bielefeld: Transcript, 2004); Susanne Claußen, *Anschauungssache Religion: Zur Musealen Repräsentation Religiöser Artefakte* (Bielefeld: Transcript, 2009); Amanda M. Hughes and Carolyn H. Wood, eds., *A Place for Meaning: Art, Faith, and Museum Culture* (Chapel Hill, NC: University of North Carolina Press, 2010); Marie-Paule Jungblut and Rosmarie Beier-de Haan, eds., *Museums and Faith* (Luxembourg: Musée d'Histoire de la Ville de Luxembourg, 2010); Harald Schwillus, ed., *Wallfahrt ins Museum? Die Kommunikation von Religion im Museum mit Blick auf die Besucherinnen und Besucher* (Berlin: Logos Verlag, 2012); John Reeve, "A Question of Faith: The Museum as a Spiritual or Secular Space," in *Museums, Equality and Social Justice*, eds. Richard Sandell and Eithne Nightingale (London: Routledge, 2015), 125-41; Valeria Minucciani, ed., *Religion and Museums: Immaterial and Material Heritage* (Torino, Italy: Umberto Allemandi & C., 2013); Paine, *Religious Objects in Museums*; Gretchen Buggeln, Crispin Paine, and S. Brent Plate, eds., *Religion in Museums: Global and Multidisciplinary Perspectives* (London: Bloomsbury Academic, 2017); Gretchen Buggeln and Barbara Franco, eds., *Interpreting Religion at Museums and Historic Sites* (Lanham, MD.: Rowman & Littlefield, 2018); François Mairesse, ed. *Museology and the Sacred: Materials for Discussions.* Papers from the ICOFOM 41st Symposium held in Tehran (Iran), 15-19 October 2018 (Paris: ICOFOM, 2018); and Crispin Paine, "Change – But Not Enough Yet," *Religions* 10, no. 12 (2019): 656, http://dx.doi.org/10.3390/rel10120656. While these studies explore the topic more generally, others focus on individual institutions and/or groups of museums, such as Patrick Michel, *La Religion au Musée: Croire dans l'Europe Contemporaine* (Paris: L'Harmattan, 1999); Susan Kamel, *Wege zur Vermittlung von Religionen in Berliner Museen* (Wiesbaden: VS Verlag, 2004); Anja Lüpken, *Religion(en) im Museum: Eine vergleichende Analyse der Religionsmuseen in St. Petersburg, Glasgow und Taipeh* (Duits: Lit Verlag, 2010); Steph Berns, "Sacred Entanglements"; Marshall, "From Altar to App," 459-76; Immanuel Casanowicz, *Collections of Objects of Religious*

instance, has been conducted into how Western museums interpret and display the religious material culture of other, non-Western cultures and/or faith traditions. Fuelled by a heightened worldwide interest in multi- and inter-cultural exchange and understanding, museums are actively addressing the social, political, and material foundations of Western curatorial ideologies, and the often reductionist implications museumification entails for the presentation – and indeed re-presentation – of diverse spiritual traditions in secular, public spaces by categorising their religious artefacts as "art", "craft" or "historic specimens".[59]

While anthropology and archaeology museums have been at the forefront of this endeavour from the beginning, it is now history, and primarily art museums that are adopting strategies and practices for approaching and encouraging more culturally-aware experiences of their religious collections.[60] Central to these initiatives is a shift (often in collaboration with faith and/or source communities) away from text-based, primarily

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Ceremonial in the United States National Museum (London: Forgotten Books, 2018); and Charles Orzech, *Museums of World Religions: Displaying the Divine, Shaping Cultures* (London: Bloomsbury Academic, 2020).

[59] Paine, "Museums and Material Religion", 6; Sally M. Promey, "Foreword: Museums, Religion, and Notions of Modernity," xxii. Key publications include Ivan Karp and Steven Lavine, eds., *Exhibiting Cultures: The Poetics and Politics of Museum Display* (Washington, DC.: Smithsonian Institution Press, 1991); Ronald Grimes, "Sacred Objects in Museums Spaces," *Studies in Religion/Sciences Religieuse* 21, no. 4 (1992): 419-30, doi:10.1177/000842989202100404; Barringer and Flynn, *Colonialism and the Object*; Kirshenblatt-Gimblett, *Destination Culture*; Laura Peers and Alison Brown, eds., *Museums and Source Communities: A Routledge Reader* (London: Routledge, 2003); Lawrence Sullivan and Alison Edwards, *Stewards of the Sacred* (Washington DC: American Association of Museums, 2004); Elizabeth Edwards, Chris Gosden, and Ruth B. Phillips, eds., S*ensible Objects: Colonialism, Museums and Material Culture* (Oxford: Berg, 2006); Tapati Guha-Thakurta, "'Our Gods, Their Museums': The Contrary Careers of India's Art Objects," in *Spectacle and Display*, ed., Cherry Deborah and Cullen Fintan (Malden, MA.: Blackwell, 2008)154-83; Bruce M. Sullivan*, Sacred Objects in Secular Spaces: Exhibiting Asian Religions in Museums* (London: Bloomsbury Academic, 2015); Buggeln, Paine, and Plate, eds., *Religion in Museums*; Tythacott, "Curating the Sacred: Exhibiting Buddhism at World Museum Liverpool," 115-33; Virginie Rey, "Islam, Museums, and the Politics of Representation in the West," *Material Religion* 15, no. 2 (2019): 250-52, https://doi.org/10.1080/17432200.2019.1590011; and Magnus Berg and Klas Grinell, *Understanding Islam at European Museums* (Cambridge: Cambridge University Press, 2021).

[60] Paine, "Introduction," 6.

visualist approaches[61] towards increasingly sensory, practice-centred strategies that bring objects, people, as well as embodied interactions and emotions to the fore.[62] Ranging from direct, tactile engagement via artefact handling, and oral, first-person testimonials and/or narratives to the creation of replica shrines and enactments (both video recordings illustrating rites as well as live performances in the gallery space), religion – past and present – "finds itself more and more at home in the museum".[63]

2.3.2. Late Medieval Christian Art in Contemporary Display Contexts

Where Christian (particularly Western or Latinate) collections are concerned, similar museological studies into recontextualization strategies and practices – be those analogue or digital (i.e., the focus of this thesis) – are comparatively sparse. Instead, Western museum pieces, as Constance Classen pointedly observes, "are more likely to be presumed to be appropriately positioned as static visual works, as they themselves have been central to the development of Western visual culture and museology."[64]

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[61] On the privileging of the visual in museums, see Constance Classen and David Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," in *Sensible Objects: Colonialism, Museums and Material Culture*, eds. Elizabeth Edwards, Chris Gosden and Ruth B. Phillips (Oxford: Berg, 2006), 199-222; Sandra Dudley, ed., *Museum Materialities: Objects, Engagements, Interpretations* (New York: Routledge, 2010); Nina Levent and Alvaro Pascual-Leone, eds., *The Multidisciplinary Museum: Cross-Disciplinary Perspectives on Touch, Sound, Smell, Memory, and Space* (New York: Rowman & Littlefield, 2014); Constance Classen, *The Museum of the Senses* (London: Bloomsbury Academics, 2017).

[62] Cara Krmpotich, "The Senses in Museums," in *The Routledge Handbook of Sensory* Archaeology, eds. Robin Skeates and Jo Day (London, Routledge, 2019), 98.

[63] Gretchen Buggeln, Crispin Paine, and S. Brent Plate, "Afterword: Looking to the Future of Religion in Museums," in *Religion in Museums: Global and Multidisciplinary Perspectives* (London: Bloomsbury Academic, 2017), 247.

[64] *The Museum of the Senses*, 5-6. See also, Mary Brooks, "Seeing the Sacred Conflicting Priorities in Defining, Interpreting, and Conserving Western Sacred

Those studies that do investigate the display of Christian art are predominantly found in selected chapters within larger volumes addressing and comparing the display approaches of museums dedicated to (world) religions.[65] With regard to the display and interpretation of late medieval Christian artefacts specifically, scholarly publications are largely confined to critical accounts of historical exhibitionary practice. Much research, for instance, has been conducted into the modes of collecting, display and interpretation of early collectors and curators of medieval artefacts, and the changing meanings (i.e., intellectual, social, political) attached to them over the centuries.[66] Especially interesting among these are discussions that explore the legacies of some of these early framing paradigms, including the medievalised *mises-en-scène* by Alexandre

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Artifacts," *Material Religion* 8, no. 1 (2012): 10-28, https://doi.org/10.2752/175183412X13286288797818; Tom Freudenheim, "Museums and Religion: Uneasy Companions," in *Religion in Museums: Global and Multidisciplinary Perspectives*, eds. Gretchen Buggeln, Crispin Paine and S. Brent Plate (London: Bloomsbury Academic, 2017), 181-88; Crispin Paine, "Change – But Not Enough Yet," 2.

[65] See, for instance, Lüpken, *Religion(en) im Museum*; Orzech, *Museums of World Religions*; and Min-Hsiu Liao, "Christianity on Display: A Semiotic Study of Two Museums of World Religions (Glasgow, Taipei)," *Church, Communication and Culture* 6, no. 2 (2021): 383-401, https://doi.org/10.1080/23753234.2021.1949364.

[66] Most notable here is Nancy Netzer, "Collecting, Re/Collecting, Contextualizing and Recontextualizing: Devotion to Fragments of the Middle Ages." Using the Schnütgen Museum, Cologne, as a case study, Netzer charts the historical trajectory of the display of medieval objects from medieval church treasuries to the private collections and public displays of nineteenth and twentieth centuries. For a more recent study on the display of medieval art in a British context, see Julia Snape, "Medieval Art on Display 1750-2010," (PhD Thesis, University of Manchester, 2013), https://www.research.manchester.ac.uk/portal/en/theses/medieval-art-on-display-17502010(9e0b3b30-1d52-412d-862a-b655757307b1).html. Other publications of note include, Elizabeth Emery and Laura Morowitz, "From the Living Room to the Museum and Back Again: The Collection and Display of Medieval Art in the Fin De Siècle," *Journal of the History of Collections* 16, no. 2 (2004): 285-309; Sarah Randeraad, "Displaying the Middle Ages. The Appreciation of Medieval Art in Nineteenth-Century Museums and Exhibitions: Paris, Cologne, London and Bruges," (MA. Thesis, University of Amsterdam, 2015); Wolfgang Brückle, Pierre Alain Mariaux, and Daniela Mondini, eds., *Musealisierung mittelalterlicher Kunst: Anlässe, Ansätze, Ansprüche* (Berlin: Deutscher Kunstverlag GmbH, 2015); Lena Liepe, *A Case for the Middle Ages: The Public Display of Medieval Art in Sweden* (Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien, 2018); and Pierre Alain Mariaux, "Collecting (and Display)," in *A Companion to Medieval Art: Romanesque and Gothic in Northern Europe*, 2nd ed., ed., Conrad Rudolph (Hoboken, NJ.: John Wiley & Sons, 2019), 309-330, https://doi.org/10.1002/9781119077756.ch13.

Lenoir (1761-1839) – founder and curator of the Musée de Monuments français (1795-1816) – and whose strategic employment of dimmed lighting and dark colours, for instance, continues to imbue contemporary museological practice "to the point of becoming well-worn display clichés" [as Christopher Marshall puts it].[67]

Scholarly research into the contemporary, twenty-first-century display of medieval devotional art, on the other hand, is mainly confined to the catalogues and reviews of temporary exhibitions on the subject.[68] Thus,

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[67] "From Altar to App," 461. The continuing impact of Lenoir's Middle Ages on contemporary display practices has received extensive scholarly attention. See, for instance, Andrew McClellan, *Inventing the Louvre: Art, Politics and the Origins of the Modern Museum in Eighteenth- Century Paris* (Berkley, CA.: University of California Press, 1994); Francis Stephen Bann, "Poetics of the Museum: Lenoir and Du Sommerard," in *Grasping the World: The Idea of the Museum*, eds., Donald Preziosi and Claire Farago (Aldershot: Ashgate, 2004), 65-84; Donald Preziosi, "Myths of Nationality," in *National Museums: New Studies from Around the World*, eds., Simon J. Knell, et al. (London: Routledge, 2011), 55-66; and Jennifer Carter, "Narrative and Imagination: Remaking National History at the Musée des Monuments français, Paris," in *National Museums: New Studies from Around the World*, eds., Simon J. Knell, et al. (London: Routledge, 2011), 88-104. On the political use of light by Lenoir, see Snape, "Displaying the Middle Ages," esp. 65-75; and Cecilia Hurley, "Lenoir's Middle Ages: A Textual Exhibition," in *Musealisierung mittelalterlicher Kunst: Anlässe, Ansätze, Ansprüche*, eds. Wolfgang Brückle, Pierre Alain Mariaux and Daniela Mondini (Berlin: Deutscher Kunstverlag GmbH, 2015), 65-75.

[68] Snape makes a similar remark regarding the prevalence of exhibition reviews. See, "Medieval Art on Display," 18. Since the turn of the century, a notable number of exhibitions on medieval devotion have been curated in museums across the UK and the U.S. These include, but are not limited to, *A Sense of Heaven: 16th-Century Boxwood Carvings for Private Devotion* at the Henry Moore Institute, Leeds (1999); *Fragmented Devotion: Medieval Objects from the Schnütgen Museum, Cologne* at the Charles S. and Isabella V. McMullen Museum of Art, Boston College, Boston, in conjunction with the Schnütgen Museum, Cologne (2000); *Anno Domini: Jesus Through the Centuries* at the Provincial Museum of Alberta (2000-1); *Image and Idol: Medieval Sculpture* at the Tate Britain, London (2002); *Wonder: Painted Sculpture from Medieval England* at the Henry Moore Institute, Leeds (2002-3); *Gothic: Art for England, 1400-1547* at the Victoria and Albert Museum, London (2004); Traces du Sacré at the Centre Pompidou, Paris (2008); *Treasures of Heaven: Saint, Relics, and Devotion in Medieval Europe* at The Cleveland Museum of Art, the Walters Art Museum, Baltimore, MD, and the British Museum, London (2010-11); *Devotion by Design: Italian Altarpieces before 1550* at the National Gallery, London (2011);*The Art of Empathy: The Cummer Mother of Sorrows in Context* at the Cummer Museum of Art & Gardens, Jacksonville, FL (2013-14); *Heavenly Bodies: Fashion and the Catholic Imagination* at the Met Fifth Avenue and the Met Cloisters (2018); *Unter der Lupe* at the Schnütgen Museum, Cologne (2018-19), *The Treasure of Münster: Precious Reliquaries and Works of Art from the Domkammer* at the Museum Catharijneconvent, Utrecht (2019).

although an increasing number of these exhibitions, such as the Rijksmuseum's *The Art of Devotion* (1994) or *Seeing Salvation* (2000) and *Treasures of Heaven* (2010-11), held at the National Gallery, London, and the British Museum, respectively, have consciously engaged with the devotional meanings and functions of medieval artefacts, the catalogues published to accompany them remain primarily (art) historical in focus, and thus often lack insights into the curatorial strategies, interpretive media (e.g., via installation shots) or visitor experience of and engagement with the objects on display.[69]

A case in point here is the exhibition *A Feast for the Senses: Art and Experience in Medieval Europe,* which was held at the Walters Art Museum, Baltimore, in 2016, and explored the intersection between art and sensory experience in Western Europe between 1100 and 1500.[70] While the eight essays included in the catalogue offer significant and timely contributions to the current, interdisciplinary research into medieval sensory perception (touched upon in Chapter 2.2.2. above), it is

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[69] Henk van Os, ed., *The Art of Devotion in the Late Middle Ages in Europe, 1330-1500* (Princeton, NJ.: Princeton Press, 1994); Neil MacGregor and Erika Langmuir, *Seeing Salvation: Images of Christ in Art* (London: BBC Worldwide Ltd., 2000); and Martina Bagnoli, ed., *Treasures of Heaven: Saints, Relics and Devotion in Medieval Europe* (London: British Museum, 2010). More revealing in that regard are the following reviews and essays: Brendan Cassidy, "Seeing Salvation. London," *The Burlington Magazine* 142, no. 1166 (2000): 319–20, http://www.jstor.org/stable/888652; Graham Howes, "Seeing Salvation," in *The Art of the Sacred: An Introduction to the Aesthetics of Art and Belief* (London: I.B. Tauris & Co. Ltd, 2007), 45-58; Berns, "In the Presence of Saints: A Visitor-Focused Account of Treasures of Heaven," *Material Religion* 8, no. 2 (2012): 246-49, https://doi.org/10.2752/175183412X13346797499033; Berns, "Sacred Entanglements;" Berns, "Considering the Glass Case: Material Encounters between Museums, Visitors and Religious Objects," *Journal of Material Culture* 21, no. 2 (2016): 153-68, https://doi.org/10.1177/1359183515615896; Berns, "Devotional Baggage," in *Religion in Museums: Global and Multidisciplinary Perspectives*, eds. Gretchen Buggeln, Crispin Paine and S. Brent Plate (London: Bloomsbury Academic, 2017), 83-91; Graham Howes, "Transactional and Experiential Responses to Religious Object," in *Religion in Museums: Global and Multidisciplinary Perspectives*, eds., Gretchen Buggeln, Crispin Paine and S. Brent Plate (London: Bloomsbury, 2017), 93-98; Constance Classen, "A Taste of Heaven: Relics and Rarities," in *The Museum of the Senses: Experiencing Art and Collections* (London: Bloomsbury Academic, 2017), 9-24.

[70] Martina Bagnoli, ed., *A Feast for the Senses: Art and Experience in Medieval Europe* (Baltimore, MD.: The Walters Art Museum, 2016).

worth noting that the catalogue evinces a noticeable lack of insights into the display practices adopted. This appears a missed opportunity, especially, as the exhibition sought to foster experiential engagement with the objects on display by incorporating sensory enhancements (such as looped, ambient sounds of a garden and refectory bell; opportunities to handle a rosary and to smell myrrh and incense) in an effort to evoke in the gallery space the multisensory conditions that would have marked medieval experience, providing its contributors with much scope, unfortunately left unexplored, to discuss the opportunities and difficulties of translating past, lived experiences to modern audiences.[71]

Notable exceptions to this trend include, among others, the edited catalogues accompanying *The Body of Christ in the Art of Europe and New Spain 1150-1800* (Museum of Fine Arts, Houston, 1997-8) and *Wonder: Painted Sculpture from Medieval England* (Henry Moore Institute, Leeds, 2002-3), respectively.[72] Thus, while James Clifton, in his introductory chapter to *The Body of Christ*, for example, guides readers

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[71] More insightful in that regard are the exhibition reviews by Jennifer P. Kingsley, "*A Feast for the Senses: Art and Experience in Medieval Europ*e, by Bagnoli, ed. and A Feast for the Senses: Art and Experience in Medieval Europe (Walters Art Museum, Baltimore, October 16, 2016-January, 8, 2017)," *caa.reviews*, December 22, 2017, https://doi.org/10.3202/caa.reviews.2017.203; and Kerr Houston, "Medieval Sensations: A Review of A Feast for the Senses: Art and Experience in Medieval Europe," *Bmore Art* (n.d.).

[72] James Clifton, *The Body of Christ in the Art of Europe and New Spain 1150-1800;* Stacy Boldrick, David Park and Paul Williamson, *Wonder: Painted Sculpture from Medieval England* (Leeds: Henry Moore Institute, 2002). Other notable exceptions here include, Phillip Lindley and Richard Deacon, *Image and Idol: Medieval Sculpture* (London: Tate Gallery 2001); Charles T. Little and Clark Maines, "Contemporary Encounters with the Medieval Face," *Gesta* 46, no. 2 (2007): 83-89; Clifton, "Truly a Worship Experience?," 107-115; David J. Goa, "The Gifts and Challenges of *anno domini*," *Material Religion* 8, no. 1 (2012): 76-95, https://doi.org/10.2752/175183412X13286288797935; Phillip Lindley, "Base Reactions: Temporary Exhibitions and Ephemeral Criticism," in *Musealisierung mittelalterlicher Kunst: Anlässe, Ansätze, Ansprüche*, eds. Wolfgang Brückle, Pierre Alain Mariaux and Daniela Mondini (Berlin: Deutscher Kunstverlag GmbH, 2015), 250-68; Jennifer Sliwka, "Exhibiting Christian Art," in *Religion: Material Religion*, ed. Diane Apostolos-Cappadona (Farmington Hills, MI.: Macmillan Reference USA, 2016), 321-41; Maria Isabel Roque, "Le sens caché: Exposition de l'art chrétienne au musée," in *Museology and the Sacred: Materials for Discussion*, ed. François Mairesse (Paris: ICOFOM, 2018), 170-74.

through the ethnographic approach adopted as part of the exhibition – an approach, which Clifton argues, continues to be "much more common in displays of non-Western art" than Western art – Stacy Boldrick, in her contribution to the catalogue of *Wonder*, helpfully contextualises the latter within the broader context of other exhibitions on medieval art.[73] This includes descriptions and installation shots of other temporary exhibitions, including *A Sense of Heaven of Heaven: Sixteenth-century Boxwood Carvings for Private Devotion* (1999) similarly held at the Henry Moore Institute and which included *prie-dieux* that invited visitors to kneel in front of plinths with incorporated small panel doors that opened to reveal selected prayer nuts and rosary beads.[74] As miniature devotional objects were designed specifically for such tactile engagement, the bodily movement and gestures (e.g., kneeling and opening panels) were included in the exhibition to evoke the original, devotional functions of these objects. This way, the exhibit allowed for an intimacy between visitors and these objects that is often lost in more traditional display settings.

Beyond exhibition catalogues and reviews, discussions on how permanent displays, for instance, reflect changing conceptualisations of medieval art and devotion or how new, emergent interpretive tools – digital ones foremost among them – may be integrated to foster interest and engagement in museum contexts is explored significantly less.[75] One

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[73] Clifton, *The Body of Christ*, 11-15; Clifton, "Truly a Worship Experience?" 110; Boldrick, "Introduction," in *Wonder: Painted Sculpture from Medieval England*, eds. Stacy Boldrick, David Park and Paul Williamson (Leeds: Henry Moore Institute, 2002), 13-30.

[74] Boldrick, "Introduction," 24. The *A Sense of Heaven* catalogue opens and closes with a photograph of the *prie-dieux* in question, however, their inclusion within the gallery space is not discussed further within the text itself. See, Fris Scholten and Reindert Falkenburg, *A Sense of Heaven: 16th-Century Boxwood Carvings for Private Devotion* (Leeds: Henry Moore Institute, 1999).

[75] This is also remarked upon by Alexandrina Buchanan in "Show and Tell: Late Medieval Art and the Cultures of Display," in *Late Gothic England: Art and Display*, ed. Richard Marks (London: Shaun Tyas in association with the Victoria and Albert Museum, 2007), 124-37; and Lindley, "Base Reactions," 254-62.

study which does make considerable headway in this direction is Julia Snape's doctoral project, *Medieval Art on Display*, completed at Manchester University in 2013, which examines the exhibitionary histories of medieval art in England between 1750 and 2010.[76] Through an exploration of sixteen chronologically presented case studies, Snape traces how different collectors and curators framed their medieval collections, and critically explores the wider implications these epistemological re-positionings entailed for the interpretation and understanding of the medieval objects in question.[77] While the historical and ideological groundings of eighteenth to twentieth-century agendas to the display of medieval collections in secular spaces (both private and public) have proven insightful, it is Snape's forays into the twenty-first-century display of medieval art that are of particular relevance for the present study.

Snape dedicates the entire final chapter of her thesis to the presentation of the medieval objects in the permanent displays of the V&A's Medieval and Renaissance Galleries that underwent a complete re-design between 2003 and 2009.[78] Using the 10 galleries as a case study for exploring contemporary approaches to the display of medieval art, Snape provides intriguing insights into the curatorial objectives and interpretive

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[76] The thesis can be consulted at https://www.research.manchester.ac.uk/portal/en/theses/medieval-art-on-display-17502010(9e0b3b30-1d52-412d-862a-b655757307b1).html.

[77] Snape variedly discusses medieval artefacts as objects of curiosity or utility; as sites for scientific analysis; as objects of nationalistic interest; as objects of scholarly and popular interest; and polysemic objects.

[78] "Medieval Art of Display," 158-176. On the redisplay of the Medieval and Renaissance Galleries at the V&A, see, for instance, Peta Motture, "Designs on the Future: Developing the new Medieval and Renaissance Galleries," *Conservation Journal* 58 (2009), http://www.vam.ac.uk/content/journals/conservation-journal/autumn-2009-issue-58/designs-on-the-future-developing-the-new-medieval-and-renaissance-galleries/; Glyn Davies and Kristin Kennedy, *Medieval and Renaissance Art: People and Possessions* (London: V&A Publishing, 2009); and Stuart Frost and Giulia Nuti, "Another Dimension: Integrating Music with the Medieval & Renaissance Galleries," *V&A Online Journal* 4 (2012), http://www.vam.ac.uk/content/journals/research-journal/issue-no.-4-summer-2012/another-dimension-integrating-music-with-the-medieval-and-renaissance-galleries/.

frameworks underpinning the re-display, and into how the curatorial team attempted to move its interpretation beyond purely aesthetic appraisal towards the artefacts' multisensory functions and use. Snape's discussion of the V&A's aural interpretation (as well as her brief references to touch-screen kiosks centring on stylistic and artistic production) are especially intriguing in this regard. However, due to the primarily historical focus of the rest of Snape's thesis, her discussion of the V&A's current digital practice is necessarily brief and site-specific, and thus leaves significant room for the present study to critically examine the wider museological implications of digital tools in the display and interpretation of medieval art within the V&A's medieval galleries themselves, as well as beyond.

More interesting in that regard is Christopher Marshall's examination of the multimedia touchscreen that accompanies the V&A's redisplay of their late fifteenth-century high altar chapel and tabernacle from the deconsecrated church of Santa Chiara, Florence, and which he discusses as part of a larger investigation into how museums may convey some of the "devotional essence" of the religious collections they hold.[79] While, the physical exhibition itself – which, for the first time since its acquisition in 1860, sees the tabernacle physically integrated in the Florentine framing chapel of which it would have originally formed part – goes a considerable way toward elucidating the work's devotional context, it is further reinforced by the inclusion of a multimedia station. Beyond images, audio recordings, and written content on the patronal and architectural contexts of the tabernacle and chapel, Marshall argues that "the most striking feature" of this interpretive component is a virtual reconstruction of the church interior that helps visitors visualise how the

[79] "From Altar to App," 461. In addition to the V&A, Marshall also discusses the interpretive frameworks adopted by the St Mungo Museum of Religious Life and Art in Glasgow, and the Museum of World Religions in Taipei, respectively.

church would have looked originally.[80] A key feature of this virtual reconstruction is that it enables users to see the chapel from three different viewpoints: that of the priest, that of the lay congregation and that of the nuns. While overall praising the V&A's move towards a more empathic engagement with the devotional context of the Santa Chiara Chapel exhibit, Marshall here points to "the complex and ultimately irresolvable gap" between the V&A's reconstructive approach, on the one hand, and the chapel's original context, on the other.[81] According to Marshall, the break in the V&A's "reconstructive façade" becomes apparent especially when considering the nun's supposedly original viewpoint into the chapel; pointing out that in Renaissance Florence the nuns' daily view of the Mass would have been circumscribed by a metal grill, Marshall argues that through the omission of such a grill in the virtual reconstruction,

> [v]isitors to this exhibit will be reminded of the central significance of an undeniable truth: that for all its reconstructive diligence and sensorial effectiveness, all that is being experienced within the museum can never be anything other than an artificial approximation of a reality that is long gone.[82]

While it remains to be explored how – if at all – non-specialist audiences without Marshall's extensive scholarly knowledge might respond to these discrepancies, the wider epistemological concerns Marshall here raises provide fertile ground for this practice-based study to further investigate the impact of digital interpretation on public engagement with medieval artefacts.

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[80] Marshall, "From App to Altar," 469.

[81] Marshall, "From App to Altar," 471.

[82] Marshall, "From Altar to App," 470-71.

2.4. Digital Media and Heritage

2.4.1. Museums and Heritage Sites in the Digital Age

The surge of digital technologies over the last few decades has redefined the way in which museums and other cultural heritage institutions provide their audiences with access to and engagement with their collections.[83] Yet, with a history that stretches back over six decades, museum computing – or digital cultural heritage studies as it is often referred to now – has come a long way.[84]

The 1960s are generally considered the beginnings of computerisation in museums when cultural institutions, such as the Smithsonian's National Museum of Natural History (NMNH) in Washington and the Institute for Computer Research in the Humanities (ICRH) at New York University, first embarked on research projects into the automation of documentation in a bid to explore how they could apply computer technology to the

[83] The COVID-19 pandemic, especially, has acted as an accelerator for digital transformation as it necessitated museums to explore new and innovative ways for engaging audiences remotely. See, for instance, Thiago Mineto Cardozo and Costas Papadopoulos, "Heritage Artefacts in the COVID-19 Era: The Aura and Authenticity of 3D Models, *Open Archaeology* 7, no. 1 (2020): 519-39, https://doi.org/10.1515/opar-2020-0147; Myrsini Samaroudi, Karina Rodriguez Echavarria, and Lara Perry, "Heritage in Lockdown: Digital Provision of Memory Institutions in the UK and US of America during the COVID-19 Pandemic," *Museum Management and Curatorship* 35, no. 4 (2020): 337-61, https://doi.org/10.1080/09647775.2020.1810483.

[84] For historical reflections on the evolution and development of museum computing, see Katherine Jones-Garmil, ed., *The Wired Museum: Emerging Technology and Changing Paradigms* (Washington: American Association of Museums, 1997); Selma Thomas and Ann Mintz, eds., *The Virtual and the Real: Media in the Museum* (Washington: American Association of Museums, 1998); Ross Parry, *Recoding the Museum: Digital Heritage and the Technologies of Change* (London: Routledge, 2007); Paul F. Marty and Katherine Burton Jones, eds., *Museum Informatics: People, Information, and Technology in Museums* (Oxon: Routledge, 2008); Fiona Cameron and Sarah Kenderdine, eds., *Theorizing Digital Cultural Heritage: A Critical Discourse* (Cambridge, MA.: MIT Press, 2007); David Williams, "A Brief History of Museum Computerization," in *Museums in a Digital Age*, ed. Ross Parry (London: Routledge, 2010), 15-21; Peter Pavement, "The Museum as Media Producer: Innovation Before the Digital Age," in *The Routledge Handbook of Museums, Media and Communication*, eds. Kirsten Drotner, Vince Dziekan, Ross Parry and Kim Christian Schrøder (London: Routledge, 2018), 31-46.

management of their ever-growing collections.[85] Pioneering programmes such as SELGEM (Self Generating Master) and GRIPHOS (General Retrieval and Information Processor for Humanities-Oriented Studies) that were developed as part of that research were among the first data management systems used in museums.[86] Over the decades that followed, advances in software and hardware (specifically so, the arrival of increasingly affordable computing), combined with growing demands for accessing museum collections by academic audiences (scholars and students), heralded the rapid uptake of digital technologies in museums, especially for internal working purposes, such as data management, documentation and retrieval.

It was only in the late twentieth century, under the impetus of the new museology, that technology became used for increasingly visitor-centred purposes.[87] Central to the new museology was a shift in the social, communicational, and educational functions assigned to cultural heritage institutions. This meant that, instead of continuing to perceive themselves as primarily collections-centred, elitist bastions of "cultural authority"[88], museums were redefining themselves as increasingly inclusive, representative, and accessible institutions that place the visiting public at the very centre of curatorial thinking and practice.[89] Interactive digital

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[85] Parry, *Recoding the Museum*, 15; Katherine Burton Jones, "The Transformation of the Digital Museum," in *Museum Informatics: People, Information, and Technology in Museums*, eds., Paul F. Marty and Katherine Burton Jones (New York: Routledge, 2008); 10-11; Katherine Jones-Garmil, "Laying the Foundation: Three Decades of Computer Technology in the Museum," in *The Wired Museum: Emerging Technology and Changing Paradigms* (Washington: American Association of Museums, 1997), 35-42.

[86] Jones, "The Transformation of the Digital Museum," 10.

[87] Susana Smith Bautista, *Museums in the Digital Age: Changing Meanings of Place, Community, and Culture* (Lanham, MD.: Alta Mira, 2014), 27.

[88] Julia D. Harrison, "Ideas of Museums in the 1990s," *Museum Management and Curatorship* 13, no. 2 (1994): 161, https://doi.org/10.1080/09647779409515396.

[89] Laia Pujol Tost and Maria Economou, "Exploring the Suitability of Virtual Reality Interactivity for Exhibitions through an Integrated Evaluation: The Case of the Ename Museum," *Museology* 4 (2007): 81; Bautista, *Museums in the Digital Age*, xxi-6. For

media, in particular, emerged as key forces in the promotion and facilitation of enhanced public access to and engagement with museum collections, both onsite and online. From digital labels, interactive kiosks, mobile apps, and heritage games to immersive environments such as virtual reality (VR), augmented reality (AR), mixed reality (MR), and even artificial intelligence (AI), digital technologies have opened up new and innovative possibilities for museums to facilitate and promote enhanced public engagement with cultural heritage.[90] Initial efforts to open up and democratise tangible heritage sites and collections, heralded a rise, over recent years, in scholarly interest in the digital preservation and interpretation of intangible heritage, that is, the oral traditions, skills and traditional dances, to name but few, of customs that communities and

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further reading on the new museology and its impacts, see, for instance, Peter Vergo, ed., *The New Museology* (London: Reaktion Books Ltd, 1989); Karp and Lavine, *Exhibiting Culture*; Deidre C. Stam, " The Informed Muse: The Implications of 'The New Museology' for Museum Practice," *Museum Management and Curatorship* 12, no. 3 (1993): 267-83, https://doi.org/10.1080/09647779309515365; Eilean Hooper-Greenhill, *Museums and Educational Purpose, Pedagogy, Performance* (Abingdon: Routledge, 2000); Nina Simon, *The Participatory Museum* (Santa Cruz, CA.: Museum 2.0, 2010); Vikki McCall & Clive Gray, "Museums and The 'New Museology': Theory, Practice and Organisational Change," *Museum Management and Curatorship* 29, no. 1 (2014): 19-31, https://doi.org/10.1080/09647775.2013.869852; Graham Black, T*ransforming Museums in the Twenty-First Century* (London: Routledge, 2011); Areti Galani and Jenny Kidd, "Evaluating Digital Cultural Heritage 'In the Wild': The Case for Reflexivity," *ACM Journal on Computing and Cultural Heritage* 12, no. 1 (2019): 1-15, https://doi.org/10.1145/3287272; Black, ed., *Museums and the Challenge of Change: Old Institutions in a New World* (London: Routledge, 2020).

[90] Cameron and Kenderdine, *Theorizing Digital Cultural Heritage*; Maria Economou, "Heritage in the Digital Age," *in A Companion to Heritage Studies*, eds. William Logan, Máiréad Nic Craith and Ullrich Kockel (Malden, MA.: John Miley & Sons, Inc., 2016), 215-28; Ian Ruthven and G. G. Chowdhury, eds., *Cultural Heritage Information: Access and Management* (London: Facet Publishing, 2015); Kirsten Drotner, Vince Dziekan, Ross Parry, and Christian Schrøder, eds., *The Routledge Handbook of Museums, Media and Communication* (London: Routledge, 2018); Hannah Lewi, Wally Smith, Dirk vom Lehn and Steven Cooke, eds., *The Routledge International Handbook of New Digital Practices in Galleries, Libraries, Archives, Museums and Heritage Sites* (London: Routledge, 2019); Tula Gianni and Jonathan P. Bowen, eds., *Museums and Digital Culture: New Perspectives and Research* (Cham: Springer, 2019); Keir Winesmith and Suse Anderson, *The Digital Future of Museums: Conversations and Provocations* (New York: Routledge, 2020); Maria Shehade and Theopisti Stylianou-Lambert, eds., *Emerging Technologies and the Digital Transformation of Museums and Heritage Sites: First International Conference, RISE IMET 2021, Nicosia, Cyprus, June 2-4, 2021, Proceedings* (Cham: Springer, 2021); Erik Malcolm Champion, ed. *Virtual Heritage: A Guide* (London: Ubiquity Press Ltd, 2021).

groups recognise as part of their cultural heritage.[91] Similarly, a growing body of research (theoretical and practical) has been conducted into increasingly personalised and emotive digital tools and strategies, and the possible implications these raise for public engagement.

While the potential of digital media for public understanding of and engagement with heritage is beyond doubt, the growing prominence of technologies in exhibition design has given rise to wider museological debates on the impact of digital media on social interaction and collaboration (especially touchscreens and VR headsets), as well as critical reflections on the value, access, and ownership of digital heritage.[92]

Most pertinent among these debates to this research, however, are the wider discussions centring on the notions of authenticity. The recording,

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[91] Economou, "Heritage in the Digital Age," 223.

[92] On the former, see Christian Heath and Dirk vom Lehn, "Misconstruing Interactivity," in *The Proceedings of Interactive Learning in Museums of Art and Design*, ed. Morna Hinton (London: V&A, 2002), 1-16, http://media.vam.ac.uk/media/documents/legacy_documents/file_upload/5763_file.pdf; Dirk vom Lehn, Christian Heath, and Jon Hindmarsh, "Rethinking Interactivity: Design for Participation in Museums and Galleries," in *Proceedings of the International Workshop 'Re-thinking Technology in Museums: Towards a New Understanding of People's Experience in Museums'*, eds. Luigina Ciolfi, Michael Cooke, Tony Hall, Liam J. Bannon and Serena Oliva (Limerick: University of Limerick, 2005), 131-140; Andrea Witcomb, *Re-Imagining the Museum: Beyond the Mausoleum* (London: Routledge, 2002); and Witcomb, "Interactivity: Thinking Beyond," in *A Companion to Museum Studies*, ed. Sharon Macdonald (Malden, MA.: Blackwell Publishing, 2006), 353-61. On the latter, see Gordon Graham, *The Internet: A Philosophical Inquiry* (London: Routledge, 1999); Carl Hogsden and Emma K Poulter, "The Real Other? Museum Objects in Digital Contact Networks," *Journal of Material Culture* 17, no. 3 (2012): 265-86; Jenny Newell, "Old Objects, New Media: Historical Collections, Digitization and Affect," *Journal of Material Culture* 17, no. 3 (2012): 287-306; and Stuart Jeffrey, "Digital Heritage Objects, Authorship, Ownership and Engagement," in *Authenticity and Cultural Heritage in the Age of 3D Digital Reproduction*, eds. Paola Di Giuseppantonio Di Franco, Fabrizio Galeazzi and Valentina Vassallo (Cambridge: McDonald Institute for Archaeological Research, 2018), 25-34, https://doi.org/10.17863/CAM.27037; Chad Elias, "Whose Digital Heritage? Contemporary Art, 3D Printing and the Limits of Cultural Property," *Third Text* 33, no.6 (2019): 687-707, https://doi.org/10.1080/09528822.2019.1667629; and Susan Hazan, "Deep Fake and Cultural Truth – Custodian of Cultural Heritage in the Age of a Digital Reproduction," in *Culture and Computing, HCII 2020, Lecture Notes in Computer Science, vol 12215*, ed. Matthias Rauterberg (Cham: Springer 2020), 65-80.

preservation and communication of what is considered the "authentic" past has long been considered as one of the key roles of cultural heritage research and practice.[93] The increasing use of digital, however, has given rise to often polarized discussions centred around the notions of the "real" and the "virtual".[94] On the one side, as Ross Parry puts it, stand the real objects, genuine and trusted; on the other, dark side, stand the virtual: "immaterial" in every sense, the argument runs, digital surrogates jeopardise the material authenticity of the artwork proper as they can be replicated and distributed infinitely due to their inherently programmable nature.[95] Particularly influential in the debates about (digital) authenticity is Walter Benjamin and his seminal paper on the adverse effects of mechanical reproduction on the authenticity of an object.[96] Written in the twentieth century during the wake of the advent of film and photography, Benjamin posited that "the uniqueness [or aura as he refers to it] of a work of art is inseparable from its being imbedded in the fabric of tradition", that is, the historic testimony that stems from the object's

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[93] This is true, especially, for the epistemological assumptions which traditionally underpin archaeological discourse on digital heritage visualisation and reconstruction. See, for instance, Paola Di Giuseppantonio Di Franco, Fabrizio Galeazzi and Valentina Vassallo, eds*., Authenticity and Cultural Heritage in the Age of 3D Digital Reproduction* (Cambridge: McDonald Institute for Archaeological Research, 2018), https://doi.org/10.17863/CAM.27029.

[94] Andrea Witcomb, "The Materiality of Virtual Technologies: A New Approach to Thinking about the Impact of Multimedia in Museums," in *Theorizing Digital Cultural Heritage: A Critical Discourse*, eds. Fiona Cameron and Sarah Kenderdine (Cambridge, MA.: MIT Press, 2007), 35-48, https://doi.org/10.7551/mitpress/9780262033534.003.0003; Fiona Cameron, "Beyond the Cult of the Replicant: Museums and Historical Digital Objects – Traditional Concerns, New Discourses," in *Theorizing Digital Cultural Heritage: A Critical Discourse*, eds. Fiona Cameron and Sarah Kenderdine (Cambridge, MA.: MIT Press, 2007), 49-75, https://doi.org/10.7551/mitpress/9780262033534.003.0004; Parry, *Recoding the Museum.*

[95] *Recoding the Museum*, 61.

[96] Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, trans. Harry Zohn, ed. Hannah Arendt (1935; repr., New York, NY.: Schocken Books, 1968), 217-51; Cameron, "Beyond the Cult of the Replicant," 50-2; Jeffrey, "Challenging Heritage Visualisation," 144-49; Jones, et al., "3D Heritage Visualisation and the Negotiation of Authenticity," 333-53.

association with ritual.[97] Although Benjamin read reproducibility as a potentially liberating phenomenon emancipating the work of art from "its parasitical dependence on ritual", reproduction, he famously claimed, similarly threatens a work's aura as its uniqueness can no longer be upheld.[98] Theorist Baudrillard, too, perceives contemporary media as powerful instruments for destabilizing the real and true.[99] Whilst Baudrillard builds on Benjamin's premise, the former goes as far as to argue that, as simulations are becoming more and more convincing, surrogates may merge with their physical counterparts to the point where viewers are no longer able to distinguish between the copy and the original; thus, rather than just a temporary substitute, the simulacra might eventually entirely supplant the original, thereby making it obsolete.[100] With the originality thus under threat by inauthentic "digital terrorists",[101] critics believed that the institutional authority of museums would increasingly wane until, at their most extreme, physical visits would no longer be necessary: with ready access to collections online, and the ability for the public to navigate the premises virtually at any time from any place in the world, these dystopian scenarios went, the "physical" museum, and the material world it harbours, would consequently come to an end all together.[102]

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[97] Benjamin, "The Work of Art in the Age of Mechanical Reproduction," 218; Jones, et al., "3D Heritage Visualisation and the Negotiation of Authenticity," 335.

[98] "The Work of Art in the Age of Mechanical Reproduction," 219; Cameron, "Beyond the Cult of the Replicant," 50-1.

[99] Baudrillard, *Simulations*, trans. Paul Foss, Paul Patton, and Philip Beitchman (New York, NY.: Semiotexte, 1982); Baudrillard, *Simulacra and Simulation*, trans. Sheila Faria Glaser (Ann Arbor, MI.: University of Michigan Press. 1994).

[100] Baudrillard, *Simulations*; and *Simulacra and Simulation.*

[101] Cameron, "Beyond the Cult of the Replicant," 51.

[102] Ross Parry, "The Practice of Digital Heritage and the Heritage of Digital Practice," in *Museums in a Digital Age* (London: Routledge, 2010), 1.

More recently, however, conceptions of the relationship between virtual and material objects, technology and materiality have been shifting.[103] Fuelled by the cultural turn in critical theory in the late twentieth century which, among other developments, saw the advent of poststructuralism and postmodernism, scholars have been arguing that contemporary conceptions of real, original authenticity are culturally and historically contingent, thus making the seemingly intrinsic values so long accorded to the "real" and the "virtual" not as absolute as previously thought.[104] It is within these poststructuralist discourses that digital objects have been hailed as objects in their own right. No longer seen as just "inferior" copies of the "real thing", digital objects are now recognized as alternative types of entity, that is, as distinct yet complementary forces to the physical counterparts to which they have so long been contrasted.[105]

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[103] For the changing conceptions of authenticity in heritage discourse specifically, see Siân Jones, "Experiencing Authenticity at Heritage Sites: Some Implications for Heritage Management and Conservation," *Conservation and Management of Archaeological Sites* 11, no. 2 (2009): 133-47, https://doi.org/10.1179/175355210X12670102063661; Jones, "Negotiating Authentic Objects and Authentic Selves: Beyond the Deconstruction of Authenticity," *Journal of Material Culture* 15, no. 2 (2010): 181-203, https://doi.org/10.1177%2F1359183510364074; Stuart Jeffrey, "Challenging Heritage Visualisation: Beauty, Aura and Democratisation," *Open Archaeology* 1 (2015): 144-52, https://doi.org/10.1515/opar-2015-0008; Siân Jones, Stuart Jeffrey, Mhairi Maxwell, Alex Hale & Cara Jones, "3D Heritage Visualisation and the Negotiation of Authenticity: The ACCORD Project," *International Journal of Heritage Studies*, 24, no.4 (2018): 333-53, https://doi.org/10.1080/13527258.2017.1378905; Di Giuseppantonio Di Franco, Galeazzi and Vassallo, *Authenticity and Cultural Heritage in the Age of 3D Digital Reproduction*; Stuart Jeffrey, Steve Love, and Matthieu Poyade, "The Digital Laocoön: Replication, Narrative and Authenticity," *Museum and Society* 19, no. 2 (2021): 166-83, https://doi.org/10.29311/mas.v19i2.3583.

[104] Jones, "Experiencing Authenticity at Heritage Sites," 133-47; Jones, "Negotiating Authentic Objects and Authentic Selves," 181-203. Helaine Silverman, "Heritage and Authenticity," in *The Palgrave Handbook of Contemporary Heritage Research*, eds. Emma Waterton and Steve Watson (New York: Palgrave Macmillan, 2015), 69.

[105] Marlene Manoff, "The Materiality of Digital Collections: Theoretical and Historical Perspectives," *portal: Libraries and the Academy* 6, no. 3 (2006): 311-25, https://doi.org/10.1353/pla.2006.0042; Johanna Drucker, "Performative Materiality and Theoretical Approaches to Interface," *DHQ: Digital Humanities Quarterly* 7, no.1 (2013), https://dhq-static.digitalhumanities.org/pdf/000143.pdf; Witcomb, "The Materiality of Virtual Technologies," 35-48; Cameron, "Beyond the Cult of the Replicant," 49-75.

This reconceptualization of the ontological status of digital objects to objects in their own right, however, should not be taken to mean that they can (or even ought to) replace physical ones. On the contrary; the allure of the "real thing" is undeniable and it is by no means the aim of this project to dispute this. Nonetheless, singling out, as it has often been done in the past, encounters with physical objects as the most authentic, and thus most valuable, of subject-object engagements, severely inhibits opportunities for users to understand what happens to objects, and the way they are experienced, when they take on different, in this case, digital forms.[106]

The same shift in understanding applies to the use in cultural heritage contexts of digital technologies (e.g., 3D scans and simulations; augmented/virtual reality) more holistically. Thus, whilst scholarly discussions of digital cultural heritage interpretations – especially regarding digital reconstructions and computer-based visualisations – have long been constrained by an emphasis on conveying authentic, that is, realistic and historically accurate interpretation of the past, increasingly scholarly voices are heard which question whether authenticity should indeed still be considered the "proper measuring unit" for the manifold, especially artistic, experiences of cultural heritage that digital tools enable.[107] That methodological rigour and transparency (as

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[106] Carl Hogsden and Emma K Poulter, "The Real Other? Museum Objects in Digital Contact Networks," *Journal of Material Culture* 17:3 (2012): 266, https://doi.org/10.1177/1359183512453809.

[107] Carlos Ramos, "Aura and Spectacle: The Digital Restitution Project at Sant Climent de Taüll," *The International Journal of New Media, Technology, and the Arts 13*, no. 2 (2018): 20, https://doi.org/10.18848/2326-9987/CGP/v13i02/11-23; Borland, "Encountering the Inauthentic"; Gareth Beale, "Volatile Images: Authenticity and Representation and Multi-Vocality in Digital Archaeology," in *Authenticity and Cultural Heritage in the Age of 3D Digital Reproductions*, ed. Paola Di Giuseppantonio Di Franco, Fabrizio Galeazzi and Valentina Vassallo (Cambridge: McDonald Institute for Archaeological Research, 2018), 83-94; Stuart Jeffrey, "Digital Heritage Objects, Authorship, Ownership and Engagement," in *Authenticity and Cultural Heritage in the Age of 3D Digital Reproduction*s, ed. Paola Di Giuseppantonio Di Franco, Fabrizio Galeazzi and Valentina Vassallo (Cambridge: McDonald Institute for Archaeological Research, 2018), 49-56.

well as the necessary documentation standards) are central to the research and communication of our cultural past, is beyond doubt.[108] Initiatives such as the London Charter, for instance, have unequivocally highlighted the need for "intellectual transparency" especially in digital heritage visualisation processes and outputs.[109] Nonetheless, it is argued here that by continuing to constrain the value of heritage interpretations through formalist notions rooted in accuracy and authenticity overlooks, if not completely inhibits, the creative potentials of digital interpretive media for promoting user engagement and understanding beyond empirical data, and by extension, purely formal, educational purposes.

These conceptual changes have been significant especially for work on the digital interpretation of medieval cultural heritage, the focus of this research.

2.4.2. The Digital Middle Ages:[110] Digital Engagement with Medieval Cultural Heritage

Bringing together medieval devotional material culture and the digital might strike some as an odd combination. Yet, medievalists, as well as their classicist colleagues, have been at the forefront of digital humanities

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[108] See, for instance, arguments put forth in see Anna Bentkowska-Kafel, Hugh Denard and Drew Baker, eds. *Paradata and Transparency in Virtual Heritage* (Farnham, Surrey: Ashgate, 2012).

[109] The full name of the charter is *The London Charter for the Computer-based Visualisation of Cultural Heritage* available at https://www.londoncharter.org/index.html.

[110] The title of this subsection directly references the 2017 supplement of *Speculum* by the same name which explores the application of digital humanities approaches to medieval studies and should thus not be confused with the so-called "digital dark age(s)." For the supplement in question, see David Birnbaum, Sheila Bonde, and Mike Kestemont, "The Digital Middle Ages: An Introduction," *Speculum* 92, no. S1 (2017): S1-S38, https://www.jstor.org/stable/26583703. Of similar interest is the journal *Digital Medievali*st (DM) which exclusively publishes research on digital topics pertaining to the Middle Ages. See, https://journal.digitalmedievalist.org/.

research from the beginning.[111] Textual scholars among them, especially, were early adopters of computational tools and a wealth of studies have explored how digital applications may be used to enhance the research of medieval books and manuscripts.[112]

As early as the 1940s, for example, Robert Busa – who himself is often credited as the father of digital medieval studies – created the *Index Thomisticus*, the world's first machine-readable corpus containing Thomas Aquinas' entire oeuvre which consists of all 118 works, totalling approximately 11 million words, thereby paving the way for new and improved literary analyses.[113] Since the onset of the *Index Thomisticus*, numerous projects around the globe have experimented with computational applications and analytical models for exploring primary, non-digital materials: from large-scale corpora concordance for macroanalyses to digital copies of individual books and manuscripts – such as the seminal *Electronic Beowulf* (now in its fourth edition) or the later Canterbury Tales Project – for qualitative research and (relational) editing, the burgeoning number of digitisation projects and electronic catalogues over the last decades have re-defined the accessibility and study of medieval textual heritage.[114]

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[111] John Unsworth, "Medievalists as Early Adopters of Information Technology," *Digital Medievalist*, 7 (2012): §18, http://doi.org/10.16995/dm.34.

[112] Unsworth, "Medievalists as Early Adopters of Information Technology," §1-§26; Birnbaum, Bonde, and Kestemont, "The Digital Middle Ages," S1-S9.

[113] The corpus can be consulted at https://www.corpusthomisticum.org/it/index.age. Birnbaum, Bonde, and Kestemont, "The Digital Middle Ages," S1.

[114] The projects can be consulted at https://ebeowulf.uky.edu/ and https://www.canterburytalesproject.org/ respectively. See also, Andrew Prescott, "The Electronic Beowulf and Digital Restoration," *Literary and Linguistic Computing* 12, no. 3 (1997): 185-86, https://doi.org/10.1093/llc/12.3.185. For a more critical account of the *Electronic Beowulf*, see William Kilbride, "Whose Beowulf is it anyway? Review of *Electronic Beowulf* [CD-Rom]," *Internet Archaeology* 9, https://doi.org/10.11141/ia.9.12. For wider discussions of accessibility, especially of early digital editions, see Emily C. Francomano and Heather Bamford, "Whose Digital Middle Ages? Accessibility in Digital Medieval Manuscript Culture," *Journal of Medieval Iberian Studies* 14, no. 1 (2022): 15-27,

Yet, while the affordances of these new technologies to scholarly research are beyond doubt, many, especially early discussions on the use of digital technologies for medieval studies were predicated on what these do not, or rather, *cannot* do. As Elaine Treharne states,

> [t]here are also drawbacks in using the digital form of the medieval textual object, however. These concern, principally, the overwhelming significance of the corporeal in the production of medieval manuscripts and documents and the ways in which such fleshiness is represented on screen. There is always, inevitably, *loss* in the provision of the virtual; this loss is the inability to fulfil the interpretative potential of the TEXT.[115]

Drawing on the extensive research on medieval reading habits and manuscript culture, the material and sensory loss(es) Treharne refers to here, centre on the complex relationship between the physical, material codex and its digital representation, and particularly so the latter's inability to *replicate* physical, material complexities of the book beyond the static, two-dimensional image.[116] However, like scholars in other

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https://doi.org/10.1080/17546559.2021.2022738. On the Canterbury Tales Project, see Barbara Bordalejo, "Canterbury Tales Project Special Issue: Introduction," *Digital Medievalist* 14, no. 2 (2021), https://doi.org/10.16995/dm.8072.

[115] Threharne, "Fleshing out the Text: The Transcendent Manuscript in the Digital Age," *Postmedieval: A Journal of Medieval Cultural Studies* 4, no. 4 (2013): 466. Treharne's uses the capitalised form of "TEXT" (or "plenitext") to refer to 'the whole thing'; the whole, fleshy, body of the book is the TEXT […] To examine TEXT in this way, to seek out the wholeness of the textual experience, one might label the object of study, unambiguously, as *plenitext*. Plenitext will include the words, the images, the spaces, the folios, the quires, the binding and all other aspects of the material make-up of the book or fragment or leaf." Treharne, "Fleshing Out the Text," 468-70.

[116] Maura Nolan, "Medieval Habit, Modern Sensation: Reading Manuscripts in the Digital Age," *The Chaucer Review* 47, no. 4 (2013): 466, https://www.jstor.org/stable/10.5325/chaucerrev.47.4.0465; Heather Bamford and Emily C. Francomano, "On Digital-Medieval Manuscript Culture: A Tentative Manifesto," *Digital Philology* 7, no. 1 (2018): 31; Benjamin Albritton, Georgia Henley, and Elaine Treharne, eds., *Medieval Manuscripts in the Digital Age* (London: Routledge, 2020). On the medieval reading as embodied, see Mark Amsler, "Affective Literacy: Gestures of Reading in the Later Middle Ages," *Essays in Medieval Studies* 18 (2001), 83-110, https://doi.org/10.1353/ems.2001.0001; James Loxley, Joseph Marshall, and Lisa Otty, *Exhibiting the Written Word* (Edinburgh: University of Edinburgh, 2011), https://www.nls.uk/media-u4/1269224/exhibiting-the-written-word.pdf; Jonathan Wilcox, *Scraped, Stroked, and Bound: Materially Engaged Readings of Medieval Manuscripts* (Turnhout: Brepols, 2013); Kathryn Rudy "Dirty

areas and disciplines, medievalists are addressing some of these digital "drawbacks" by adopting increasingly experiential approaches that allow for past patterns of use and performativity to come to the fore.[117] Thus, users can now interact with books both physically via interactive books or virtually via "turning-the-pages" technologies (as well as hearing the sound of parchment turning, as is the case, for instance, in the British Library's *Turning the Pages*); they can virtually step into selected folios of the Chad Gospels and can even learn how to operate a digital printing press and print their own digital manuscript folia.[118] What is especially interesting about these projects, however, is that, rather than as a process of replication of an original but unavailable experience, the digital emerges as creative force enabling alternative means for understanding and engaging with books.[119]

Books: Quantifying Patterns of Use in Medieval Manuscripts Using a Densitometer," *Journal of Historians of Netherlandish Art* 2, no. 1–2 (2010): 1-45, https://doi.org/10.5092/jhna.2010.2.1.1; Rudy, *Postcards on Parchment: The Social Lives of Medieval Books* (New Haven: Yale University Press, 2015); Rudy, *Piety in Pieces: How Medieval Readers Customized their Manuscripts* (Cambridge: Open Book Publishers, 2016); Rudy, "Sewing the Body of Christ: Eucharist Wafer Souvenirs Stitched into Fifteenth-Century Manuscripts, Primarily in the Netherlands," *Journal of Historians of Netherlandish Art* 8, no. 1 (2016): 1-48, https://doi.org/10.5092/jhna.2016.8.1.1.

[117] Treharne, "Fleshing Out the Text," 474.

[118] For an example of an interactive book, see David Small's *The Illuminated Manuscript*, available at https://www.davidsmall.com/documenta-11. Another interactive book installation is discussed as part of the Phase 1: Survey Report in this thesis (see Appendix A.2). For *Turning the Pages*, visit http://www.bl.uk/turning-the-pages. On the St Chad Gospels, visit https://lichfield.ou.edu/. See also, Bill Endres, "More Than Meets the Eye: Going 3D with an Early Medieval Manuscript," in *Proceedings of the Digital Humanities Congress 2012, Studies in the Digital Humanities*, ed. Clare Mills, Michael Pidd, and Esther Ward (Sheffield: HRI Online Publications, 2014), https://www.dhi.ac.uk/openbook/chapter/dhc2012-endres; Endres, "Imaging Sacred Artifacts: Ethics and the Digitizing of Lichfield Cathedral's St Chad Gospels," *Journal of Religion, Media and Digital Culture* 3, no. 3 (2014): 39-73; Endres, *Digitizing Medieval Manuscripts: The St. Chad Gospels, Materiality, Recoveries, and Representation in 2D & 3D* (Leeds: Arc Humanities Press, 2019).

[119] Benjamin, "The Work of Art in the Age of Mechanical Reproduction," 220. See also, Johanna Green, "Digital Manuscripts as Sites of Touch: Using Social Media for "Hands-On" Engagement with Medieval Manuscript Materiality," *Archive Journal* (2018), under "Connectivity, Object, and Aura," https://www.archivejournal.net/essays/digital-manuscripts-as-sites-of-touch-using-social-media-for-hands-on-engagement-with-medieval-manuscript-materiality/; Abigail

Beyond written heritage, digital medieval studies have similarly been harnessing digital technologies for exploring other remnants (tangible and intangible) of the medieval past. From virtually experiencing the sights and sounds of three-dimensional reconstructions of some of Europe's largest medieval cathedral buildings to immersing the user within the intricate miniature world of Gothic prayer beads, digital projects have made invaluable contributions to the understanding of and engagement with the medieval past.[120] That "these experiences [are often] created by spaces, objects, and technologies that are decidedly unmedieval", Jennifer Borland argues, "does not matter."[121] What does matter, however, is that these ostensibly "inauthentic" experiences – be they through physical enactments or new technologies – allow for understanding and engagement with the medieval past in ways that the

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G. Robertson, "A Note on Technology and Functionality in Digital Manuscript Studies," in *Medieval Manuscripts in the Digital Age*, eds. Benjamin Albritton, Georgia Henley, and Elaine Treharne (London: Routledge, 2020), 34; and Borland, "Encountering the Inauthentic," 19.

[120] Projects referred to here include, but are not limited to Kate Giles, Anthony Masinton and Geoff Arnott, "Seeing and Believing: The Use of Virtual Models of Historic Churches," *Historic Churches* 17 (2010): 27-31, https://www.buildingconservation.com/articles/virtual-churches/virtual-churches.htm; Sarah Kennedy, Richard Fawcett, Alan Henry David Miller, Lisa Dow, Rebecca Jane Sweetman, Anne Campbell, Iain Oliver, John McCaffery, and Colin Allison, "Exploring Canons & Cathedrals with Open Virtual Worlds: The Recreation of St Andrews Cathedral, St Andrews Day, 1318," *Digital Heritage* (2013) https://risweb.st-andrews.ac.uk/portal/files/75971074/digitalheritage2013_submission_536.pdf; *Small Wonders: The VR Experience*, a VR installation accompanying the *Small Wonders: Gothic Miniature* exhibition organised by The Metropolitan Museum of Art, New York, the Art Gallery of Ontario, Toronto, and the Rijksmuseum, Amsterdam. See, for instance, Allison Meier, "Walk Inside a Gothic Prayer Bead in a VR Experience at the Cloisters," *Hyperallergic* (blog), https://hyperallergic.com/361000/walk-inside-a-gothic-prayer-bead-at-the-cloisters/. For a project exploring intersensory interactions (aural; olfactory; tactile and visual) with 3D-printed prayer-nuts, see Jean Ho Chu, Daniel Harley, Jamie Kwan, Melanie McBride, and Ali Mazalek, "Sensing History: Contextualizing Artifacts with Sensory Interactions and Narrative Design," in *Proceedings of the 2016 ACM Conference on Designing Interactive Systems* (DIS '16), ACM, New York, NY (2016): 1294-1302, https://doi.org/10.1145/2901790.2901829; and Daniel Harley, Melanie McBride, Jean Ho Chu, Jamie Kwan, Jason Nolan, and Ali Mazalek, "Sensing context: Reflexive design principles for intersensory museum interactions," *MW2016: Museums and the Web 2016* (2016), https://mw2016.museumsandtheweb.com/paper/sensing-context-reflexive-design-principles-for-inter-sensory-museum-interactions/.

[121] "Encountering the Inauthentic," 32.

"real" thing or place often simply cannot facilitate.[122] Here, rather than thinking about the digital and material in binary terms (e.g., real/virtual; analogue/digital; material/immaterial; authentic/inauthentic, fact/fiction), the digital emerges as a distinct yet complementary force in facilitating user engagement with the medieval past.

One of the projects which is closest in endeavour to this research, and thus of particular relevance here, is the *Imitatio Mariae: The Virgin Mary as Virtuous Model in Medieval Sweden*, a cross-disciplinary research project carried out by Cecilia Lindhé, Ann-Catrine Eriksson, Jim Robertsson and Mattis Lindmark from Umeå University, Sweden.[123] Centred on various artistic conceptions of the Virgin Mary in medieval Sweden, the project investigates how digital technology can function as a critical perspective on medieval materiality:[124]

> Is it possible [the project contributors ask] to heighten the performativity of medieval images to capture their changing multisensous appearances? Is it possible to put forward the medieval view that these objects had an agency of their own, and emphasise their performativity rather than their mimetic or historic qualities only? Is it possible to focus on the interaction between object and

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[122] Borland, "Encountering the Inauthentic," 19.

[123] Other projects of note here include Kate Giles' research into the digital reconstruction and interpretation of English medieval ecclesiastical wall paintings. See, for instance, Giles, Masinton and Arnott, "Seeing and Believing: The Use of Virtual Models of Historic Churches;" Kate Giles, Anthony Masinton and Geoff Arnott, "Visualising the Guild Chapel, Stratford-upon-Avon: Digital Models as Research Tools in Buildings Archaeology," *Internet Archaeology* 32 (2012), https://doi.org/10.11141/ia.32.1; Kate Giles, "Digital Creativity and the Wall Paintings of 'Shakespeare's Guildhall', Stratford-upon-Avon*," Internet Archaeology* 44 (2017), https://doi.org/10.11141/ia.44.6. *Imitatio Mariae* was funded by the Swedish Research Council. For the project website, see https://imitatiomariae.wordpress.com/. For a discussion of the project's methodological work, see Cecilia Lindhé, Ann-Catrine Eriksson, Jim Robertsson and Mattis Lindmark, "Curating Mary Digitally: Digital Methodologies and Representations of Medieval Material Culture", in *Research Methods for Digitising and Curating Data in the Digital Humanities*, eds. Matt Hayler and Gabriele Griffin (Edinburgh: Edinburgh University Press, 2016), 140-157.

[124] Cecilia Lindhé, "Medieval Materiality through the Digital Lens", in *Between Humanities and the Digital*, eds. Patrik Stevensson and David Theo Goldberg (Cambridge, MA: MIT Press, 2015), 194.

> subject, between a Madonna and a viewer, and thus perhaps unfold Mary's performance in a physical space?[125]

To investigate these questions, Lindhé and her team, in collaboration with HUMlab, the Digital Humanities laboratory at Umeå University, developed four digital interactive installations consisting overall of eleven screens, a sound system and an LED-based modular light ceiling:[126] *The Magnifier* which, as its name implies, allows its user to move selected images using a pointer and zoom in and out of them at will; *The Digiti*, which enables the juxtaposition and comparison of images and medieval manuscripts using touch; as well as two more experiential interactives called *The Calendarium* and *The Sensorium*, respectively, and which both require active, embodied participation from users in their realisation.[127] *The Calendarium*, for instance, combines in one large dataset photographs of variant types of Marian statues and paintings which users can analyse and compare, while *The Sensorium*, depending on the user's bodily movement towards the screen, shows varying images from Saint Bridget's Vadstena Abbey. As the user approaches the screen, embedded sensors register the movements of the body, triggering new images depending on how the body interacts with the digital environment.[128] The performativity of this experience is enhanced further through aural elements: when a photograph of the Abbey's altarpiece is shown *Ave Maria* is heard being sung.[129] For both experiential installations, the light in the room changes as images change

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[125] Lindhé et al., "Curating Mary Digitally", 141.

[126] The prototypes were developed in 2011 at HUMlab, Umeå University, Sweden by Jim Robertsson, Emma Ewadotter, and Cecilia Lindhé.

[127] Lindhé, "Medieval Materiality," 199. In addition to the 4 prototypes discussed above, a web-based archive was developed which consists of a 3D model of the HUMlab space via which users can see the installation (including all the photographs used) and gain a better understanding of the working processes behind them. Lindhé et al 148. For a short of a virtual walk through the archive, see https://www.youtube.com/watch?v=WB6hEmUhUfc.

[128] Lindhé et al., "Curating Mary Digitally," 144.

[129] Lindhé et al., "Curating Mary Digitally," 144.

and bodies move, thereby pointing towards medieval multimodal patterns of use performativity.[130]

Although the different digital approaches adopted by the *Imitatio Mariae* project are compelling in how they approach the wider concerns about the performative dimensions of devotional art and devotion, it is worth noting that the main role of the outputs of the project, as stated by the authors themselves, is as research tools, and thus consequently not as a resource to be used by or evaluated with wider, non-academic audiences. This remains a significant gap which this thesis sought to address.

2.5. Research Focus

This chapter has summarised and reviewed the interdisciplinary scholarship on which this thesis draws, and to which it seeks to contribute. The chapter began by contextualising the current trend in medieval studies of researching the interplay between religion(s) and material culture. Material religion was introduced as a particularly useful lens for attending to the lived materialities and practices of medieval devotion, and by extension to its public display. Within the recent work on medieval materiality, the burgeoning research into contemporary, twenty-first-century scholarly engagement with the remnants of the medieval past (both tangible and intangible) has emerged as particularly insightful for the present thesis. Despite these forays, however, the literature review revealed a lack of especially applied research into how these insights into medieval artefacts, and the embodied and sensory modalities through which they were experienced, may be used to inform public, particularly non-specialist, engagement in museum contexts. This gap in research becomes evident especially when compared to the large,

[130] Lindhé, "Medieval Materiality," 201.

and growing, corpus of research into the recontextualization of non-Western religions.

A similar emphasis on scholarly engagement was recorded in the current research into digital medieval studies. Thus, albeit, the literature revealed that medievalists have been especially early adopters of digital applications, here too, most of the projects identified, employ the digital for furthering scholarly research into medieval materiality rather than public, non-academic accessibility and engagement.

Building on but extending the insights gained from this literature review, this thesis aims to address these gaps by carrying out collaborative practice-based research into how digital technologies may be meaningfully employed for enhancing audience engagement with medieval devotional art beyond the formal, stylistic qualities that normative interpretive strategies tend to stress. Beginning with a survey into the current adoption and use of digital technologies in public displays of late medieval art across Europe and North America, this thesis discusses the design, development, and evaluation of a digital interpretation, referred to hereafter as the *Tears of Our Lady* prototype. Based on a digitally augmented replica of *The Lamentation of Jesus Christ* (ID Number 1.24), a fifteenth-century alabaster relief panel now held at The Burrell Collection, Glasgow, the digital interpretation was designed specially as part of this doctoral research. The resultant *Tears of Our Lady* prototype is then used to examine how the interactive, particularly emotive, engagements medieval devotional objects would have engendered in the past may be used to inform contemporary digital interpretation practice, and to evaluate the impact of the digital interpretation on audience understanding and engagement.

The chapter that follows presents the methodological decisions and tools adopted in carrying out that research.

Chapter 3 Methodology

3.1. Introduction

This chapter outlines the research methodology used in this thesis. Beginning with a contextualisation of the research project, its academic and institutional partners, this chapter discusses the research approach adopted to address the research questions devised as part of it. In particular, it justifies and presents the phased-design approach (Phase I & II) adopted as part of this project. The chapter then turns to the methodological approach underpinning Phase I and II respectively. This includes a critical review of the aims and objectives of each phase as well as the different research methods employed to meet them.

3.2. Project Background and Context

This project was conducted with funding from the Scottish Graduate School for Arts and Humanities' Applied Research Collaborative Studentships (ARCS, 2017-22). The overarching aim of the ARCS scheme is to encourage and develop collaboration between SGSAH's Higher Education Institutions (HEIs) and external, non-HEI organisations across Scotland and support cutting-edge research that addresses the real needs of the industry partners.[131] Besides this distinct emphasis on cross-institutional research and collaboration, a key aspect which distinguishes ARCS from other studentships, is that the ARCS scheme proactively seeks to provide opportunities for doctoral students to gain first-hand practical experience outside the academic environment.[132]

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[131] See "SGSAH Applied Research Collaborative Studentships 2022 Guidance". Available at https://www.sgsah.ac.uk/partners/arcs/.

[132] "SGSAH Applied Research Collaborative Studentships 2022 Guidance".

Practice-based research, in particular, is a distinct form of academic research in which "an original investigation [is] undertaken in order to gain new knowledge partly by the means of practice and the outcomes of that practice."[133] Compared to more conventional doctoral research, the contribution(s) to knowledge in practice-based research are demonstrated primarily through creative outcomes (i.e., here the *Tears of Our Lady* interpretation and prototype), combined with critical reflection(s) on that practice (see Chapters 4, 5 and 6).[134] As the overarching aim of this research was to contribute to the so far limited research into the impact of digital interpretation on public engagement with medieval artefacts through *applied* research, ARCS offered the ideal institutional framework for carrying out this project.

In terms of HEI collaboration, this practice-based research project was carried out in Information Studies at the University of Glasgow (hereafter UofG) in collaboration with the Computer and Information Sciences Department of the University of Strathclyde, also located in Glasgow. With their combined research specialisms in digital cultural heritage, user studies and evaluation, as well as their involvement in cutting-edge EU-funded research projects, such as meSch (Material Encounters with Digital Cultural Heritage, 2013-17) at Strathclyde and EMOTIVE (2016-19) at UofG, respectively, this distinct cross-HEI supervisory team was deemed uniquely suited for providing specialist guidance on an applied, experimental research project such as the present one, which is aimed at designing, developing and evaluating a specifically curated prototype for enhancing audience engagement with medieval artefacts.[135]

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[133] Linda Candy and Ernest Edmonds, "Practice-Based Research in the Creative Arts: Foundations and Futures from the Front Line," *Leonardo* 51, no. 1 (2016): 63, https://muse-jhu-edu.ezproxy.lib.gla.ac.uk/article/686137.

[134] Candy and Edmonds, "Practice-Based Research in the Creative Arts," 65.

[135] For more information on the research projects referred to here, including relevant outputs and publications, visit https://www.mesch-project.eu/ and

3.2.1 The Burrell Collection and The Burrell Renaissance Project

As mentioned in earlier sections of this thesis, the external, non-HEI partner of this research was The Burrell Collection. Housed in a purpose-designed building in Pollok Country Park, just outside Glasgow's city-centre, the Collection forms part of Glasgow Museums (hereafter GM), Europe's largest civic arts collection.[136] The Burrell Collection itself is named after its collector Sir William Burrell (1861-1958) who, together with his wife Lady Constance Mary Lockhart Burrell (1875-1961), bequeathed the collection to the city of Glasgow in 1944.[137] At over 8000 objects strong, and ranging from ancient Greek and Egyptian artefacts to Chinese ceramics (itself one of the largest and most comprehensive of its kind in Europe) and French impressionist paintings, The Burrell Collection remains one of the most extensive, surviving collections worldwide to have been amassed by a single person.[138]

A unique strength of The Burrell Collection, and a key reason why it was chosen as a collaborative partner for this research in specific, is its collection of late Gothic Northern European Art.[139] The museum's

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https://emotiveproject.eu/. During the course of the PhD, the supervisory team was extended to include Prof Strickland, subject-specialist in Medieval Art at UofG. Prof Strickland's input was especially vital for adding an art-historical perspective to the research.

[136] Besides the Burrell, GM includes 10 other museums, including the Kelvingrove Art Gallery and Museum, the Riverside Museum, the Gallery of Modern Art (GoMA), the People's Palace, St Mungo of Religious Life and Art, the Provand's Lordship, the Scotland Street School Museum, the Open Museum, Kelvin Hall, and the Glasgow Museum Resource Centre (GMRC).

[137] For biographical research on Sir William Burrell, see Richard Marks, *Burrell: Portrait of a Collector* (Glasgow: Richard Drew Publishing, 1983); Isobel MacDonald, "Sir William Burrell (1861-1958): The Man and the Collector," (PhD thesis, University of Glasgow, 2018); and Martin Bellamy and Isobel MacDonald, *William Burrell: A Collector's Life* (Edinburgh: Birlinn Ltd, 2022).

[138] MacDonald, "Sir William Burrell," 14.

[139] Richard Marks, along with others, notes that Gothic, specifically Northern European Gothic art from the late medieval period (c.1300-1500) was Burrell's "first love". See,

extensive stained-glass collection as well as its wide range of tapestries and sculpture (ranging from miniature devotional statues in wood and alabaster to entire architectural stone portals), make the Burrell one of the most significant collections of late medieval art in the UK, surpassed in size only by that at the V&A in London.[140]

Beyond the distinct medieval focus of the Collection, however, a determining factor for selecting the Burrell as collaborative partner for this research was that when this doctoral project was first conceived in early 2017, The Burrell Collection had just embarked on a major capital redevelopment project, known as the Burrell Renaissance Project.[141] Carried out between October 2016 and March 2022 (initially planned to open in 2021, but extended due to COVID until Spring 2022), the Burrell Renaissance saw the very first extensive refurbishment of the museum since it opened its doors in 1983. Besides vital repairs and the modernisation of the by now Grade A-listed building (including the futureproofing of its leaking roof) in Pollok Country Park, the Burrell Renaissance Project provided the unique opportunity for the complete redisplay of its collections in a bid "to revitalise" it both for new and existing audiences.[142]

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instance, Marks' and Julius Norwich's contributions in Richard Marks, *The Burrell Collection: with an Introduction by John Julius Norwich* (London: Collins in association with Glasgow Museum and Art Galleries, 1984); and Marks, "Medieval Sculpture in The Burrell Collection," *Apollo Magazine* 118, no. 260 (1983): 284–91. Burrell's passion for the Gothic period is further highlighted by his will in which he stated that, if objects should be added to the collection after his death, it is his explicit "wish that a very decided preference be given to works of the Gothic period". This clearly illustrates that, as Isobel MacDonald points out, Burrell wanted the collection to remain faithful to his taste even after his death. See, MacDonald, "Sir William Burrell," 279.

140 Richard Marks, "Medieval Europe," in *The Burrell Collection: with an Introduction by John Julius Norwich* (London: Collins in association with Glasgow Museum and Art Galleries, 1984), 87-117.

141 The Burrell re-opened to the public in March 2022. See, The Burrell Collection, https://burrellcollection.com/news/the-burrell-collection-in-glasgow-reopens-following-major-refurbishment/.

142 Glasgow Life, "The Burrell Renaissance Project: Content and Interpretation Strategy," *Heritage Lottery Fund Application, Round 2* (June 2017), 8. Accessed by permission of The Burrell Collection, Glasgow Museums. For a detailed outline of the challenges

As the years took their toll on the physical building, the Burrell itself also began to fail as a visitor attraction.[143] Pre-closure research evidenced a steady decline in visitor numbers to the Burrell, against a background of sustained or increased visits (local and tourist) to other city museums.[144] That front-end research, moreover, highlighted that the overarching profile of repeat visitors did not reflect the broader demographic of Glasgow, and of Scotland more broadly.[145] Instead, visitor information gathered indicated a clear bias towards elderly, female, and predominantly white visitors residing in the more affluent areas of the city.[146] Low engagement, on the other hand, was recorded among audiences from the local areas surrounding Pollok Country Park, and particularly among those audiences from ethnic minority (BAME) communities, those experiencing poverty, as well as people with disabilities.[147] Other audience groups, such as Families (defined by GM as intergenerational groups where one or more members of the groups are 10 or under), Early Years (i.e., under-fives), and Young Adults were similarly underrepresented.[148] Key barriers of engagement identified across these non-visitors and underrepresented

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of the building see, Helen Hughes and Stephanie de Roemer, "The Burrell Renaissance: Unpicking a Collection and its Building," *Studies in Conservation* 65, no. S1 (2020): S154-59, https://doi.org/10.1080/00393630.2020.1744880.

[143] Hughes and de Roemer, "The Burrell Renaissance," S157.

[144] "The Burrell Renaissance Project: Content and Interpretation Strategy," 5; and The Burrell Collection, "Burrell Collection Equality Impact Assessment," (2019).

[145] "The Burrell Renaissance Project: Content and Interpretation Strategy," 5.

[146] Similar gender, age, and socioeconomic biases have been found in audience research of other fine and decorative arts museums. In comparison, history and natural history museums appear to attract more diverse audience demographics, including higher numbers of families. See, for instance, Graham Black, *Transforming Museums in the Twenty-first Century* (London: Routledge, 2012); and Laurajane Smith, *Emotional Heritage: Visitor Engagement at Museums and Heritage Sites* (London: Routledge, 2020).

[147] "The Burrell Renaissance Project: Content and Interpretation Strategy," 5; and "Burrell Collection Equality Impact Assessment," (2019).

[148] "The Burrell Renaissance Project: Content and Interpretation Strategy," 5; "Burrell Collection Equality Impact Assessment."

audience groups included: a lack of connection to and relevance of the Burrell's collection to visitors' own lives; a lack of confidence (including lack of pre-existing knowledge and awareness) among visitors in engaging with the collection; a lack of interactive and family-friendly interpretation (such as hands-on and digital experiences); as well as an overall lack of interest in the Collection and its holdings.[149]

Besides opening up the entire museum building to the public, and so provide visitors with physical access to much larger number of objects than would have been possible before, key in addressing the above barriers of engagement (socio-cultural; intellectual; emotional) was the adoption a revised content and interpretation strategy. Integral to this strategy was replacing the Burrell's previously very limited interpretation with a storytelling approach.[150] Building on the implementation and research of a story-based, narrative interpretation in other GM venues, such as the Kelvingrove Museum and Art Gallery and the Riverside Museum, which reopened after major capital redevelopments in 2006 and 2011 respectively,[151] this entailed discarding traditional chronological and taxonomic displays in favour of an object-based, visitor-centred approach that uses the objects on display as incentives for visitors to

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[149] "The Burrell Renaissance Project: Content and Interpretation Strategy," 5.

[150] "The Burrell Renaissance Project: Content and Interpretation Strategy," 6-9.

[151] On the Kelvingrove Art Gallery and Museum specifically, see Maria Economou, "Evaluation Strategy for the Re-Development of the Displays and Visitor Facilities at the Museum and Art Gallery, Kelvingrove," *Project Report, Humanities Advanced Technology and Information Institute (HATII), Glasgow* (1999), https://eprints.gla.ac.uk/104309/1/104309.pdf; Mark O'Neill, "The Good Enough Visitor," in *Museums, Society, Inequality*, ed. Richard Sandell (London: Routledge, 2002), 25-40; Economou, "Evaluation Strategies in the Cultural Sector: The Case of the Kelvingrove Museum and Art Gallery in Glasgow," *Museum & Society* 2, no. 1 (2004): 30-46, https://journals.le.ac.uk/ojs1/index.php/mas/article/view/35/42; Alison K. Brown "The Kelvingrove 'New Century' Project: Changing Approaches to Displaying World Cultures in Glasgow," *Journal of Museum Ethnography*, no. 18 (2006): 37-47, https://www.jstor.org/stable/40793809; and O'Neill, "Kelvingrove: Telling Stories in a Treasured Old/New Museum," *Curator 50*, no. 4 (2007): 379-99. On the Riverside Museum, see Richard Williams, "Interpreting Collections: Telling Stories about Objects," *Museum-iD magazine*, https://museum-id.com/interpreting-collections-telling-stories-objects-richard-williams/.

connect with the Burrell, its holdings, and the manifold stories embedded in them.[152] Devised in line with the often-limited prior object/collection-based knowledge that visitors bring to the museum, this story-based interpretation is predicated less on overtly didactic objectives, such as imparting information on the dates and factual details, rather than on emphasising the meanings that the objects in the collection had for the people who made, used, collected and traded them.[153] For the Burrell in particular, this included developing stories about previously absent (yet highly requested) subjects, including stories on Sir William Burrell and his wife, Lady Constance and their connection to the city of Glasgow, as well as on the people and practices associated with object making.[154] While the stories themselves are delivered via a suite of interpretive media, ranging from traditional object labels to more interactive, hands-on offerings (i.e., tactile models and manual interactives, especially for Under 5s), key to the Burrell's interpretive provision is digital interpretation.

Drawing on GM's own experience of delivering digital interpretive experiences in the past, and more current developments in the field, digital at the Burrell is delivered via a suite of interconnected platforms: in-gallery, mobile and online.[155] The in-gallery digital interpretation, in particular, is delivered via a variety of interfaces and technologies, ranging from visitor information points (i.e., digital signage) and digital

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[152] "The Burrell Renaissance Project: Content and Interpretation Strategy," 8.

[153] "The Burrell Renaissance Project: Content and Interpretation Strategy," 8.

[154] "The Burrell Renaissance Project: Content and Interpretation Strategy," 6-8. Sir William Burrell and his connection to Glasgow emerged as a key point of interest during visitor research conducted prior to the Burrell's closure. Other themes that arose, included "Making, Makers and Use" and "Learning and Cultural Life", both thematic emphases that find expression in the Burrell's new displays.

[155] "The Burrell Renaissance Project: Content and Interpretation Strategy,", 8.; Glasgow Life, "The Burrell Renaissance Project: Digital Strategy," *Heritage Lottery Fund Application, Round 2* (June 2017). Accessed by permission of The Burrell Collection, Glasgow Museums. For discussions on digital interpretation at GM, see, for instance, Williams, "Interpreting Collections: Telling Stories about Objects."

labels, to interactive games, large-scale display totems and immersive video projections, playing a central role in reaching the Burrell's aim for enhancing accessibility to and engagement with its collections.[156]

This collaborative practice-based research project was devised specifically to support the Burrell Renaissance Project's endeavour to lower barriers of visitor engagement (intellectual and emotive) with its medieval collections. Any interpretation and/or prototypes developed as part of this research, combined with any evaluation findings thereof, were to inform and contribute directly to the Burrell's own digital practice. However, due to internal challenges pertaining to the scheduling and delivery of the Burrell Renaissance Project (including the sudden onset the COVID-19), on the one hand, and the timeline of the ARCS scholarship, on the other, it was not possible for this doctoral project to have as a direct impact on the Burrell Renaissance as initially planned. Hence, the specifically curated *Tears of Our Lady* prototype, and the digital interpretive design that underpin it, were carried out largely independently, with GM staff involved mainly at the first stages of the prototype development through the sharing of their expertise and the provision of grey literature.[157] Despite this slight change in the collaborative working practice, The Burrell and other GM staff have shown great interest in the findings of the research even after the re-opening of The Burrell Collection in March 2022. The findings of the user evaluation in particular (see Chapter 4) were deemed especially revealing in that regard as the wider museological questions they raised (see Chapters 5 and 6, respectively) are pertinent not just the Burrell specifically but are of significance to both academics and practitioners

[156] "The Burrell Renaissance Project: Digital Strategy," 8, 15-17.

[157] The grey literature referred to here includes the Burrell Renaissance Project's content and digital strategies cited above.

working on the contemporary (digital) engagement with the medieval past more widely.

3.3. Research Approach and Design

The overarching aim of this practice-based research project was to investigate how digital technologies may be used to bridge the distance (intellectual, somatic, emotive, and imaginative) that normative museum display practices impose on the contemporary, twenty-first viewing experience of medieval Christian artefacts. In order to address this aim, and the research questions devised as part of it (see Chapter 1.3), it was deemed vital to first gain an overview into how cultural heritage institutions currently interpret their late medieval Western artefacts, and how they use digital in doing so (RQ1).

As discussed in Chapter 2, however, the literature review revealed that, despite the extensive scholarly interest that both medieval studies and digital cultural heritage have seen in the last decade alone, only limited research is available on the digital interpretative strategies adopted by heritage institutions in the public display of their late medieval collections.[158] With this research gap identified, it was decided to actively fill this lacuna by carrying out a cross-site survey into the current use(s) of digital tools and approaches in public displays of late medieval art. Combined with the theoretical input of the literature review, the survey findings could thus feed directly into the researcher's own digital design practice (which address RQ2 and 3).

[158] Exceptions include Lindhé et. al, "Curating Mary Digitally," 140-157; Snape, "Medieval Art on Display". For a detailed discussion of these and other studies relevant to this thesis, see Chapter 2 above.

The result of this methodological decision was the adoption of a two-phased research design which consisted of two distinct, but complementary phases (see Fig. 3-1).

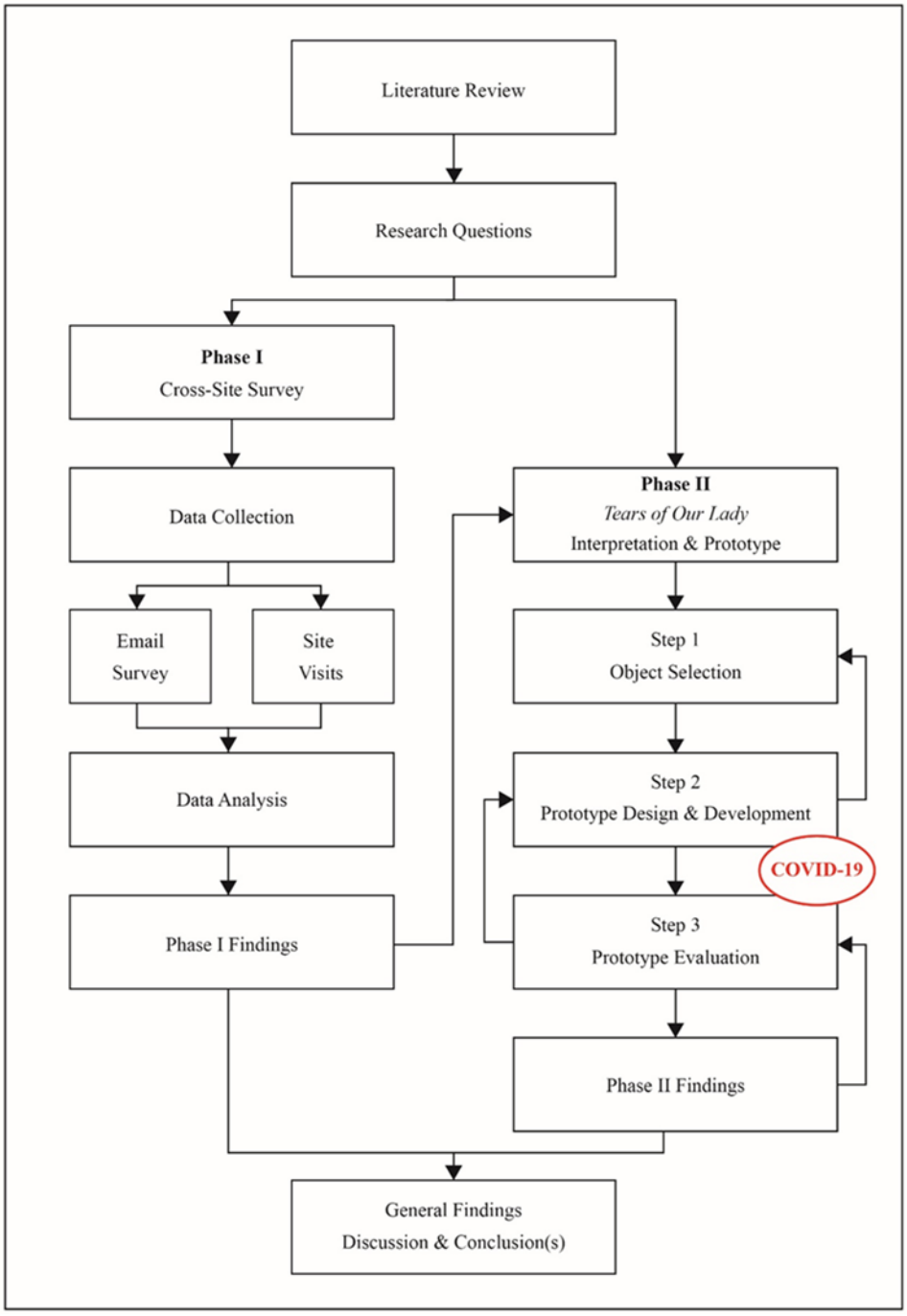

Figure 3-1. Diagram of Research Design.

The remainder of this chapter outlines the methodological approach underpinning Phase I and II in turn. This includes a critical review of the aims and objectives of each phase as well as of the different research methods employed to meet them.

3.4. Phase I: Cross-Site Survey of Digital Interpretation in Public Displays of Medieval Christian Art

3.4.1. Motivation and Purpose of Phase I

Phase I of this doctoral research consisted of a cross-site survey into how cultural heritage institutions use digital technologies for interpreting their late medieval Christian artefact collections. Undertaken in response to a lack of existing research in the area identified during the literature review (see Chapter 2), the overarching aim of the survey was to map the current state of adoption and use of digital in public displays of late medieval devotional art and to address the wider museological questions (opportunities and/or issues) these raise for visitor engagement and understanding. For the purposes of this research, the survey was limited to any *in-gallery* interpretation, that is, physical instances of digital interpretative tools incorporated within galleries to enhance the display of purposefully selected objects, and so shape visitor experience of them. These include, but are not limited to, audio and/or video stations, interactive media (e.g., touchscreens) or augmented, mixed and virtual reality.[159] The data gathered during this phase was used to help contextualise and lend focus to the digital interpretation designed and implemented as part of Phase II of this research.

The cross-site survey was underpinned by two hypotheses (H1 and H2). These were formulated in line with previous research into the public display and interpretation of medieval art and devotion as well as the

[159] Any other, portable tools, such as audio- and/or multimedia guides or mobile apps which can be rented upon arrival at an institution or downloadable onto visitors' own devices were not included unless otherwise stated.

researcher's own prior museum experience (both as visitor and museum staff):

- H1. Digital technologies are used only sparingly in public displays of late medieval art. Instead, interpretation is based predominantly around object labels and captions.

- H2. In cases where digital interpretation is used, the emphasis is on craftsmanship and style so that instead of pushing normative interpretive boundaries, digital interpretation is used to reinforce them.

The remainder of this section outlines the research methods adopted to verify these hypotheses.

3.4.2. Sampling Method and Selection Criteria

A crucial first step of Phase I consisted of identifying and selecting an appropriate sample for the cross-site survey. As it was impossible for the survey to include the entire target population of interest (i.e., all cultural heritage institutions displaying late medieval Christian artefacts) due to practical and time limitations, a criterion sampling approach was adopted to generate a smaller subset for analysis. A distinct type of purposive sampling strategy recommended in cases where little empirical research exists, criterion sampling – as its name denotes – involves the selection of a sample based on a set of pre-determined criteria.[160] Compared to probability sampling methods often used in quantitative research, and as part of which samples are often randomly selected from the target population, the unique advantage of non-probability sampling, such as criterion sampling, is that the researcher can delimit sample selection to

[160] Michael Quinn Patton, *Qualitative Research and Evaluation Methods: Integrating Theory and Practice* 4th ed. (Thousand Oaks, CA: SAGE Publications Inc., 2015), 238.

information-rich cases only, that is, to those cases deemed to provide most in-depth insight into the research phenomenon at hand.[161]

For the present study, this meant that to be selected for the survey, institutions had to comply with three pre-determined criteria. These criteria were devised in line with the overarching theoretical framework of this thesis as a whole and meet the temporal and geographical boundaries adopted as part of it: (i) *period,* (ii) *provenance* and (iii) *collection type*.

(i) Period. This research project investigates the digital interpretation of art and material culture from the late medieval period which ranges from the thirteenth to the sixteenth century (c.1250 – c.1550). Accordingly, for the findings of the survey to be as useful as possible to the overall objectives of this thesis, the same temporal boundaries were applied to the sample selection.

(ii) Provenance. Geographically, the sample was limited to institutions holding significant collections of devotional art produced and used in the Latin West, that is, areas today of North-Western and Central Europe.[162] This decision was governed mainly by the fact that most of the theoretical framework underpinning this research project (i.e., Chapter 2) centres on Roman Catholic material culture and the dynamic subject-object engagements that distinguished it.

(iii) Collection Type. For the purposes of this research, the survey was limited to permanent galleries and/or exhibition spaces of medieval art only. This decision was governed by two main considerations. Firstly, no temporary exhibitions of note to this project were on show during the

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[161] Patton, *Qualitative Research and Evaluation Methods*, 169; Alison Jane Pickard, *Research Methods in Information* 2nd ed. (London: Facet Publishing, 2013), 64.

[162] The term “Latin West” is employed here to draw a clear-cut distinction between the art produced by the Latin-speaking, Catholic peoples of North-Western and Central Europe, and the Greek-speaking, Orthodox peoples of the Eastern Mediterranean region. As a result, Byzantine art did not form part of this survey.

period the survey was conducted that would have been close enough for the researcher to visit first-hand. Secondly, compared to temporary (often payable) specialist exhibitions, permanent galleries are likely to act as first points contact with medieval artefacts for many visitors. As this research focuses primarily on non-specialist audiences' engagement with and understanding of medieval collections, this last point was deemed particularly crucial.

Without a canonical list of institutions available, the selection process began – at a first stage – by including those museums that are well-known in the medieval and/or museum studies field for holding important collections of late medieval Western art.[163] In line with selection criterion 2 above (i.e., provenance), the sample selection was initially limited to institutions located in North-Western and Central Europe, that is, those geographical areas where most of the artefacts under scrutiny in this study originated from. As a significant number of late medieval artefact collections are now housed and displayed in venues across North America, however, it was deemed necessary to expand the survey to accommodate a selection of the most prominent among those as well.[164]

Once the most well-known collections of medieval Western art were identified, sample selection – at a second stage – was expanded using online keyword searches and chaining (e.g., "medieval museum collections", "museums of medieval art", etc.) to include institutions

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[163] See, for instance, Janet Marquardt, "Medieval Art Collections," in *A Companion to Medieval Art: Romanesque and Gothic in Northern Europe* 2nd ed., ed. Conrad Rudolph (Hoboken, NJ: John Wiley & Sons, 2019), 933-55, https://doi.org/10.1002/9781119077756.ch38.

[164] For a list of institutions with important collections of medieval art in North America, see, for instance, "Selected Resources," in Michael Byron Norris and Rebecca Arkenberg, *Medieval Art: A Resource for Educators* (New York: Metropolitan Museum of Art, 2005), 186.

which, albeit lesser known, do hold collections that correspond with the selection criteria above.

Overall, 31 institutions were thus selected, with the sample including venues from across 11 different countries (see Table 3-1 below). Among the 31 institutions selected, 9 are national/encyclopaedic museums, 19 focus primarily on art (and/or design), with three among them dedicated specifically to medieval art. Two museums of religion(s) were surveyed, as well as one history museum. Of the overall 31 museums included, 10 are located within historical (i.e., ecclesiastical/religious sites), three of which still function as active sites.

Country	**Location**	**Institution**
Belgium	Antwerp	Museum Mayer van den Bergh
	Brussels	Musée Art et Histoire
	Liège	Le Grand Curtius
	Tongeren	Teseum
Czech Republic	Prague	Klášter SV. Anežky České – Národní galerie v Praze
France	Paris	The Louvre
	Paris	Musée de Cluny – Musée National du Moyen Âge
Germany	Cologne	Museum Schnütgen
	Marburg	Religionskundliche Sammlung
	Munich	Bayerisches Nationalmuseum
Italy	Rome	Museo Nazionale dell'Alto Medioevo
	Rome	Vatican Museums
Netherlands	Amsterdam	Rijksmuseum
	Utrecht	Muzeum Catharijneconvent
Poland	Warsaw	Muzeum Narodowe w Warszawie
Spain	Barcelona	Museo Nacional de Vic
	Barcelona	Museu Nacional d'Art de Catalunya
	Madrid	Museo Nacional del Prado
Sweden	Stockholm	Hisotriska museet
United Kingdom	Durham	Durham Cathedral Museum
	Edinburgh	National Museum Scotland
	Glasgow	St Mungo Museum of Religious Life and Art
	London	British Museum
	London	Victoria and Albert Museum
	Oxford	Ashmolean Museum of Art and Archaeology
	Runcorn	Norton Priory Museum & Garden
	York	The Undercroft Museum – York Minster
United States	Cambridge, MA	Harvard Art Museums
	Chicago, IL	Art Institute of Chicago
	New York, NY	The Met Cloisters
	New York, NY	The Met 5th Avenue

Table 3-1. Institutions Surveyed for Phase I.

3.4.3. Data Collection Methods

To gain access to and collect data on the digital interpretation tools and practices employed by each of the selected institutions in the display of their late medieval collection(s), the following two data collection techniques were employed: (i) an *email survey* and (ii) *site visits*.

(i) Email Survey. To begin the research process, desk research was conducted to assess which, if any, of the selected cultural heritage institutions (see Table 3-1) use digital technologies to interpret the late medieval Western collections they display, and how they use them. While for some institutions online resources (e.g., institutional websites; reviews or curatorial blogs; exhibition designers' websites) offer useful insights into the display strategies adopted, for others, little or no information is available online. To overcome this shortcoming, a short survey was sent to 28 out of the 31 institutions selected via email to solicit and collect qualitative data otherwise inaccessible.[165]
Email correspondence was chosen as the most appropriate data collection tool for Phase I, due to the ease and geographical reach of the electronic medium. As the survey included institutions from across a variety of countries (and, indeed, across two continents, emails were deemed an ideal tool especially at this early stage in the research process for reaching a large sample relatively quickly and at low cost.[166]

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[165] Due to the proximity of both the St Mungo Museum of Religious Life and Art (Glasgow) and the National Museum of Scotland (Edinburgh) to the lead HEI (i.e., UofG), these institutions were visited first-hand instead. Similarly, no email survey was sent to the Victoria and Albert Museum (V&A). Thus, not only was the V&A visited on numerous occasions (both prior and during the completion of this thesis), its Medieval and Renaissance Galleries, moreover, underwent a major redesign (2003-2009) with numerous publications discussing their curatorial aims and practice. For selected references to the redisplay of the V&A's Medieval and Renaissance Galleries, see Section 2.3.2 above.

[166] Janice E. Hawkins, "The Practical Utility and Suitability of Email Interviews in Qualitative Research," *The Qualitative Report* 23, no. 2 (2018): 494, https://doi.org/10.46743/2160-3715/2018.3266. See also Allen S. Lee, "Electronic Mail

As part of the data collection process, a standardised email was sent to each of the 28 institutions (see Appendix A.1). In line with guidelines for making effective use of emails in qualitative research, the email included detailed information about the research project as a whole, as well as the survey in specific.[167] Beginning with a brief introduction of the researcher, the institutions and funding body involved in the research, the email then outlined the research project and explained the reasoning behind the survey. Care was also taken to be transparent about how the data gathered would be used, and to inform participants that, if useful, information on the progress of the project and its findings would be shared with them. Instead of attaching a lengthy questionnaire – either as a separate document or as a URL link embedded within the text – a set of two questions was included in the main body of the email. Previous research on both online and email surveys emphasises the relationship between length and response rate/quality; to counteract potential non-response, the number of questions was thus deliberately kept to a minimum.[168]

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as a Medium for Rich Communication: An Empirical Investigation using Hermeneutic Interpretation," *MIS Quarterly*, 18, no. 2 (1994): 143-57, https://doi-org.ezproxy.lib.gla.ac.uk/10.2307/249762; Craig Murray and Judith Sixsmith, "E-mail: A Qualitative Research Medium for Interviewing?," *International Journal of Social Research Methodology* 1, no. 2 (1998): 103-21, https://doi.org/10.1080/13645579.1998.10846867; Lokman I. Meho, "E-Mail Interviewing in Qualitative Research: A Methodological Discussion," J*ournal of the American Society for Information Science and Technology* 57, no. 10 (2006): 1284-95, https://doi.org/10.1002/asi.20416; Don A. Dillman, *Mail and Internet Surveys: The Tailored Design Method*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 1999); Melissa Parris, "Email Correspondence: A Qualitative Data Collection Tool for Organisational Researchers," *ANZAM 2008: Managing in the Pacific Century* (2008).

[167] Meho, "E-Mail Interviewing in Qualitative Research," 1291.

[168] Nina Michaelidou and Sally Dibb, "Using Email Questionnaires for Research: Good Practice in Tackling Non-Response," *Journal of Targeting, Measurement and Analysis for Marketing* 14, no. 4 (2006): 291-93, https://doi.org/10.1057/palgrave.jt.5740189. See also Elisabeth Deutskens, Ko De Ruyter, Martin Wetzels and Paul Oosterveld, "Response Rate and Response Quality of Internet-Based Surveys: An Experiential Study," *Marketing Letters* 15, no. 1 (2004): 21-36, https://www.jstor.org/stable/40216512.

The content of the two questions was devised in line with the objectives of Phase I (see 3.4.1) to ensure that the data collected were as relevant as possible. They read as follows:

(a) Does [INSERT NAME OF INSTITUTION HERE] use non-textual interpretation methods (be those manual/tactile, hybrid or digital) to interpret and display any of its medieval Western collection? Information on specific examples would be very helpful.

(b) Do you have any additional information on the interactives (digital & non-digital), such as how they work and visitors' engagement with them?

While (a) starts with a general, closed-ended question about the institution's use of non-textual media in its medieval display(s), the latter part of (a), and question (b), respectively, offer respondents open-ended prompts for expanding on individual aspects in more detail, including the varying types of interpretative tools used, and visitor engagement with them.

In terms of selecting individual recipients within the chosen institutions, the study aimed to address emails to staff members with presumed specialist knowledge in the institutions' medieval collections, most notably curators and/or senior curators of medieval art. For institutions without appointed specialist curators, emails were addressed to the general collection managers or digital engagement officers respectively, while for venues for which no departmental contacts were available at all, emails were sent as general enquiries.

Despite the many advantages the electronic medium offers for gathering qualitative data, limitations were observed during the data collection process regarding response rate. Thus, although the above measures were put into place to counteract potential low response, in some cases (N=15), institutions did not reply at all despite reminders. Three institutions responded but declined to take part in the survey: whilst one institution, for instance, opted out due to time and staff restraints, two

others were undergoing their own redisplay projects at the time the survey took place, and were yet unable to share any plans for digital provision with the public. Overall, however, 11 out of 29 institutions contacted replied positively.

Yet, even among the 11 institutions who replied, variations in the level of information provided were observed from the onset. Thus, while some responses were very detailed, for others, it was necessary to send out follow-up emails to confirm certain aspects.[169] In retrospect, it is likely that the variation in data generated was influenced by the fact that, especially for those institutions with extensive on-site digital provision, supplying detailed information on each instance was a much more time-consuming task than initially expected.[170] This became clear especially after carrying out site visits first-hand (see below).

(ii) Site Visits. Besides an email survey, data collection for Phase I included site visits. Site visits were chosen as additional data collection method, as they, compared to the email survey, offered the researcher the unique opportunity to experience the digital interpretation provided first-hand. Moreover, site visits allowed to counteract some of the limitations identified as part of the email survey (e.g., inconsistency in data quality and/or non-reply).[171]

Although it was not possible to visit all selected institutions first-hand (especially those in the U.S. proved difficult due to time and budgetary constraints), it was nonetheless attempted to visit as many as viable

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[169] This proved futile for one institution for which the follow-up emails remained unanswered. As a result, that institution did not feature in the analysis below.

[170] Three contacts commented on the “expansive” and/or “extensive” nature of the survey questions.

[171] On methodological triangulation see, for instance, Norman Denzin, *Sociological Methods: A Sourcebook*, 5th ed. (New York: Aldine Transaction, 2006); Uwe Flick, *Doing Triangulation and Mixed Methods* (London: SAGE, 2018).

within the constraints of the project.[172] Overall, site-visits were carried out to a total of 13 European institutions.

Site-visits centred on galleries dedicated to art and artefacts of that period only; the location of those within each institution was identified prior to each visit to ensure that the time spent on-site was used as effectively as possible. Once within the galleries in question, it was the displays of late medieval Western art especially that were analysed. During each site visit, comprehensive field notes were taken (by hand) of any digital interpretation technologies and/or applications incorporated within the exhibition spaces and their relation to the object and/or collection of objects which they were meant to enhance. Additionally, close attention was paid to which object types were paired up with digital media in an effort to establish potentially recurring patterns of use across institutions. Field notes were supplemented by photographs and videos of relevant displays.[173]

Overall, it was possible to gather information from a total of 17 out of the initial 31 institutions identified. This includes 4 cases for which data is reliant on email surveys only, and 10 that are based on site visits only. For three institutions data was received both via email and site visits. Of the 17 institutions surveyed, 10 were recorded that employ digital interpretation on-site; any institution thus identified are highlighted in green below (see Table 3-2).

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[172] Site visits to The Met Fifth Avenue and The Met Cloisters in New York were generously funded through the Visitor Studies Group's annual "Alison James Professional Development Bursary" (2019). Due to time constraints (including the later onset of the COVID-19 pandemic), this research trip had to be put on hold.

[173] To mitigate any ethical concerns arising from the site visits, photographs and videos were taken of the digital interpretation tools only. At no point during these site visits were photographs and/or videos taken of other visitors. For more details see the ethics application in Appendix B.

Institution	Data Collection Method		Digital Media Recorded
	Survey Response	Site Visit	
Art Institute of Chicago	✓		✓
Bayerisches Nationalmuseum	✓		
British Museum		✓	
Durham Cathedral Museum		✓	✓
Grand Curtius, Le		✓	
Harvard Art Museum	✓		
Louvre, Le		✓	
Musée Art et Histoire		✓	✓
Museum Mayer van den Bergh		✓	✓
Museum Schnütgen	✓	✓	✓
National Museum Scotland		✓	✓
Religionskundliche Sammlung	✓		
Rijksmuseum	✓	✓	
St Mungo Museum of Religious Life and Art		✓	✓
Teseum		✓	✓
Undercroft Museum, York Minster	✓	✓	✓
Victoria and Albert Museum		✓	✓

Table 3-2. List of Institutions for which data was collected and how.

3.4.4. Data Capture and Management

All key information collected from the sample was collated in Microsoft Excel. To assist data collection, and subsequent analysis, the following contextual data was recorded for all institutions selected: name of the institution, location, and contact name. Email addresses of contacts and their respective positions within the institutions were also recorded and detailed notes were kept on whether recipients replied. If referred to different contact or department other than the one(s) initially contacted, the contact information of new contact(s) was also recorded. Contact names and details were collected for data management purposes only; all personally identifying information were omitted from all research outputs resulting as part of this survey. Similarly, close records were kept of which institutions were visited first-hand (N=13) and when. To ensure confidentiality, all data was stored on a password-protected account at the University of Glasgow's approved cloud storage OneDrive for Business. Any written materials (i.e., field notes) were stored safely in a locked filing cabinet until digitised, upon which they were destroyed. Documents with personally identifying information (i.e., email correspondence; list of contacts) were stored separately from the other data at all times.

Once the primary data for each institution was compiled, any additional information collected on the in-gallery digital provision was recorded. Raw data (i.e., email survey findings; field notes) were reviewed and compiled for each institution in Microsoft Word. Individual summaries were collated with short introductions to each institution, its holdings, and descriptions – if applicable – of the in-gallery digital provision identified. All summaries can be found in Appendix A.3.

3.4.5. Data Analysis: Approach and Process

Findings for each institution were analysed in line with the research objectives of Phase I (see 3.4.1.) The analysis process began by identifying those institutions for which *no* digital applications were recorded on-site (N=7). For these institutions, object labels and captions remain the main interpretive media. Once these were put aside, the summative reports for the remaining 10 institutions were coded thematically.

The coding process began – in the first stage – by identifying and labelling any recurrent types of digital tool employed as well as any object type(s) that these tools were paired up with in an effort to establish potentially recurring patterns of practice across institutions. Overall, the majority of presentation devices recorded were multimedia touchscreen kiosks (N=25). Audio stations (N=11) and projections (N=15) were also well represented, while the object type most often accompanied by digital interpretive tools was medieval manuscripts (see Appendix A.2).

Once all instances of digital technology used on-site were fully coded, codes were organised into broader themes. Central in generating these themes was a shift in analysis beyond the device level to critically reflect, instead, on *how* the tools were used (i.e., their content and interpretative approach), and the wider museological questions they raise for the interpretation of the artefact(s) they accompany and, by extension, visitor engagement and understanding.

As part of this analysis, three overarching thematic emphases were identified. They can be summarised as follows:[174]

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[174] A more detailed report of the key findings, including illustrative examples, can be found in Appendix A.2.

(a) Iconography and Style. The most widely used thematic emphasis in the digital interpretation of medieval art is iconography and style. Predominately provided via touch-screen kiosks, the digital is used here to provide users primarily with audio-visual content on iconographic details of individual objects and/or period styles.

(b) Techniques & Materials. Another prevalent use for digital interpretation recorded is the visualisation (predominantly via video content) of processes and materials used in the making of selected medieval artefacts on display. Particularly effective in this regard are those videos that show contemporary craftspeople recreating the techniques involved in the making of the objects on display.

(c) Contexts and Use. In other cases (albeit less frequently), the digital is used to introduce visitors to the original functions and uses of the objects on display. Digital interpretation here includes audio provision (especially period music) to evoke devotional atmospheres and videos (including projections) of actual and/or recreated devotional rituals (e.g., liturgical processions). This change in interpretive approach reflects a wider shift in medieval scholarship towards devotion as an embodied, and (multi/inter)sensory practice (see Chapter 2.2.2).

Overall, these findings validate both hypotheses (i.e., H1 and H2) formulated at the onset (see Chapter 3.4.1.) Indeed, not only did the survey reveal limited adoption of digital, but it also – and more importantly – indicated that, despite a noticeable shift towards the functional uses of medieval devotional artefacts, digital is used predominantly to help visualise factual content on iconography and style. These findings confirm that, as argued in the introduction of this thesis, instead of pushing interpretive boundaries beyond traditional art-historical emphases, current digital interpretation tends to reinforce them, leaving both the potential of the objects as well as that of the digital unlocked.

3.5. Phase II: Design, Development and Evaluation of the *Tears of Our Lady* Prototype

3.5.1. Motivation and Purpose of Phase II

Phase II constituted the main practice-based component of this research project. Predicated on the premise that late medieval devotional artefacts were inherently interactive (intellectually, somatically, emotionally and imaginatively), this thesis argues that, by continuing to primarily stress their formal qualities, normative curatorial practice is missing a vital opportunity not only for enhancing understanding of the meanings these objects would have had in the past but also – and more importantly, as contended here – for creating new avenues for engagement with them in the present. While digital interpretation has the potential to overcome these shortcomings, it was put forth in the introduction (and confirmed by the cross-site survey carried out as part of Phase I of this thesis) that, instead of pushing these normative practices, current digital practice tends to reinforce them, leaving both the potential of the objects as well as the digital unlocked.

To counter these shortcomings in current digital interpretation provision, the overarching aim of this thesis as a whole, and Phase II in particular, was to explore how digital technologies may be used for enhancing public engagement (especially among non-specialist audiences) with medieval devotional artefacts beyond the formal, aesthetic qualities that normative display practices tend to stress. Drawing on but extending the insights gained from the literature review and Phase I, respectively, the result of this practice-based research was the design and evaluation of a specially curated digital interpretation, referred to hereafter as the *Tears of Our Lady* interpretation and prototype.

Phase II comprised of three distinct but equally important components:

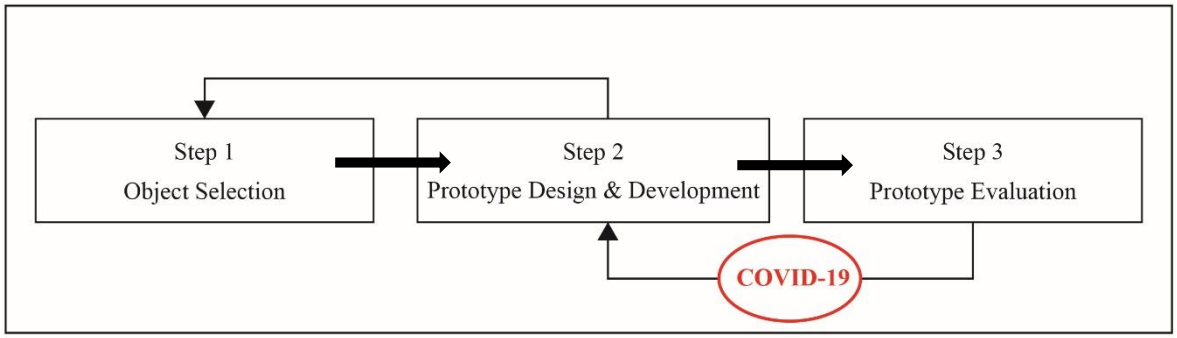

Figure 3-2. Flow Diagram of Phase II.

In response to findings from both the literature review and Phase I, Phase II adopted the following set of design principles:

- **Engagement.** The digital interpretation designed as part of Phase II should encourage enhanced audience engagement with the chosen artefact on an emotive and imaginative level instead of a purely formal, intellectual level.
- **Reflection.** The digital interpretation should prompt users to reflect on the chosen artefact, and its potential meanings and use (past & present) beyond its current role as museum object.
- **Interest.** The digital interpretation should promote interest in the chosen artefact, especially among audiences with limited or no prior specialist knowledge and/or interest in medieval art and devotion.
- **Visitor Attention.** Whichever digital solution is implemented, it should facilitate prolonged and closer exploration of the chosen artefact without distracting from it.

These design principles were used to guide and inform every step of Phase II (see Fig. 3-2), from initial object selection, digital interpretation design and implementation through to its evaluation with end users.

The discussion that follows explores each of these three steps in turn. This includes an outline of the methodological decisions underpinning each step as well as a critical review of the various obstacles encountered during the process (i.e., collection access and COVID-19) and how these were addressed. For although not anticipated at the outset, these obstacles proved formative to the final implementation of the *Tears of Our Lady*

interpretation and prototype, and thus the findings of this thesis as a whole.

Before proceeding, however, a note is in order here regarding the organisation of the discussion that follows. Thus, although the design and development (i.e., Step 2) of the digital interpretation occurred in tandem, with the design choices impacting its implementation and vice versa, emphasis in the remainder of this chapter is on the **development process only**, that is, the practicalities (physical & technical) involved in the actual making of the *Tears of Our Lady* interpretation and prototype.

As the interpretive design (and evaluation) of the conceptual framework underpinning *Tears of Our Lady* constitutes the main contribution of this thesis, the digital interpretative strategy (and individual design choices) are discussed at length in the following chapter (see Chapter 4).

3.5.2. Step 1: Object Selection

Step 1 of Phase II was object selection. As touched upon above, The Burrell Collection is home to one of the UK's finest, most extensive collections of medieval art, and at 3000-objects strong, it ranges from monumental carved portals to stained glass, tapestries, sculpture, and liturgical furnishings. A vital first step in the conceptualisation of the *Tears of Our Lady* prototype was thus to select the artefact(s) most suitable for the present study.

To help facilitate the object selection process, the same temporal (i.e., c.1250 – 1550) and geographical (i.e., Latin West) criteria were employed as for Phase I above (see Chapter 3.4.2.). However, as Gothic art from Northern Europe is particularly well represented in the Burrell, an additional parameter was devised to help focus object selection even further, namely ***object type***: as the main aim of this thesis is to explore digital interpretation of medieval Christian collections (see Chapters 1 and 2), object selection was limited to those artefacts within the Burrell's

medieval collection that were produced and used in devotional contexts only (public and/or private).

Once these parameters were set, a period of in-depth collection-based research was conducted to allow for increased familiarisation with the Burrell's medieval holdings. Provided with access to Glasgow Museums' collections management software, MIMSY XG, which documents and describes the Burrell's entire medieval collection, a list was compiled of objects that met the requirements above, and which were deemed particularly suitable for digital enhancement and engagement (see Fig. 3-3).[175]

Figure 3-3. A Variety of Objects Considered for Selection in Phase II.
The Burrell Collection © CSG CIC Glasgow Museums Collection.

Informed by both the theoretical input from the literature review and the findings from Phase I, it was sculpture, in particular, which emerged as an object type with distinct potential for the present project.[176] One of the prime media used in the medieval period, sculpture is also one of the

[175] Access to MIMSY XG was kindly facilitated by Glasgow Museums. Objects depicted in Fig. 3-3: From left to right, *Book of Hours*, Book. Brittany, North-Western France, Mid. 15th century. Vellum, velvet, metal, ID Number 4.3; *Head of St John the Baptist*. Panel. England c.1480. Alabaster, polychrome, gilt, wire, ID Number 1.34; *The Lamentation.* Tapestry; altar frontal; antependium. Alsace, c. 1450-1460, ID Number 46.32; *Virgin and Child*. Figure. Northern France, 1500-1525. Stone, polychromy, ID Number 44.5. Objects can be consulted in the Glasgow Museums Collections Navigator, http://collections.glasgowmuseums.com/mwebcgi/mweb?request=home.

[176] As touched upon in the literature review, sculpture has emerged as a key focus in studies on medieval sensory perception, especially regarding haptic visuality. See, for instance, Jung, "The Tactile and the Visionary,": Sand, "*Materia Meditandi*,".

foremost types of objects encountered by visitors in public displays of medieval art today. Crucially for this project, Phase I of this thesis furthermore revealed that, compared to other object types initially considered for this project, such as illuminated manuscripts and tapestries which are routinely enhanced digitally (either to explore their iconography or production), devotional sculpture featured comparatively little as part of the in-gallery digital provision among the institutions investigated (see Appendix A.2).

Among the wide range of sculptural types in The Burrell Collection, the initial choice fell on a fifteenth-century alabaster Pietà (ID Number 1.25), attributed in provenance to the atelier of the Master of Rimini – a Southern Netherlandish craftsman named after a Crucifixion group at the church of Santa Maria delle Grazie in Rimini, and now held in Liebighaus, Frankfurt-am-Main – and the first Pietà of its type to be acquired in the UK (see Fig. 3-4).[177]

Figure 3-4. Pietà, figure group, alabaster with polychrome, Southern Netherlands, now Belgium, c.1430-50. The Burrell Collection, ID Number. 1.25 © CSG CIC Glasgow Museums Collection.

[177] The V&A acquired its example (A.28-1960) in 1960. For further information visit <http://collections.vam. ac.uk/item/O94288/the-virgin-with-the-dead-statue-master-of-rimini/>. On the Burrell's medieval sculpture collection, see Richard Marks, "Medieval Sculpture in the Burrell Collection," *Apollo Magazine* 118, no. 260 (1983), 284-91.

As one of the most popular (and enduring) visual expressions of late medieval piety, the Burrell Pietà not only meets the selection criteria outline above, it is also a motif which is encountered with distinct ubiquity in museal contexts today and was thus deemed ideally suitable for exploring audience engagement.[178] More importantly for the present study, however, the Pietà has emerged as an iconographic motif with thus far untapped potential for digital augmentation and enhancement. Thus, although Pietàs were recorded in most, if not all, galleries investigated in Phase I of this research, no instance was identified in which they were interpreted digitally. Instead, if interpreted, interpretation was typically limited to an object label giving year, media, provenance (and maker/patron, if known) as well as a brief description of the motif and figures depicted.

Once the decision was made to move forward with the Burrell Pietà, subsequent desk research centred exclusively around the history of the motif, its meanings and uses in the past, as well as how the digital could be used meaningfully to translate these insights to the public. One of the main design principles guiding the digital interpretation design was to draw increased attention onto the chosen artefact instead of distracting

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[178] As well as depicting a subject characteristic of late medieval piety, 1.25 is also representative of a type of material equally representative of its time, alabaster. For recent discussions of English alabaster, see, for instance Zuleika Murat, ed., *English Alabaster Carvings and their Cultural Contexts* (Woodbridge, Suffolk: Boydell & Brewer, 2019); and Jessica Brantley, Stephen Perkinson and Elizabeth C. Teviotdale, eds., *Reassessing Alabaster Sculpture in Medieval England – Studies in Iconography: Themes and Variations* (Medieval Institute Publications, 2021). For essays on alabaster carvings from The Burrell Collection in particular, see Claire Blakey, Rachel King and Michaela Zöschg, "'Tabernacles, Howsynges and Other Things'. Three Alabasters from The Burrell Collection in Context," in *English Alabaster Carvings and their Cultural Contexts*, ed. Zuleika Murat, (Woodbridge, Suffolk: Boydell & Brewer, 2019), 173-93; and Sophie Philipps and Stephanie de Roemer, "Conservation Study of Three Alabaster Carvings from The Burrell Collection, Glasgow Museums," in *English Alabaster Carvings and their Cultural Contexts*, ed. Zuleika Murat (Woodbridge, Suffolk: Boydell & Brewer, 2019), 194-213.

away from it. It was thus vital to choose a digital solution that allows for the physical (i.e., the Burrell Pietà) and the digital to come together meaningfully. After an in-depth review of potential cultural heritage applications (including those identified as part of Phase I above, see Appendix A.2), projection-based visualisations emerged as ideal visualisation technique for the present project as it allows – compared to other immersive tools that rely on interfaces or head-mounted displays (HMDs) such as VR – for digital content to be superimposed directly onto a real artefact in a co-located visualisation process without any damage to the original.

To limit the risks related to continuous object handling, testing, and transportation that this research required, it was clear from the start that digitally augmenting the original piece for research purposes was out of the question. Instead, the decision was made to produce a 3D-printed replica of the Pietà and use the resultant print to execute and evaluate the digital interpretation designed as part of this research. A vital, first step in the production of any kind of 3D print is the acquisition of a large number of high-resolution photographs of the object in question.

In the case of the Burrell Pietà, however, the photographs on file at Glasgow Museums were insufficient – only six photographs were available via the museum's online collection catalogue (see Fig. 3-5) – and it quickly became clear that, in order to produce a 3D print, the artefact had to be scanned from scratch.[179]

[179] Confirmation about the available photographs was sought from Glasgow Museum's Publishing, Commissioning and Licensing manager prior to 3D scanning.

Figure 3-5. Alternate Images of the Pietà, figure group, alabaster with polychrome, Southern Netherlands, now Belgium, c.1430–50. The Burrell Collection, ID Number. 1.25 © CSG CIC Glasgow Museums Collection.

Due to a series of issues relating to the Burrell Renaissance Project, however, direct access to the Pietà was restricted during this vital period of the research.[180] And while such difficulties are part of the reality of carrying out applied, collaborative research, for the present study this meant that, for Phase II of this thesis to continue as planned, a different item from the Burrell's medieval collection had to be selected. Informed by the same object selection criteria used at the beginning of this phase, the artefact that was consequently chosen was *The Lamentation of Jesus Christ* (Object Number 1.24), which entered Burrell's 50-piece strong English alabaster collection in 1955 (see Fig. 3-6).[181]

[180] During this period, the Pietà was on display at "The Burrell at Kelvingrove – Collecting Medieval Treasures," exhibition (Kelvingrove Museum and Art Gallery, Oct 2018 – Jul 2019). Research was conducted into the potentialities of scanning the object directly through the glass case in which it was displayed. While possible, concerns were raised about the likely reflectance of the glass case and its impact on the quality of the resulting photographs. Combined with concerns about the physical set up required for the scanning (i.e., tripod; lights; etc.), and the negative impact(s) this may have on the visiting experience of other visitors in the exhibition, led to efforts of scanning the Pietà being abandoned.

[181] Sir William Burrell kept meticulous records of all his purchases dated from 1911 onwards. The entry on *The Lamentation* documents that Burrell purchased the relief for £280 on the 28th of May 1955 from Samuel W. Wolsey, an English-based antique dealer of whom Burrell acquired many of his other English alabasters. Access to purchase books was kindly facilitated by Glasgow Museums.

Figure 3-6. The Lamentation of Jesus Christ, panel, alabaster, gilt paint and possibly polychrome, English, late 15th century, The Burrell Collection, ID Number 1.2 © CSG CIC Glasgow Museums Collection.

One of the fullest lamentations of its kind to have survived, the Burrell Lamentation depicts the Virgin Mary as she cradles the body of her dead Son on her knees.[182] To Mary's right – discernible by her headdress – stands Mary Magdalene anointing Christ's head; on her left, she is flanked by St John the Evangelist, identifiable by the pointed locks over his forehead, and by the book he holds. Behind the Virgin stands a group

[182] W. L. Hildburgh, "Studies in Medieval English Alabaster Carvings III: English Alabaster Representations of the 'Lamentation over the Dead Christ'" *The Journal of the British Archaeological Association* XIX (1957): 14. Francis W. Cheetham, one of – if not *the* – foremost scholars in medieval English alabaster identified 13 extant examples of alabaster panels depicting The Lamentation of Christ, among them Inv. 1.24. See, *Alabaster Images of Medieval England* (Woodbridge: The Boydell Press in association with The Association for Cultural Exchange, 2003), 93-4.

of mourners, thought to represent (from left to right) Nicodemus, Joseph of Arimathea and Mary Cleophas, sister of the Virgin.

Despite iconographic variations to the Pietà (i.e., ID Number 1.25) due to the inclusion into the composition of surrounding mourners, the Burrell Lamentation proved an ideal alternative in that the similarities in date, subject matter and medium allowed for the desk research carried out up to that point to be adapted with relative ease.

3.5.3. Step 2: Prototype Design and Development

With object selection complete, Step 2 of Phase II involved the design and development of the *Tears of Our Lady* interpretation and prototype. As touched on above, focus, in this section, is on the implementation process only, that is, the practicalities (physical & technical) involved in the actual making of the prototype: (i) *object capture and 3D printing*, (ii) *content creation software(s)*, and (iii) *prototype setup and hardware*. Any details pertaining to the digital content design, including individual design choices, are discussed at length in the following chapter (see Chapter 4).

(i) Object Capture & 3D Printing

3D Scanning. As touched upon above, all collaborating partners agreed that digitally enhancing the original artefact would not be possible due to a series of safety concerns. Instead, the decision was made to produce a 3D-printed replica of the Burrell Lamentation (Object Number 1.24) using photogrammetry. Carried out in collaboration with 3D visualisation specialists from the Glasgow School of Art's School of Simulation and Visualisation (hereafter SimVis), the Burrell Lamentation was photographed using a Nikon D810 standard camera at maximum resolution (36.6-MP full-frame CMOS sensor, Sensor size 35.9 x 24.0 mm, max image resolution ~ 7360 x 4912 pixels) from 360˚ at a distance of approximately 80cm. To delimit any reflectance of the alabaster, linear

polarising filter films were attached over any direct lights to ensure that any direct light hitting the surfaces was polarised. Using a circular polarising filter on the camera, and rotating as necessary, meant that reflected light could thus be almost cancelled out completely. Any remaining image exposure was adjusted during processing. Overall, 274 photographs were taken.

Processing. All 274 photographs of the Burrell Lamentation were imported in RAW format into Agisoft Metashape (previously known as Photoscan) for the processing of the point cloud. As part of the processing, all irrelevant elements on the source photos were masked manually, the photographs were aligned and any noise (i.e., visual distortions) deriving from the alignment the photographs was removed. The resulting Dense Point Cloud was then used to generate a polygonal mesh model of the relief (see Fig. 3-7).

Figure 3-7. 3D Model (left) and 3D Print (right).

3D Print. In a final step, the 3D model was exported into 3D Studio MAX where it was checked for holes before being printed.[183] The resulting 3D print (see Fig. 3-7) - identical in size and depth to the

[183] The printing was carried out by Rob Jackson at Dundee Contemporary Arts.

Burrell Lamentation relief – was then animated digitally using projected audio-visual content.

(ii) Content Creation Software(s)

As part of the *Tears of Our Lady* interpretation, two types of digital content were created: *a) visualisations* and *b) an evocative soundscape.*

Visualisations. Based on the 3D geometry information obtained from the 3D scanning process, all animations and visual effects were designed in collaboration with FX TDs at Axis Animation, Glasgow, using SideFX's Houdini, a 3D animation software popular for use in films, TV, and games. The interpretive, visual layers thus created consist of two main components, figural enhancements, and animations as well as digital re-colouring. Over the course of the development process, eight versions of the *Tears of Our Lady* interpretation were designed. The final version – which is discussed in detail below – was saved as a MOV file and was used as digital overlay to augment the 3D replica.[184]

Audio. In addition to a visual layer, an evocative soundscape was designed using Ableton Live. Selected samples were layered, looped, and carefully mapped onto the visuals to enhance them aurally.

A detailed discussion of the audio-visual content including a step-by-step visual narrative of the final *Tears of Our Lady* interpretation is included in the next chapter (see Chapter 4).

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[184] The digital interpretation is available at [link removed due to potential Copyright restrictions].

(iii) Protoype Setup & Hardware

To ensure accurate alignment of the digital content when superimposed, the visual layers were configured to augment the 3D replica at a fixed location. Accordingly, the 3D replica was securely placed on one plinth (1200h), with the projector located on a second, identical plinth at a 1.20m distance, and carefully calibrated to ensure that the projected digital layer aligned with the replica (see Fig. 3-9).

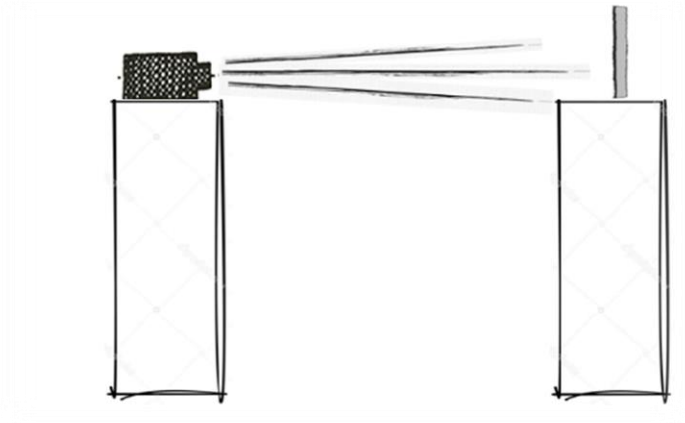

Figure 3-9. Diagram of the Physical Set-Up of the Prototype.

The resultant prototype 3D replica of the Burrell Lamentation was used with the digital interpretation created with a single LCD projector (BENQ, SVGA Business Projector, MS506) and a set of speakers, both attached to a laptop with access to the MOV file.

3.5.4. Step 3: Prototype Evaluation

As a last and final step of Phase II, the *Tears of Our Lady* interpretation and prototype was evaluated with different users.

Evaluation Methodology & Approach

The aim of the evaluation was to assess the impact of the interpretative approach adopted on users' experience of and reaction to *The*

Lamentation of Jesus Christ (ID Number 1.24) and to provide insights for further developments.

Based on the interpretive aims defined as part of the *Tears of Our Lady* interpretation (see 3.5.1 above), the evaluation set out to qualitatively measure the following:

Interpretive Aim(s)	Evaluation Objective(s)
Engagement	Does the *Tears of Our Lady* interpretation enable participants to be engaged with the Burrell Lamentation beyond stylistic emphasis?
Reflection	Does the *Tears of Our Lady* interpretation encourage participants to actively reflect on the potential meanings and uses of the Burrell Lamentation?
Interest	Having experienced the *Tears of Our Lady* interpretation, do participants indicate interest in finding out more about the Burrell Lamentation, in specific, and, by extension, about other objects of its kind?
Viewing Attention	Does the *Tears of Our Lady* interpretation encourage participants to look at the Burrell Lamentation in more detail without distracting from it?

Table 3-3. Evaluation Objectives.

In order to address these objectives fully and from a variety of perspectives, evaluation methods were required that would allow users to self-report on their own thoughts, beliefs, and attitudes as well for the researcher to report any observations regarding user behaviour and experience. As a result, a triangulated multi-method approach was adopted that consisted of (a)

qualitative, semi-structured interviews, (b) *participant observation* and (c) *self-administered questionnaires*.[185]

Before outlining the rationale underpinning each data collection method adopted, however, a note is in order regarding COVID-19, and the drastic impact the pandemic had on the in-person evaluation plans.

Impact of COVID-19 on the Evaluation Methodology

The *Tears of Our Lady* evaluation was set to begin in March 2020.[186] Due to the sudden onset of the COVID-19 pandemic in mid-March, however, and the ensuing nationwide lockdown measures, all in-person evaluation plans had to be abandoned only days before the first evaluation activities were to start.

The original plan was to evaluate the *Tears of Our Lady* prototype and interpretation using the above evaluation instruments during two data collection stages. Specifically, it was planned to trial the prototype in the first instance with focus groups consisting of a small number of targeted participants (UofG students and staff; GM advisory panels), before running a second, larger scale evaluation with randomly targeted GM visitors onsite. As The Burrell Collection itself was closed to the public during that period because of the refurbishment, the on-site testing was set to run at the Kelvingrove Art Gallery and Museum as its visitor demographic closely echoes that of the targeted audience groups of the

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[185] On triangulation in qualitative research see, for instance, Denzin, *Sociological Methods: A Sourcebook*; Flick, *Doing Triangulation and Mixed Methods*; and Flick ed., *The SAGE Handbook of Qualitative Data Collection* (London: SAGE Publications Ltd, 2018).

[186] All evaluation plans and activities were reviewed and approved by the UofG's College of Arts Research Ethics Committee [18 July 2019]. Similarly, all evaluation plans requiring access to Glasgow Museums' venue and/or panels were agreed upon by Glasgow Museum's Visitor Studies curator who acted as the main gatekeeper during this research project. A copy of the (revised) ethics application in question can be found in Appendix B.

Burrell once it would reopen.[187] Any findings and insights gathered about the *Tears of Our* Lady prototype and interpretation by these audience groups could thus have been used to inform the Burrell directly. Due to the COVID-related closures of both the UofG campus and GM facilities, all evaluation plans (Stage 1 and 2) had to abandon the in-person element and be completely rethought.

In order to evaluate the *Tears of Our Lady* following these government-imposed restrictions, mitigating actions had to be put into place that would allow for the evaluation activities to take place without jeopardizing the health and safety of any of the human participants involved.[188] As a result, all face-to-face evaluation plans and activities were transferred online to take place via the video-conferencing platform Zoom.

From Face-to-Face to Online Evaluation: The *Tears of Our Lady* Prototype Goes Virtual

Pivotal to this shift in research environment and data generation format was to determine how to evaluate the *Tears of Our Lady* prototype with participants when the latter were no longer able to experience it first-hand. Informed by initiatives adopted by other museums and cultural heritage institutions as a result of COVID-19, the transfer from face-to-face to online evaluation necessitated the ad hoc remaking of what was originally designed as a physical, in-person installation into a virtual experience. The result was the creation of a purposively curated

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[187] The target audiences referred to here, along with the Burrell Renaissance Project other aims and objectives, are discussed in more detail in the following chapter.

[188] All COVID-related modifications to the evaluation methodology, and subsequent implications on the consent process, were communicated to, and approved by the UofG's College of Arts Research Ethics Committee [15 September 2020]. See Appendix B.

installation video of the *Tears of Our Lady* prototype.[189] Accessible virtually, the resulting video installation could be shared with participants synchronously online via Zoom.[190]

While the use of online platforms such as Zoom is becoming increasingly recognized as a viable option for carrying out qualitative interview research remotely, it was nonetheless crucial for the present evaluation to assess the feasibility of the installation video for capturing the impact of the digital interpretation on participants and, should it fail to do so, consider devising an alternative.[191]

An essential first stage of the re-adapted evaluation plan thus consisted of carrying out a pilot study.

Pilot Study: Rationale & Objectives

Defined as a small-scale, preliminary study or trial run to assist in the preparation of a larger, more comprehensive study, pilot studies are typically carried out to pre-test the feasibility of a proposed research endeavour.[192] Pilot studies are recommended especially when – as was the case here – study designs undergo a major change in format.[193] Simulating the formal data collection process, pilot studies are carried out

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[189] The installation video is available at [link removed due to potential Copyright restrictions].

[190] In line with UofG's post-COVID guidance on remote interviewing and data security, only the desktop version of Zoom was used.

[191] On the feasibility of Zoom for qualitative data collection, see Mandy M. Archibald, Rachel C. Ambagtsheer, Mavourneen G. Casey and Michael Lawless, "Using Zoom Videoconferencing for Qualitative Data Collection: Perceptions and Experiences of Researchers and Participants," *International Journal of Qualitative Methods* 18 (2019), 1-8, https://doi.org/10.1177%2F1609406919874596.

[192] Lehana Thabane, Jinhui Ma, Rong Chu, Ji Cheng, Afisi Ismaila, Lorena P. Rios, Reid Robson, Marroon Thabane, Lora Giangregorio and Charles H. Goldsmith, "A Tutorial on Pilot Studies: The What, Why and How," in *BMC Medical Research Methodology*," 10, no. 1 (2010), 1-2, https://doi.org/10.1186/1471-2288-10-1.

[193] James B. Schreiber, "Pilot Study," in *The SAGE Encyclopedia of Qualitative Research Methods*, ed. Lisa M Given (London: SAGE Publication, 2008), 624-626.

using the same procedures and tools envisioned as part of the main study; any methodological and/or practical shortcomings identified can be addressed during this preliminary phase, thus increasing the probability of success of any planned, larger-scale research endeavour.

For the *Tears of Our Lady* evaluation in particular, the objectives of the pilot study were to:

1) Assess the viability of the installation video for the evaluation;
2) Assess the feasibility of the post-COVID sampling plans;
3) Pilot data collection process and tools (originally designed pre-COVID);
4) Pilot data management and analysis processes;
5) Identify emergent themes.

Pilot Study: Participant Sample & Recruitment

Without any means for formally contacting Glasgow Museums visitors (physically or electronically), sample selection for the pilot study was necessarily limited to individuals to whom the researcher had approved access during lockdown, that is, students and staff from the University of Glasgow (UofG). The decision was therefore made to first select participants from the Postgraduate Research (PGR) student cohort of the UofG's Information Studies (IS) subject area. Purposively targeted due to their specialist interest in museum studies and digital heritage, these participants were deemed especially well-suited to critically discuss the *Tears of Our Lady* prototype, and to pinpoint any flaws or shortcomings in its design and execution, including the installation video that resulted as part of it.[194]

[194] Although the IS PGR cohort was aware of this topic of this research in general terms, none of the actual pilot participants had either seen the actual, physical installation or the related video installation prior to their respective online session. Similarly, none of them had been briefed on the evaluation aims and objectives at any point before and/or during the research process.

Requests for participation in these pilot sessions were sent via email. A first open but personalised invitation to participate was sent to individual members of the IS PGR cohort (see Appendix C.1). Each email included a brief introduction of the project and informed recipients of the research activities they were invited to take part in, including an estimation of the length of the online evaluation session (approximately 30 minutes). The email included an information sheet which participants were asked to familiarize themselves with before deciding to take part (see Appendix C.2); the sheet informed prospective participants about the purpose of the study, how and what data would be collected from them, as well as ownership and right to access data provided. As participation was entirely voluntary, recipients were also informed that they had the right to opt out of the experiment at any point in time. Similarly, as COVID-19 necessitated all interviews to take place online via Zoom, all information sheets were revised to include a note regarding Zoom's privacy policy. All participant sheets concluded with a set of contact details of the supervisory team for further questions or complaints. Overall, seven IS PGRs were thus contacted, and all agreed to participate in the study.

Once recipients agreed to participate in the research project, a Zoom session was arranged in line with their availability. At this stage, all participants were sent a consent form outlining the mode of recording (including video capture), anonymization of data, use (and re-use) of data and data storage which they were asked to complete, sign, and return to the researcher *prior* to data collection.[195] Only once participants returned their completed consent form did the researcher forward them the link to the Zoom meeting.

[195] A copy of the consent form is included in Appendix D.

Pilot Study: Data Collection Methods

The pilot study adopted the same data collection methods that were initially planned for the in-person evaluation. These were (i) *semi-structured interviews,* (ii) *participant observation* and (iii) *self-administered questionnaires (SAQs).*

(i) Semi-structured Interviews. Interviewing is one of the key data collection tools in qualitative research as it allows gaining in-depth insights into a subject's personal thoughts, feelings, beliefs, and attitudes about a particular research phenomenon.[196] For the purpose of the *Tears of Our Lady* evaluation, semi-structured interviews were used. Compared to structured interviews in which the interviewer adheres to a formalised set of questions for each respondent, semi-structured interviews are based on a tentative interview guide outlining a set of topics based on the areas the researcher wants to cover.[197] Accordingly, instead of a rigid question-answer format, semi-structured interviews provide the researcher with the flexibility to follow up (through probing) on points of interest raised by the interviewee, including topics that might not have been initially predicted, thus allowing for a two-way conversation to evolve naturally that enables interviewees to share subjective views in their own words. This support of participants' self-reporting ability made them particularly suitable for the *Tears of Our Lady* evaluation.
In practice, preparing the semi-structured interviews involved designing interview questions that were broad enough to allow participants to relate answers in their own words yet focused enough to ensure that the responses generated adequately addressed the evaluation objectives defined. Care was taken to accurately map questions onto the evaluation

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[196] Sevnd Brinkmann, "Unstructured and Semi-Structured Interviewing," in *The Oxford Handbook of Qualitative Research*, 2nd ed., ed. Patricia Leavy (New York: Oxford University Press, 2020), 424, https://doi.org/10.1093/oxfordhb/9780190847388.013.22.

[197] Brinkmann, "Unstructured and Semi-Structured Interviewing,", 435-6.

objectives, and structure them so that they would allow for a conversation to develop in a natural, but logical way. To ensure the validity of the interview questions, draft templates were pre-tested with the supervisory team. Additional feedback was provided by GM's Visitor Studies curator who, as an expert in the field, confirmed that all questions were clear, conversational in tone and avoided any unnecessarily technical language.

The interview guide which thus resulted constituted of a set of 13 questions, the majority of which take the form of open-ended questions to encourage participants to reflect on what they see, hear, think, or feel as well as more structured questions aimed at yielding more specific insights into participants' interest, emotional engagement and connection. In the few cases in which close-ended questions were used (N=4), care was taken to ensure that these could function as gateways to open-ended probing.[198]

As the interview was aimed at gaining insights into the impact of digital interpretation on user experience, a pre- and post-experience evaluative approach was adopted. This meant that participants were first asked to vocalise their thoughts and opinions on the Burrell Lamentation without any kind of interpretation, digital or other. Only after that was the object shown with the digital interpretation, and participants asked to comment on its impact on their experience. The same interview guide was used for all participants to ensure comparability of data. A copy of the interview guide is included in Appendix E.1.

(ii) Participant Observations. The data gathered via the semi-structured interviews were corroborated through the observation of participants. A

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[198] William C. Adams, "Conducting Semi-Structured Interviews," in *Handbook of Practical Program Evaluation,* eds. Kathryn E. Newcomer. Harry P. Hatry and Joseph S. Wholey (Hoboken, NJ: John Wiley & Sons, 2015), 497.

staple research tool in visitor research, visitor observation involves the systematic identification and analysis of visitor behaviour in exhibition and other public spaces.[199] Traditionally used for recording visitor numbers and/or tracking visitor movements within galleries, detailed, systematic observations further allow researchers to record additional physical behaviours that participants may display when interacting with an exhibit.[200] As part of the *Tears of Our Lady* evaluation, all observable behaviours displayed by online participants during the interviews were systematically recorded and analysed. This included any vocalisations indicating attention, and/or engagement as well as external, non-verbal cues, such as facial expressions or gestures.

(iii) Self-administered questionnaires (SAQs). Once the interview sessions concluded, all participants were asked to complete a self-administered exit questionnaire. Designed as a five-point Likert scale, ranging from "strongly agree" to "strongly disagree" (each verbal label paired with a respective facial emoji), the SAQ asked participants to indicate their level of agreement to a set of predefined, closed-ended statements regarding specifics of the digital interpretation method underpinning the *Tears of Our Lady* prototype. As SAQs are designed to be completed by respondents without direct supervision by the researcher, their layout needs to be straightforward, with concise instructions and questions worded in such a manner that they are interpreted by all respondents in the same way.[201] To ensure that was the case, the questionnaire was reviewed by the supervisory team at various stages during the design process in order to omit any ambiguous, double-barrelled and/or leading questions; one way the latter was counteracted, for instance, was by

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[199] Judy Diamond, Michael Horn and David H. Uttal, *Practical Evaluation Guide: Tools for Museums and Other Informal Educational Settings*, 3rd ed. (Lanham, MA: Rowman & Littlefield, 2016), 53-64.

[200] Diamond et al., *Practical Evaluation Guide*, 53-64.

[201] Petra Lietz, "Research into Questionnaire Design: A Summary of the Literature," *International Journal of Market Research* 52, no. 2 (2010): 250-52.

including both positive and negative statements (C2 and C3) and so impede participants from falling into the habit of continuously ticking one column.[202]

Early drafts of the questionnaire included questions on demographic data relating to participants' personal profiles, including gender, age, ethnicity and religious affiliation. Although the potential correlation between participants' religious identity and their response(s) to the *Tears of Our Lady* prototype was considered useful for the study, the other demographic variables were reviewed and ultimately omitted from the final questionnaire as the researcher opted to code these herself. The questionnaire which thus resulted (see Appendix E.2) comprised of a total of nine closed-ended statements, and one optional demographic variable. The same questionnaire was used for all participants. The data generated were used to triangulate the self-descriptive answers gathered via the semi-structured interviews.

Pilot Study: Interview Procedure

The pilot study carried out as part of this project ran during a three-week period in October 2020. During this period, semi-structured interviews were carried out with seven participants via Zoom. All interviews were carried out by the principal researcher, and – if participants consented – were recorded to aid in the transcription of data.[203]

To ensure the reliability of the data gathered during the pilot phase, each interview followed the same study protocol: after welcoming each participant and thanking them for participating in the study, the researcher briefly introduced her research project and the participant's

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[202] Lietz, "Research into Questionnaire Design," 253-55.

[203] For an outline of the data capture, management, and analysis process, see following section.

role within it. This included a verbal relay of the ethical issues that may arise from their involvement in the study, including confidentiality, anonymity, and mode of recording. Although these issues were outlined in the administered forms (both participant sheet and consent form), this gave participants an additional opportunity to raise any issues or concerns. Once confirmation was received that all forms were indeed clearly understood, the online evaluation proceeded to the actual research activities.

Each interview began with the researcher sharing her screen virtually and asking participants to verbalise their thoughts and feelings towards the Burrell Lamentation (ID Number. 1.24) as shown in the video, without any kind of interpretation – digital or other – but a static photograph of the latter projected onto an otherwise bare replica. Only once the object was discussed in detail, and prior interest and engagement successfully established, did the researcher play the installation video which shows the Burrell Lamentation *with* its planned digital interpretation, and participants were asked to discuss its impact on them. On average, each of these interviews lasted between 25 and 35 minutes. During each interview, detailed notes were taken of any observed participant behaviours, including vocalisations indicating attention, and/or engagement as well as external, non-verbal cues (i.e., facial expressions or gestures).

At the end of the online sessions, the researcher thanked each participant for their input and confirmed whether they were still willing to complete a self-administered exit questionnaire (SAQ). All pilot participants gave their agreement, and each was sent the same questionnaire via email. The return of the completed questionnaire officially concluded the pilot evaluation protocol.

If consent was given for the interview to be recorded for transcription purposes, all videos were downloaded, encrypted, and stored securely on a password-protected account at the University of Glasgow’s approved

cloud storage solution OneDrive for Business. Once securely downloaded and encrypted, all online files were deleted. Combined with the completed SAQs, all transcripts thus generated were labelled accurately, and stored in a digital folder. Hard copies or written materials resulting as part of the study (i.e., hand-written notes; paper copies of transcripts to aid manual coding; etc.) were stored safely in a locked filing cabinet to which only the researcher had access. The identities of all participants were obscured using pseudonyms; documents with personally identifying information (master list; consent forms) were stored separately from the other data at all times.

Pilot Study: Data Analysis Approach & Process

Once the pilot study was completed, all data was qualitatively analysed using thematic analysis (TA). One of the most common methods of analysis used in qualitative research, TA entails the identification, analysis and reporting of patterns or themes (both implicit and explicit) within a given dataset; once individual themes are identified they are then analysed and interpreted in line with the research question(s).[204] While various approaches to thematic analysis exist, this research draws on a distinct approach defined by Virginia Braun and Victoria Clarke, known as "reflexive TA", which puts "researcher subjectivity, organic and

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[204] Virginia Braun and Victoria Clarke, "Using Thematic Analysis in Psychology," *Qualitative Research in Psychology* 3, no. 2 (2006): 77-101, https://doi.org/10.1191/1478088706qp063oa; Braun and Clarke, "Thematic Analysis," in *APA Handbook of Research Methods in Psychology: Research Designs*, Vol. 2., eds. Harris Cooper, Paul M. Camic, Kenneth Sher, Abigail T. Panter, Debra Long and David Rindskopf (Washington: American Psychological Association, 2012), 57-71; Braun and Clarke, *Successful Qualitative Research: A Practical Guide for Beginners* (Thousand Oaks, CA.: SAGE Publications Ltd., 2013). See also Richard E. Boyatzis, *Transforming Qualitative Information: Thematic Analysis and Code Development* (Thousand Oaks, CA: SAGE Publications Inc,, 1998); Matthew B. Miles and A. Michael Huberman, *Qualitative Data Analysis: An Expanded Sourcebook,* 2nd ed. (Thousand Oaks, CA: SAGE Publications Inc., 1994); Greg Guest, Kathleen M. MacQueen and Emily E. Namey, *Applied Thematic Analysis* (Thousand Oaks, CA.: SAGE Publications Inc., 2012); Patton, *Qualitative Evaluation and Research Methods*; and Johnny Saldaña, *The Coding Manual for Qualitative Researchers*, 4th ed., (Thousand Oaks, CA.: SAGE Publications Inc., 2021).

recursive coding processes, and the importance of deep reflection on, and engagement with, data" at the centre of the analytic process.[205] TA was deemed particularly useful for this project as it allows for the generation of deep and nuanced insights from a given data set.

In line with Braun and Clarke's guide to "doing TA", data analysis included the following six phases: (1) data familiarisation (and writing familiarisation notes); (2) systematic data coding; (3) generating initial themes from coded and collated data; (4) developing and reviewing themes, (5) refining, defining, naming themes; and (6) writing up findings.[206] Although organised in sequential order, it is important to note that TA, like most approaches to qualitative analysis, is an inherently iterative and recursive process which requires the researcher to move back and forth between phases as necessary. Accordingly, rather than as a rigid, linear process, this six-phase process was used in this project as a set of guidelines to help facilitate data analysis.[207]

The analysis process began with the researcher familiarizing herself with the data.[208] Starting with carefully (re)listening to each interview recording in turn, she then transcribed these. Once an interview transcript had been created, it was printed off and read over multiple times. Any

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[205] Braun and Clarke, "Using Thematic Analysis," 78; Braun and Clarke, "Reflecting on Reflexive Thematic Analysis," *Qualitative Research in Sport, Exercise, and Health* 11, no. 4 (2019): 589-97, https://doi.org/10.1080/2159676X.2019.1628806. See also, Braun and Clarke, "One Size Fits All? What Counts as Qualitative Practice in (Reflexive) Thematic Analysis?," *Qualitative Research in Psychology* 18, no. 3 (2020): 328 - 52, https://doi.org/10.1080/14780887.2020.1769238; Gareth Terry, Nikki Hayfield, Victoria Clarke and Virginia Braun, "Thematic Analysis," in *The SAGE Handbook of Qualitative Research in Psychology*, eds., Carla Willig and Wendy Stainton Rogers (Thousand Oaks, CA., SAGE Publications Inc., 2017), 17-36; David Byrne, "A Worked Example of Braun and Clarke's Approach to Reflexive Thematic Analysis," *Quality & Quantity* (2021), https://doi.org/10.1007/s11135-021-01182-y.

[206] Braun and Clarke, "One Size Fits All? What Counts as Qualitative Practice in (Reflexive) Thematic Analysis?," 331.

[207] Terry et al., "Thematic Analysis," 27-8.

[208] Terry, et al., "Thematic analysis," 28.

observations of initial trends in the data or potentially interesting passages were noted by hand.

Once familiar with the data, initial codes were generated.[209] Coding in qualitative research involves the identification and labelling of important sections of texts (ranging from individual words or full sentence to whole paragraphs) that may be of relevance to the research question(s) under investigation.[210] In line with the analytic purpose of the evaluation which aimed at assessing the impact of the *Tears of Our Lady* interpretation in relation to pre-defined variables (i.e., engagement, reflection, interest and viewing experience), the preliminary coding process, especially, involved assigning codes to any data item that might be useful in addressing the evaluation aims and objectives. As the analysis process continued and further familiarity with the data developed, some existing codes were iteratively refined and modified, while other points of interest began to derive inductively from the data itself. Throughout the process, care was taken to manually annotate and/or colour-code any relevant data items identified.

Once satisfied that all relevant data items were coded, the researcher proceeded to theme development. As part of this phase in the analytic process, all codes across the dataset were re-analysed and combined according to shared meanings to form potential themes. Central to any theme development is to ensure that the generated themes help answer the research question(s) at hand. For this analysis, this meant that participants' pre- and post-experience responses were collated and analysed individually. To aid theme development, data items were transferred by hand onto post-it notes; used as visual aids, these were then clustered according to their similarity, moved, and indeed re-moved

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[209] Terry et al., "Thematic analysis," 31.

[210] On coding in qualitative research see Saldaña, The *Coding Manual for Qualitative Researchers*.

as themes (and subthemes within them) were reviewed and refined iteratively as the analytic process continued. Overall, 7 main themes were thus generated, including 4 subthemes. To corroborate these analytic claims, each theme (including subthemes and discrepant data) was substantiated by illustrative data extracts (i.e., anonymised participant quotations). Selected as they capture the richness of the data, the extracts were then interpreted in relation to the evaluation objectives as well as the wider research questions and literature that inform this thesis at large (see Chapters 5 and 6).

In line with the triangulated multi-method approach adopted as part of the *Tears of Our Lady* evaluation, all themes from the interviews were corroborated and extended by the data recorded via the self-administered questionnaires (SAQs) which each participant was asked to complete. Compared to the semi-structured interviews, however, the analysis of the SAQs was relatively straight-forward, and consequently less time-consuming. Constituting of a set of nine closed-ended statements which participants were asked to rate using pre-determined response categories (here a five-point Likert scale ranging from “strongly agree” to “strongly disagree”), participant answers to each of the nine statements were collated and the quantity of responses to each fixed category calculated. A graph visualising the results of the SAQ is included in Appendix E.3.

Pilot Study: Methodological Outcomes

No major methodological issues were recorded during the pilot regarding the shift of the *Tears of Our Lady* interpretation from a physical to an online environment. As a result, it was decided to expand the evaluation at a second stage, to include a larger pool of participants. As a result, all emergent themes of the pilot study (Objective 5) are outlined and discussed as part of the main findings discussion in Chapter 5.

Pilot Study Objective 1: Assess the viability of the installation video for the evaluation

The pilot study confirmed the adequacy of the curated installation video as a suitable alternative to the planned in-person evaluation. More importantly for the present discussion, however, findings revealed that, albeit not being able to replicate the exact viewing experience of the physical *Tears of Our Lady* prototype, the affordances offered by the video (i.e., camera movement; close-ups) enabled participants to engage with the installation in ways that the physical counterpart would not have permitted.

Some minor technical issues were recorded with the real-time sharing of the audio embedded in the evaluation video (ultimately solved by fully loading the video file prior to the start of each Zoom session) and background noise in the researcher's and participants' environments (i.e., dog barking). However, none of these issues negatively impacted the quality of the data collected as such, and it was possible to address these at an early stage in the pilot study and so prevent them from reoccurring.

Pilot Study Objective 2: Assess the feasibility of the post-COVID sampling plans

Despite the necessary adaptation of the sample demographic, data collection during the pilot phase was carried out effectively. Moreover, due to the IS PGRs' own prior background in digital cultural heritage, the pilot group provided particularly reflective comments on the interpretive approach adopted, including the wider questions these raise for visitor engagement, both onsite and online.

Similarly, no issues were recorded with the study invitation email. Indeed, all individuals contacted consented to participate.

Pilot Study: Objective 3: Pilot data collection process and tools

The pilot study showed that it was possible to transfer both the initially planned (pre-COVID) semi-structured interviews and self-administered

forms (i.e., information sheet; consent forms; SAQs) into online formats without difficulty. A minor change this necessitated was that, instead of distributing these forms by hand (as initially planned), these forms had to be sent to each participant via email.

The originally planned observation of participants, however, proved ineffectual once carried out remotely via Zoom. In particular, difficulties were recorded with the multimodal analysis of participants' embodied cues; besides recurring video relays, observations were further hindered by the placement of the webcam which conventionally limits the physical presence of both interlocutors to their heads and shoulders.[211] Unfortunately, this meant that for this project observation of participants failed to provide any qualitative insights into participants' facial and/or gestural behaviour towards the installation. Having proved futile during this preliminary pilot testing, it was deemed highly likely that observations would remain similarly fruitless with a larger sample population and observations were hence discarded as data collection method in the main evaluation process.

In addition to ensuring the viability of the data collection methods, objective 3 also tested if all data collection materials were clear and readily understood by participants in order to avoid misinterpretation, and thus inaccurate completion. This was crucial, especially for the administered forms (i.e., information sheet; consent form; SAQs) which – as stated above – were now sent to participants via email, implying that the researcher was no longer physically present to address any ad hoc

[211] Anna Chiumento, Laura Machin, Atif Rahman and Lucy Frith, "Online Interviewing with Interpreters in Humanitarian Contexts," *International Journal of Qualitative Studies on Health and Well-being,* 13, no. 1 (2018), 5, https://doi.org/10.1080/17482631.2018.1444887; Elena Davitti, "Methodological Explorations of Interpreter-Mediated Interaction: Novel Insights from Multimodal Analysis," *Qualitative Research* 19, no. 1 (2019), 7-29, https://doi.org/10.1177%2F1468794118761492.

issues or concerns. All pilot participants unanimously agreed that the administered forms were clear and easily understood.

However, the pilot study brought to light an unexpected issue regarding the cultural dimension of questions A1 and A2 of the semi-structured interview (see Appendix E.1) which first asked participants to describe the object and then prompted them to talk about the motif and what they thought it showed. While these were included as general, opening questions to ease respondents into the interview process as well as gage their prior knowledge and interest in the research topic, talking about the Lamentation motif and the biblical characters depicted proved noticeably difficult for the one Muslim respondent included in the sample.

The researcher initially attributed the participant's unease with these questions to nervousness or concern about providing potentially incorrect answers. However, once the interview concluded and the video recording had stopped, the participant revealed that, while interested in the subject per se, being asked to describe the biblical figures made them feel uncomfortable. As Christian iconography is traditionally preoccupied with the person and role of Christ (and his followers) – a practice which itself is condemned by many followers of Islam – the researcher became aware that these questions may prove a similar source of consternation for other participants from Islamic backgrounds as well. Consequently, the researcher tried to be more sensitive in the way she asked her questions and adjusted any items accordingly to avoid any similar incidents from reoccurring.

Pilot Study Objective 4: Pilot data management and analysis process

Phase II employed the same data management and storage processes as Phase I above (see Chapter 3.4.4) and, overall, the pilot study confirmed the effectiveness of the chosen strategies. The only aspect that required modification was the transcription process. For although UofG's lecture capture software, Echo360, was used to help speed up the transcription

process, the interview transcripts (generated using Echo360's automatic speech recognition, ASR) varied considerably in their accuracy and had to be reviewed in turn and edited manually. This was further complicated by the researcher's decision to produce full verbatim transcriptions for each interview, which involves transcribing not just *what* is said but also *how* it is said, complete with interjections, filler words, false starts, laughs, and background noises.[212] While identifying and interpreting subtle nuances in speech can be very revealing, especially for projects such as the present one which is aimed at yielding qualitative insights into respondents' subjective point of view, the time spent from first machine-generated draft to fully formatted transcripts (incl., timestamps; speaker identifiers) was considerable, and consequently significantly impacted the research progress. Upon consideration, however, it was deemed sufficient for the purposes of this research to switch from full to clean verbatim for the interviews as a whole and to maintain full verbatim only for those extracts that are discussed as illustrative quotes in the data analysis and final discussion section of the thesis (see Chapter 4).

Pilot Study Objective 5: Identify emergent themes

As no issues were identified during the pilot study that negatively impacted the evaluation outcomes, all emergent themes of the pilot are discussed in Chapter 5, alongside the findings of the main evaluation study.

Main Evaluation Study

After the pilot study confirmed the overall effectiveness of the online evaluation for gathering qualitative data, the *Tears of Our Lady* was

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[212] Elizabeth J. Halcomb and Patricia M. Davidson, "Is Verbatim Transcription of Interview Data Always Necessary?," *Applied Nursing Research* 19, no. 1 (February 2006): 38–42, https://doi.org/10.1016/j.apnr.2005.06.001.

evaluated during a second, main evaluation phase which ran during a 3-week period between December 2020 and January 2021.

Main Evaluation Study: Participant Sample & Recruitment

The main evaluation study employed the same sampling and recruitment strategies as the pilot study above but expanded the sample to include participants from a wider variety of academic backgrounds and interests. Requests for participation were extended beyond the Information Studies PGR cohort to other departments from across the UofG's College of Arts with which IS has close working relationships, including, among others, History of Art, and Archaeology. Similarly, participants were recruited from the University of Strathclyde's Computer and Information Sciences department (i.e., the second HEI partner of this research project) to widen the possible breadth of personal and research interests of the participants involved.

For the purposes of the main evaluation study, data collection and analysis continued until saturation was reached, that is, the point at which different participants provided the same (or similar) comments, and no more new data was being collected.[213] The resulting sample consisted of 10 individuals, all of which hold a postgraduate degree or higher, with five among them having specialist academic training in medieval art and/or literature. Three participants self-identified as religious, whilst one described themselves during the interview as "anti-religious secularist" (Rose_Interview).

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[213] Michael P. Grady, *Qualitative and Action Research: A Practitioner Handbook* (Bloomington, IND.: Phi Delta Kappa Educational Foundation, 1998), 26. See also, Benjamin Saunders, Julius Sim, Tom Kingstone, Shula Baker, Jackie Waterfield, Bernadette Bartlam, Heather Burroughs and Clare Jinks, "Saturation in Qualitative Research: Exploring its Conceptualization and Operationalization," *Quality & Quantity*, 52, no. 4 (2018), 1983 - 1907, https://doi.org/10.1007/s11135-017-0574-8; Jennifer Mason, *Qualitative Researching*, 2nd ed. (Thousand Oaks, CA.: SAGE Publications Inc., 2002), 133-37.

The findings of the qualitative analysis from both the pilot and the main stage are presented and discussed in chapters 5 and 6, respectively. Before presenting these, however, the discussion first turns to a detailed presentation of, as well as a critical reflection on the interpretative framework which guided the (content) design of the *Tears of Our Lady* interpretation.

Chapter 4 *Tears of Our Lady*: Interpretive Framework and Design

4.1. Introduction

Having outlined the methodological decisions involved in the development and evaluation of the *Tears of Our Lady* prototype in the previous chapter, this chapter presents the interpretive framework underpinning the design of its digital interpretation. Drawing on the scholarly research into medieval materiality explored in Chapter 2 of this thesis, this chapter begins by historicising the Burrell's *Lamentation of Jesus Christ* (ID Number 1.24) to explore the engagement and responses (intellectual, somatic, emotive, and imaginative) it would have engendered during the medieval period. Through the adoption of a material, practice-oriented approach to medieval devotion, the aim of the first section of this chapter is to reinforce the main argument of this project, namely, that the now seemingly static medieval artefacts encountered in museums today were originally not just viewed at a disinterested, aesthetic distance but were actively engaged and interacted with through the body, mind, and heart.

Against this backdrop, the second part of this chapter then moves to a critical review of how these insights into the sensory, emotive, and imaginative engagements with medieval devotional artefacts were used to inform the individual design decisions underpinning the *Tears of Our Lady* interpretation. The chapter concludes with a step-by-step visual description of the final digital interpretation.

4.2. Devotional Context: *The Lamentation of Jesus Christ* (ID Number 1.24)

In order to gain insights into how *The Lamentation of Jesus Christ* may have been received and engaged with, one must first determine how and

where it would have been originally displayed. As touched upon in Chapter 2.2, however, this does not come without its problems. Thus, while many artefacts that appear rather plain today would have once been vibrantly coloured, others – now displayed in museums as stand-alone artworks in their own right – are *membra disjecta* that would have once formed part of larger, functional assemblages.[214] This is true especially for the over 2000 individual English alabaster narrative panels, or "tables" to give them their medieval name, like the Burrell Lamentation examined here, that are estimated to have survived today (largely in continental Europe).[215] Designed as individual shrines for private use, complete with ornate shutters to enclose and protect them, for instance, or as one in a sequence of panels to make up an altarpiece, most medieval panel carvings on display in museums today are but fragments of larger compositions. Unfortunately, more often than not, only limited, if any, information survives that allows scholars to make any definite claims about the original contexts, physical settings and/or emplacements in which these panels would have once been experienced. This is not any different for *The Lamentation of Jesus Christ* (ID Number 1.24) under scrutiny here.

As touched upon in Chapter 3, due to Sir William Burrell's meticulous record-keeping, a purchase book entry survives which details how, on the 28th of May 1955, William Burrell purchased an "alabaster table of the Pieta" (i.e., ID Number 1.24) for £280 from Sir W. Wolsey, an English-based antique dealer, who himself is thought to have acquired it in

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[214] Nancy Netzer and Virginia Reinburg, "Introduction," in *Fragmented Devotion: Medieval Objects from the Schnütgen Museum, Cologne* (Boston: Boston College, 2000), 9.

[215] Susan Leibacher Ward, "Who sees Christ? An Alabaster Panel of The Mass of St. Gregory," in *Push Me, Pull You: Imaginative and Emotional Interaction in Late Medieval and Renaissance Art*, eds. Sarah Blick and Laura Gelfand (Leiden: Brill, 2011), 358; Cheetham, *Alabaster Images of Medieval England*, 51-4; Paul Williamson, ed. *Object of Devotion: Medieval English Alabaster Sculpture from the Victoria and Albert Museum* (Alexandria, VA.: Art Services International, 2010),12.

France.[216] Beyond this purchase book entry, however, and the details included in Glasgow Museums' Collection Navigator, no other material or documentary evidence has been found (either in the Burrell correspondence or the Glasgow Museums' archives) which would provide any information on the Burrell Lamentation's pre-accession existence.[217]

Comparative research conducted into relief panels of the same subject matter (i.e., the Lamentation) and medium (i.e., alabaster) proved similarly inconclusive. Thus, despite the wide-ranging, and indeed, enduring, popularity of representations of the Lamentation in all media, alabaster panels of this specific motif (whether English or continental) seem to have been comparatively uncommon in the medieval period. Francis W. Cheetham, for instance, an authority on medieval English alabasters, has identified only thirteen extant alabaster panels depicting *The Lamentation of Christ*, including the Burrell Lamentation itself.[218] Of these thirteen extant examples, only two panels survive in their original emplacement as central panels of a hinged triptych of the Passion of Christ. Both examples, one held at the Church of St Martin in Coudray en Vex in Eure, France, and the other in Skulpturengalerie in Berlin-Dahlem, respectively, are identical but for the saints that adorn the outer edges.[219] Like other fifteenth-century English alabaster altarpieces, these consist of five narrative panels arranged in a single horizontal line, with

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[216] See Chapter 3.5, footnote 175; and Cheetham, Alabaster Images of Medieval England, 93-4.

[217] Glasgow Museums' Collection Navigator is accessible at https://collections.glasgowmuseums.com/mwebcgi/mweb?request=home.

[218] *Alabaster Images of Medieval England*, 93-4. This includes the V&A's *Lamentation over the dead Christ* (Accession Number A.197-1946) which is closest in design to the Burrell Lamentation, and for which no definite information on its original emplacement is known either. Personal correspondence with the V&A (16/07/2019). The *Lamentation* can be consulted at https://collections.vam.ac.uk/item/O71006/lamentation-over-the-dead-christ-panel-unknown/.

[219] Laurence Flavigny and Christine Jablonski-Chaveau, *D'Angleterre en Normandie: Sculptures d'âlbatre du Moyen Âge* [Exhibition Catalogue] (Rouen/Evreux, 1998), 120.

the central scene projecting minutely above the panels flanking it, and embellished with carved alabaster canopies and wooden cresting.[220] What sets the altarpieces from Eure and Berlin-Dahlem apart from other Passion altarpieces, however, and the reason why they are discussed here, is the inclusion of a lamentation in the lower half of the central Crucifixion panel, connecting visually the death of Christ in the upper scene with Mary's *compassio* ("compassion") below. A third such example survives as isolated plaque at the Musée-Château de Dieppe in France (Inv. MD1004).[221] Taking into account that its iconographic design and dimensions (45 x 26 cm) are almost identical to the examples from Eure and Berlin-Dahlem, respectively, Laurence Flavigny suggests that all three were produced in the same workshop.[222] Pairing this, the author continues, with the fact that English alabaster production was a highly standardised process, it is more than likely that the panel at the Musée-Château de Dieppe too would have been produced for incorporation in an altarpiece of the same compositional and thematic formula.[223] For the other extant Lamentation panels, however – with the exception of the exemplar at the Chazen Museum of Art in Madison, Wisconsin, which, due to the unusual inclusion of kneeling donors in the composition, would likely have functioned as an independent image for

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[220] The five narrative panels referred to here depict, in sequence, the Betrayal, the Flagellation, the Entombment and the Resurrection, grouped around a taller central panel of the Crucifixion. Larger altarpiece, such as a beautifully preserved example at The National Museum of Capodimonte, Naples, would have additionally included a panel of the Road to Calvary/Crown of Thorns to the left of the altarpiece and the Descent from the Cross on the right. On the standardisation of alabaster altarpiece production see Cheetham, *Alabaster Images*, 8-13; Stephen Perkinson, "'As they learn it by sight of images': Alabasters and Religious Devotion in Late Medieval England," in *Object of Devotion: Medieval English Alabaster Sculpture from the Victoria and Albert Museum*, ed. Paul Williamson (Alexandria, VA: Art Services International, 2010), 38; Kim Woods, *Cut in Alabaster*: A Material Sculpture and Its European Traditions 1330-1530 (Turnhout: Brepols, 2018), esp. 48-9. For an insightful discussion of altarpieces more generally, see Williamson, "Altarpieces, Liturgy, and Devotion".

[221] Cheetham, *Alabaster Images*, 94.

[222] Flavigny, *Sculptures d'âlbatre*, 120.

[223] Flavigny, *Sculptures d'âlbatre*, 120.

private devotion rather than as part of an altarpiece – comparative research has revealed no information on their original appearance and, by extension, the viewing experience they would have engendered.[224] This includes the panel at the Victoria and Albert Museum (A 197-1946) to which the Burrell Lamentation is closest in design, and for which nothing of its provenance is known either.[225]

Thus, although the three dowel holes at the back of the Burrell Lamentation – a physical trace it shares with other panels of the same medium – suggest that the latter would have indeed once been fastened to a framework or housing (probably wood) via latten wires, the fact remains that no definite claims can be made about its original configuration.[226]

Figure 4-1. Photograph of the back of *The Lamentation of Jesus Christ*. The Burrell Collection, ID Number. 1.24 © CSG CIC Glasgow Museums Collection.

[224] Personal correspondence with the Chazen Museum of Art, University of Wisconsin-Madison (06/08/2019). See also collection entry on panel at https://chazen.wisc.edu/collection/14752/lamentation-with-donors/.

[225] Personal correspondence with the Medieval Art, Sculpture, Metalwork, Ceramics and Glass Department at the Victoria and Albert Museum (16/07/2019).

[226] A photograph of the back of *The Lamentation of Jesus Christ* (ID Number 1.24) can be found at http://collections.glasgowmuseums.com/mwebcgi/mweb?request=record;id=33314;type=101#.

Moreover, the Burrell Lamentation appears to stand out from the other twelve examples identified; hence, not only is the portrayal of the Lamentation the fullest to have survived, the particularities of its design, such as the figures' hair and beards and Mary's use of the skull as a foot-rest as well as the panel's comparatively slim dimensions (34.3 x 19 cm) noticeably differentiates it from the other recorded examples, thus leaving us without any definite information on the physical and/or spatial context(s) in which it would have been encountered.[227]

More indicative of the Burrell Lamentation's original meaning and use, however, and the responses it would have elicited from its beholders, is the change in devotional context in which this piece, and other artefacts of its type, were produced and used. This was a shift in devotional sensibility which fundamentally altered the devotional landscape of medieval Europe; at the very centre of that shift was the humanisation of the Divine, which invited intense physical and emotional responses.

4.2.1. Medieval Affective Piety and the Humanisation of the Divine

The late Middle Ages (c.1250 - c.1500), with which this thesis is concerned, were marked by the development of a new incarnational piety which rapidly grew into what Jack A. W. Bennett describes as "one of the greatest revolutions in feeling that Europe ever witnessed".[228] Referred to in modern scholarship as affective piety, this was a devotion

[227] In contrast, panels designed for thematic altarpieces generally measure about 40cm high by 26 cm wide. Hildburgh, "Studies in Medieval English Alabaster Carvings III," 16; Cheetham, *Alabaster Images*, 8.

[228] Jack A.W. Bennett, *Poetry of the Passion: Studies in Twelve Centuries of English Verse* (Oxford: Claredon Press, 1982), 32.

which was characterised by an upsurge in emotionalism and affectivity to the humanity of Christ and his mother, Mary.[229]

Albeit, Christ's Incarnation had been at the centre of Christian belief and practice since the patristic era, from the eleventh century onwards, emphasis was directed ever more sharply to the concrete, tangible details of Christ's historical presence, particularly those moments that belong to the universal, human experience: his birth and infancy, but above all his physical suffering and death.[230] As it developed, this shift in devotional fervour heralded the emergence of one of the most characteristic and widely used forms of Christian meditations. Grounded in an intensifying longing among devotees for intimacy with the Divine, this new genre of Passion meditation encouraged individuals to systematically contemplate, and ultimately share in ardent love and empathy with Christ's physical sufferings. Unlike earlier traditions of meditative writings which centred almost entirely on Old Testament psalms, writers of the affective tradition expanded upon the Gospels accounts of Jesus' life and death, imaginatively embellishing pivotal episodes about which earlier authors only give sparse details (including the Crucifixion). Crucially, medieval authors of apocryphal accounts even went as far as to invent entirely new (i.e., non-biblical) details on the human feelings and experiences of Jesus and his mother; all with the specific aim to heighten

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[229] Affective piety, also referred to as "affective spirituality" has received much scholarly work over the last decades, see, for instance, Richard W. Southern, *The Making of the Middle Ages* (New Haven, CT.: Yale University Press, 1953); Richard Kieckhefer, "Major Currents in Late Medieval Devotion," in *Christian Spirituality: High Middle Ages And Reformation*, ed. Jill Raitt (New York, NY: SCM Press, 1988), 75-108; Ewert Cousins, "The Humanity and the Passion of Christ," in *Christian Spirituality: High Middle Ages And Reformation*, ed. Jill Raitt (New York: SCM Press, 1988), 375-391; Thomas H. Bestul, *Texts of the Passion: Latin Devotional Literature and Medieval Society* (Philadelphia, PA.: University of Pennsylvania Press, 1996); Rachel Fulton, *From Judgement to Passion: Devotion to Christ and the Virgin Mary 800-1200* (New York, NY.: Columbia University Press, 2002); Sarah McNamer, *Affective Meditation and the Invention of Medieval Compassion* (Philadelphia, PA.: University of Philadelphia Press, 2010).

[230] Clarissa Atkinson*, Mystic and Pilgrim: The Book and the World of Margery Kempe* (London: Cornell University Press, 1983), 129-30.

the emotionality of Christian history, and so to touch the hearts and souls of believers.[231]

An excellent example of writings that encourage this type of affective piety are the various *Meditationes vitae Christi* that were produced in many parts of Europe in the thirteenth, fourteenth and fifteenth centuries.[232] Variously describing Christ's Crucifixion, one such meditation reads:

> [Jesus Christ] was led to the place where the cross was laid out. And there, naked like this, he was brutally taken and stretched out on the cross with many injuries. And then the nails were prepared. And then the soldiers take the right hand and place it over a hole in the cross, and then they place the nail over the hand and begin to hammer it in. And ah!, what great pain that was to the Lord Jesus! […] And when they had nailed his hands, they grabbed him violently by the feet and […] they put one foot on top of the other, and with one nail they affixed them. Now imagine what pain that was! And note here that these wicked dogs, to increase his suffering, had made the nails rough, and they were huge nails, and they were nailed into the most sensitive places in the body. And Jesus Christ felt more suffering for these three reasons, and also for the copious amount of blood that streamed from his body, because his most holy body was stretched in a way that forced much blood to flow.[233]

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[231] Atkinson, *Mystic and Pilgrim*, 129-30. Indeed, the only information the Gospels provide on Christ's Crucifixion is limited to Luke (23:33) who reports that "when they came to the place which is called the Skull, they there crucified him along with the criminals, one on the right and the other on the left". No other information on this central event has come down to us.

[232] On the contested origin and date of the *Meditationes*, see Sarah McNamer, "Further Evidence for the Date of the Pseudo-Bonaventuran *Meditationes Vitae Christi*," *Franciscan Studies* 50, no. 28 (1990): 235-61, https://doi.org/10.1353/frc.1990.0003; C. Mary Stallings-Taney, "The Pseudo-Bonaventure Meditaciones vite Christi: Opus Integrum," *Franciscan Studies* 55, no. 1 (1998): 253-80, https://doi.org/10.1353/frc.1998.0029; McNamer, "The Origins of the Meditationes vitae Christi," *Speculum* 84, no. 4 (2009), 905-55, https://www.jstor.org/stable/40593681; McNamer, "The Debate on the Origins of the Meditationes vitae Christi: Recent Arguments and Prospects for Future Research," *Archivum Franciscanum Historicum* 111 (2018): 65-112; and McNamer, *Affective Meditation*, 86-115.

[233] Sarah McNamer, ed., *Meditations on the Life of Christ: The Short Italian Text* (Notre Dame, IND.: University of Notre Dame Press, 2018), 143.

As the fullest expression of this new affective poetic, and its most influential group of writings, excerpts of the *Meditionates* provide striking textual examples of how the Passion narrative in particular, was re-imagined in late medieval period.[234] Characterised by ever more graphic descriptions of Christ's physical torments (a depth of detail, which Thomas Bestul states, was not found before the twelfth century), and punctuated throughout with direct exhortations (i.e., "now imagine"; "note") to the devotee, the writer directs readers/listeners to contemplate Christ's suffering as if they were actually present at Calvary, and so, instead of passive spectators, to become active, feeling participants in the narrative pathos.[235]

Many of the affective meditations, of which the above is one, may strike the modern reader as overwrought, lacking the decorum that would make them appealing on aesthetic, literary grounds.[236] But as Sarah McNamer rightly points out, evaluating these writings thus is to mistake their fundamental significance: "they were not crafted to be admired – even by God – as aesthetic artifacts. They had serious, practical work to do: to teach their readers, through iterative affective performance, how to feel."[237]

Iconographically, this humanisation of the Divine gave rise to evermore graphic explorations in all media of Christ's tortured body. Thus, while in the early Middle Ages it was commonplace to depict Christ as triumphant saviour, regal in bearing, and ruling even from the Cross in sublime power,

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[234] Freedberg, *The Power of Images*, 168-9.

[235] *Texts of the Passion*, 147. On the role of imagination in the meditative process, see, for instance, Lawrence F. Hundersmarck, "The Use of Imagination, Emotion, and the Will in a Medieval Classic: *The Meditacionces Vite Christi*," *Logos: A Journal of Catholic Thought and Culture* 6, no. 2 (2003): 46-62, http://doi.org/10.1353/log.2003.0021; and Michelle Karnes, *Imagination, Meditation, and Cognition in the Middle Ages* (Chicago, IL: Chicago University Press, 2011).

[236] McNamer, *Affective Meditation*, 2.

[237] McNamer, *Affective Meditation*, 2; see also Fulton, *Judgment to Passion*, 197.

by the thirteenth century, artists in Northern Europe, especially, began to emphasise Christ's suffering and tortured body ever more prominently.[238] No longer just personifying the majestic act of divine power by which God redeemed mankind, Christ became increasingly envisioned as a vulnerable and pitiful human victim – naked, disfigured and covered in blood – for whom the beholder could, and indeed should, feel compassion.[239] Among the variety of iconographic types of representing different aspects (and stages) of Christ's suffering, the most concentrated and perhaps most moving type is the late medieval *Imago Pietatis*, or "Man of Sorrows", which often shows Christ as a half-length figure (i.e., above the waist) as he displays his wounds (see Fig. 4-2).[240]

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[238] David Aers, *The Powers of the Holy: Religion, Politics, and Gender in Late Medieval English Culture* (University Park, PA.: Pennsylvania State University Press, 1996), 22.

[239] Aers, The Powers of the Holy, 22. See also, Miri Rubin, *Emotion and Devotion: The Meaning of Mary in Medieval Religious Cultures* (New York, NY.: Central European University Press, 2009).

[240] Bernhard Ridderdos, "The Man of Sorrows: Pictorial Images and Metaphorical Statements," in *The Broken Body: Passion Devotion in Late-Medieval Culture*, eds. Alasdair A. MacDonald, Berhard Ridderbos and Rita. M. Schlusemann (Groningen: Egbert Forsten, 1998), 145. Other iconographic variants depicting Christ's sorrow include, but are not limited to the Mocking of Christ, the Crowning of Thorns or the Ecce Homo. On the history of the "Man of Sorrows" specifically, see Erwin Panofsky, "Imago Pietatis: Ein Beitrag zur Typengeschichte des Schmerzenmanns und der Maria "Mediatrix"," *Festschrift für Max J. Friedländer zum 60. Geburtstage* (Leipzig, 1927), 276; Belting, *Das Bild und Sein* Publikum, 19-20; Belting, *Bild und Kunst,* 192-130.

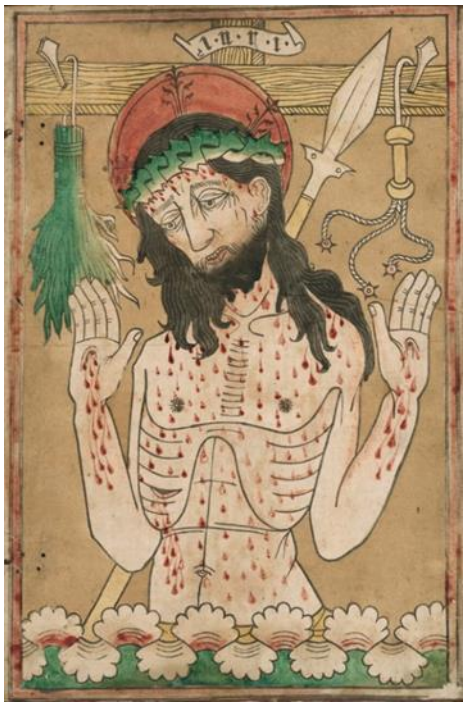

Figure 4-2. Man of Sorrows. Artist unknown. German, 1460-75.
Reference Number: 1947.731. Art Institute of Chicago.

Like their literary counterparts, these visual representations do not illustrate distinct moments as related within the Gospels but were extracted from the Passion narrative and modified iconographically to elicit maximum response in the devout beholder. What we find materialised here then, is the emergence of a new role of devotional images and texts which no longer just act as mere representations of abstract theological thoughts and ideas, but as powerful tools for communicating and eliciting feeling.[241]

[241] Michael Camille, "Mimetic Identification and Passion Devotion in the Later Middle Ages: A Double-sided Panel by Meister Francke," in *The Broken Body: Passion Devotion in Late-Medieval Culture*, eds., Alasdair A. MacDonald, Bernhard Ridderbos and Rita M. Schlusemann (Groningen: Egbert Forsten, 1998), 190-92; Otto G. von Simson, "'Compassio' and 'Co-redemptio' in Roger van der Weyden's 'Descent from the Cross'," *The Art Bulletin* 35, no. 9 (1953): 15-16.

4.2.2. *Mater Dolorosa*: Mary as Mother in Medieval Art and Devotion

The same shift "from doctrine to sentiment" – as Paul Binski described it – that saw the humanisation of Christ also impacted the presentation, both in texts and art, of his mother, Mary.[242] As Christ's bodily torments during the Passion were made ever more graphic, so, too, was his mother's agony in beholding it; so much so that by the late medieval period her compassionate witness of her son's crucifixion became core to the way of thinking about and visualising the Passion.[243]

The exploration of Mary as grieving mother was itself not entirely novel; in the Eastern tradition, especially, literary and liturgical precedents can be found that explore the Virgin's suffering at the foot of the Cross.[244] In the Latin West, however, Mary's response to Christ's Passion was typically imagined as stoic, with excessive demonstrations of grief condemned among early theologians as evincing a lack of faith in the Resurrection.[245] So although Mary is thought to have grieved at the sight of her son, she did not – or so early theologians argued – give herself over to express lamentations. Saint Ambrose (c.340-97), for instance, one of the most influential ecclesiastical figures of the early Latin, upon reflecting on the

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[242] *Gothic Sculpture* (London: Yale University Press for the Paul Mellon Centre for Studies in British Art, 2019). 82.

[243] Miri Rubin, *Mother of God: A History of the Virgin Mary* (London: Allen Lane, 2009), 242-46.

[244] Fulton, *From Judgment to Passion*, 205. See also Maria Vassilaki ed., *Images of the Mother of God: Perceptions of the Theotokos in Byzantium* (Hants: Ashgate, 2005); Leslie Brubaker and Mary B. Cunningham, eds., *The Cult of the Mother of God in Byzantium: Texts and Images* (Farnham: Ashgate, 2011).

[245] Rubin, *Mother of God*, 246. See also, Moshe Barasch, "The Crying Face", *Artibus et Historiae* 8, no. 15 (1987): 21-36; Jeffrey F. Hamburger, "To Make Women Weep: Ugly Art as "Feminine" and the Origins of Modern Aesthetics," *RES Anthropology and Aesthetics* 31 (1997): 9-33; James Elkins, *Pictures and Tears: A History of People who have cried in front of Paintings* (London: Routledge, 2004); Elina Gertsman, *Crying in the Middle Ages: Tears of History* (New York: Routledge, 2012); Marina Warner, *Alone of All Her Sex: The Myth and Cult of the Virgin Mary* (London: Vintage, 2000), 221-23.

biblical evidence on Mary's response at the foot of the Cross, wrote, "I read she was standing, I do not read that she was weeping" ("*stantem illam lego, flentem non lego*").[246] This was the image that predominated early meditation and prayer on the Virgin: a distant, solemn figure who might have wept but did not, cognisant, as she was, of the necessity of Christ's sacrifice in redeeming humankind.[247]

It was only by the end of the twelfth century that these conceptions seem to have changed. Instead, writers of the affective tradition now went to great lengths to express more vividly the depths of Mary's anguish, both in body and in soul, and her role in the Passion was explored in a wide variety of sources, ranging from theological treatises to hymns and Passion plays.[248] A new textual form even emerged during this period, known as the *planctus Mariae*, or "Laments of Mary," which was created specially to convey, if not exploit, the various manifestations of Mary's anguish, as writers imaginatively extended Mary's behaviour under the cross, from dramatic gesticulations to words and pleas that she was imagined to have voiced.[249] Especially moving in this regard are those variations of the

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[246] Saint Ambrose, Saint Gregory Nazianzen, St. Gregory Nazianzen, and St. Gregory Nazianzen, *Funerary Orations*, trans. Leo P. McCauley, John J. Sullivan, Martin R. P. McGuire, and Roy J. Deferrari (Washington, D.C.: The Catholic University of America Press, 1953), 283.

[247] Carol M. Schuler, "The Seven Sorrows of the Virgin: Popular Culture and Cultic Imagery in Pre-Reformation Europe", *Simiolus: Netherlands Quarterly for the History of Art* 21, no. 1/2 (1992): 7, https://www.jstor.org/stable/3780708. This does not mean, of course, that early Church fathers did not reflect on Mary's behaviour at Calvary and its meaning before this date. On the contrary. Theologians had long reflected on Mary's response to the Passion, and the inherent conflict of her spiritual and human role: the humble consent to the divine plan of salvation, on the one hand, and the human, maternal grief of a mother beholding her tormented child constituted a major dilemma for spiritual thinkers long before the Middle Ages. See, for instance, Amy Neff, The Pain of "Compassio": Mary's Labor at the Foot of the Cross*," The Art Bulletin* 80, no. 2 (1998): 254-55; and von Simson, "Compassio and Co-redemptio," 14.

[248] Donna Spivey Ellington, *From Sacred Body to Angelic Soul: Understanding Mary in Late Medieval and Early Modern Europe* (Washington, D.C.: The Catholic University of America Press, 2001), 81; Warner, *Alone of All Her Sex,*18.

[249] The *planctus* were a particularly popular genre in England; no fewer than twenty-five versions survive in Middle English – and by the fifteenth century, these Marian laments in all their forms – prose, lyric and drama – had become one of the most

planctus in which Mary relates the events of the Passion herself, in her own voice:[250]

> Off alle women þat euer were borne,
> That berys childur, abyde and se
> How my son liggus me beforne
> Vpon my kne, takyn fro tre.
> Your childur ȝe dawnse vpon your kne
> With laȝyng, kyssyng and mery chere;
> Be-holde my childe, be-holde now me,
> ffor now liggus ded my dere son, dere.[251]

Mary here directly appeals to readers/listeners, especially those among them who have born children, to contrast their joy with her pain of having lost a child. By entreating them to "see/behold" the dead child on her lap, these laments seek to elicit compassion not only through the evocation of maternal sorrow but also through Mary's direct calls for other mothers to share in her sufferings.[252]

Mary herself was a uniquely effective (and affective) conduit of such empathetic religiosity, not only because she had witnessed the horrors at Calvary first-hand, but also, as Carol Schuler convincingly argues, because – as both human and a mother – Mary's pain was much more

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elaborate, and intensely emotional kind of Passion literature. On the planctus, see George G. Taylor, "The English Planctus Mariae," *Modern Philology* 4 (1907): 605-37, https://www.jstor.org/stable/432663; Rosemary Woolf, *The English Religious Lyric in the Middle Ages* (London: Oxford University Press, 1968); George Keiser, "The Middle English Planctus Mariae and the Rhetoric of Pathos," in *The Popular Literature of Medieval England*, ed. Thomas J. Heffernan (Knoxville: University of Tennessee Press, 1985), 167-93; Sandro Sticca, *The Planctus Mariae in the Dramatic Tradition of the Middle Ages*, trans. Joseph R. Berrigan (London: The University of Georgia Press, 1988); Sarah Stanbury, "The Virgin's Gaze: Spectacle and Transgression in Middle English Lyrics of the Passion," *PMLA* 106:5 (1991): 1083-1093, https://www.jstor.org/stable/462681; McNamer, *Affective Meditation*, 150-173.

[250] Barasch, "The Crying Face," 91; Rubin, *Emotion and Devotion*, 87. On prosopopoeia as compositional device in planctae, see McNamer, *Affective Meditation*, 155-59.

[251] Carleton Brown, ed., *Religious Lyrics of the XVth Century* (Oxford: Claredon Press, 1939), 13; Emily V. Thornbury, "Lyric Form, Subjectivity, and Consciousness," in *A Companion to British Literature: Medieval Literature 700-1450*, eds. Robert Demaria Jr., Heesok Chang, and Samantha Zacher (Malden, MA.: John Wiley & Sons Ltd, 2014), 44.

[252] McNamer, *Affective Mediation*, 2.

accessible than that of the God-Man, whose suffering (having sacrificed himself for all humankind) was uniquely experienced.[253] Accordingly, it was Mary's pain, the pain of a mother enduring the horrors inflicted upon her son, that provided the preeminent mode of compassionate response to Christ's Passion; by showing Christians, through her eyes, what it was like to have seen Christ die on the Cross, Mary made "the mysteries of remote divinity comprehensible [and thus relatable] in human terms."[254]

Increased attention to Mary's suffering in written meditations went hand in hand with shifts in the depiction of her in the visual arts. Representations of the hieratic images of earlier periods, for instance, began to diversify and Mary's compassionate grief at the sight of her son on the Cross was more and more outwardly dramatized. From kissing Christ's hand or feet, to tearing her face in despair or fainting, images of Mary mourning the death of her son abound.[255] However, iconographically, the epitome of motherly suffering and bereavement is beyond doubt the Lamentation, the object which was selected as the focus of this thesis' practice-based component (i.e., Phase II).

A specific, predominantly sculptural type of the Lamentation of Christ, the Pietà, or "Our Lady of Pity" to give it its medieval name, depicts the moment at the foot of the Cross at Mount Calvary when Mary cradles the dead body of her son on her lap.[256] Despite the wide-spread and enduring

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[253] "The Seven Sorrows of the Virgin," 11.

[254] Schuler, "The Seven Sorrows of the Virgin," 11.

[255] van Os, *The Art of Devotion in the Late Middle Ages in Europe*, 104; Rubin, *Mother of God*, 314-15, 362. See, for instance, the "Swooning Virgin," and the "Seven Sorrows" of the Virgin.

[256] Joanna Ziegler, "Michelangelo and the Medieval Pietà: The Sculpture of Devotion or the Art of Sculpture?", *Gesta* 34:1 (1995): 28. A note on the terminology is in order here. There is confusion in scholarship about the varying designations of "Lamentation" and "Pietà" with many scholars using the terms interchangeably. Strictly speaking, however, "Lamentations" describe those depictions of the subject which, like the Burrell Lamentation, depict Mary and Christ surrounded by other figures from the New Testament (typically Nicodemus, Joseph of Arimathea, St John the Evangelist, Mary of Cleophas and/or Mary Magdalene). "Pietà", on the other hand, is used in

popularity of the image throughout Western Europe, however, neither the lamentation, nor the intimate posture between mother and son it depicts at its centre, can be found in the Bible; none of the four canonical gospels recount how, after Christ was removed from the Cross, Mary held her son in her arms. Instead, like the visual and literal exemplars discussed above, these belong to a repertoire of devotional subjects designed specifically to implicate the beholder experientially in the image and so share in the sufferings of Christ and His Mother as if they were physically present to witness the horrors at Calvary themselves.

It is exactly this emotive potency to move and engage devotees that is materialised in the opening anecdote of the thesis (see Chapter 1) when Margery Kempe, upon beholding such a Pietà, is said to have felt "compelled to cry very loudly and weep very bitterly, as though she were going to die."[257] Thus, when Margery – once approached by the priest – reveals that Christ's "deth is as fresch to [her] as he had deyd this same day" [His death is as fresh to [her] as if He had died this very day], a state that she believes should be felt and acknowledged by all Christians, she is shown embodying the devotional practices and visualising techniques promoted and sanctioned by the meditative and catechetical writings of the period. By imitating the emotional state represented by the Pietà – itself the epitome of motherly suffering and bereavement –

Anglophone scholarship to denote those depictions in which the Virgin alone cradles the body of her son. This stands in contrast to the nomenclature in Italian where Pietà ("pity", "compassion"), it is the normal term for both types. Similar inconsistencies occur in discussions on the origins of the Pietà-type. While especially early German scholarship on the subject has rooted the Pietà in the lyrical, epic, and mystical writings of the twelfth and thirteenth centuries, others stress the influence of Eastern, Byzantine influences. For instance, see Wilhelm Pinder, "Die dichterische Wurzel der Pietà," *Repertorium für Kunstwissenschaft* 42 (1924):144-63; Gertrud Schiller, *Iconography of Christian Art* Vol 2, trans. Janet Seligman (London: Lund Humphries, 1972), 179-81; James Hall, *Dictionary of Subjects and Symbols in Art* (London: John Murray, 1974); and Diane Apostolos-Cappadona, *Dictionary of Christian Art* (Cambridge: The Lutterworth Press, 1995).

[257] *The Book of Margery Kempe*, ll.

Margery re-enacts and re-actualises in the present the Passion narrative for all to see.[258]

4.3. *Tears of Our Lady*: Interpretive Content Design

4.3.1. To the Heart of the Matter: Interpretation Strategy

Informed by interdisciplinary research into late medieval affective piety and the interactive and experiential subject-object encounters it heralded (see chapters 2 and 4.2), the digital interpretive approach adopted as part of this project aimed to enhance audience understanding of and engagement with the interactive and affective dimensions of The Burrell Collection's *The Lamentation of Jesus Christ* (ID Number 1.24). In so doing, it was designed specifically to counteract the aesthetic, distancing approach so often adopted in contemporary public displays of medieval art.

By taking direct inspiration from the devotional context artefacts such as the Burrell Lamentation emerged, and the affective engagements (emotive, somatic imaginative) they heralded, the digital was used to push the (visual) rhetoric of humanisation explored above by expanding, imaginatively, on Mary's grief at beholding the dead body of her son.

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[258] Kathleen Kamerick, *Popular Piety and Art in the Middle Ages: Image Worship and Idolatry in England, 1350-1500* (New York: Palgrave, 2002): 145; Atkinson, *Mystic and Pilgrim*, 129-56; Laura Varnam, "The Crucifix, The Pietà, and the Female Mystic: Devotional Objects and Performative Identity in The Book of Margery Kempe," *Journal of Medieval Religious Cultures* 41, no. 2 (2015): 208-37; and Varnam, "The Pietà and the Mystic: Devotional Objects and Performative Identity in The Book of Margery Kempe," *Women's Literary Culture and the Medieval Canon* (blog), *Surrey Blogs*, November 2, 2015, https://blogs.surrey.ac.uk/medievalwomen/2015/11/02/the-pieta-and-the-mystic-devotional-objects-and-performative-identity-in-the-book-of-margery-kempe/.

The result was a strategy in which any pre-defined, cognitive facts about provenance, style, and iconography to be absorbed passively were discarded in favour of an interpretation that focuses exclusively on translating digitally the experience of loss and sorrow depicted in very relatable, human terms.

Crucially, although the aim of the digital interpretation and original devotional images is the same (i.e., making inherently complex, theologically-laden context accessible and relatable to a general public), the intention of the *Tears of Our Lady* is not a passive re-creation of a devotional encounter per se. Rather, its aim is to actively engage the visitor in the narrative pathos of the motif and so to open up a space for the historical imagination of the dynamic networks at play in the reception and use of the many, now seemingly static remnants of the medieval past.

4.3.2. Putting Theory into Practice: Design Practice and Strategy

In practice, this humanisation was translated digitally through the interplay of figural enhancements, colour, and sound.

Figural Enhancements and Animation

As the key objective of the interpretative approach was to foreground Mary's sorrow, the figural enhancements were predominantly reserved for her. In particular, focus was put on Mary's eyes: although no visual traces remain of the painted eyes and/or pupils on the Burrell Lamentation, close examination of the figure's eye sockets, combined with the placement of her head and lowered chin, allows for Mary's gaze to be followed to Christ's body in the centre of the composition.

In an effort to make Mary "come to life" in front of viewers' eyes, the *Tears of Our Lady* interpretation saw the addition of Mary's eyes,

complete with pupils and eyelids. Subtly animated to open and close, they direct visitors' gazes to the object of her sorrow, the dead body of her son on her lap. Taking inspiration from the visual and literary evocations of the Virgin's expressive grief discussed above, individual tears were designed to flow down Mary's cheeks, and onto her hand as they slowly, but steadily, drip onto the ground.[259] Imaginatively expanding on Mary's sorrow as she beholds her dead son, the tears are used as visual prompts to evoke and enhance sadness and empathy without relying on narration, be that analogue via an object label or digitally via aural and/or written narrative content.

In line with the overall interpretative stance of the *Tears of Our Lady* installation, as well as scholarly discussions on heritage visualisations, figural enhancements were designed in a non-photorealistic rendering style.[260] Accordingly, instead of wet, seemingly transparent globules, reminiscent of the "shining pearls" of Northern European (most notably, Flemish) paintings of the medieval period, the tears were stylised as abstracted drops of solid blue to ensure maximum legibility.[261] The same

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[259] Moshe Barasch, "The Crying Face," 21, https://doi.org/10.2307/1483270; Elina Gertsman, ed., *Crying in the Middle Ages: Tears of History* (Abdingdon, Oxon: Routledge, 2011).

[260] For pertinent discussions on photorealism and non-photorealism in cultural heritage visualisations, see Maria Roussou and George Drettakis, "Photorealism and Non-Photorealism in Virtual Heritage Representation," in *VAST03: 4th International Symposium on Virtual Reality, Archaeology and Intelligent Cultural Heritage*, eds. Alan Chalmers, David Arnold, and Franco Niccolucci (2003), http://diglib.eg.org/bitstream/handle/10.2312/VAST.VAST03.051-060/051-060.pdf?sequence=1&isAllowed=y; Hafizur Rahaman, Rana Das, and Shezad Zahir, "Virtual Heritage: Exploring Photorealism," in *Progress in Cultural Heritage Preservation. EuroMed, Lecture Notes in Computer Science, vol 7616*, eds. Marinos Ioannides, Dieter Fritsch, Johanna Leissner, Rob Davies, Fabio Remondino, and Rosella Caffo (Berlin: Springer, 2012), 191-200, https://doi.org/10.1007/978-3-642-34234-9_19; Isto Huvila, "Monstrous Hybridity of Social Information Technologies: Through the Lens of Photorealism and Non-Photorealism in Archaeological Visualization," *The Information Society* 37, no. 1 (2021): 46-59, https://doi.org/10.1080/01972243.2020.1830211.

[261] Erwin Panofsky, *Early Netherlandish Painting: Its Origins and Character*. Vol. 1. (Cambridge, MA.: Harvard University Press, 1966), 256.

applied to the design of Mary's eyes which were reduced to black outlines of the eyes, the eyelid and pupil.

In addition to Mary's eyes, her gestural vocabulary also underwent enhancement: supporting Christ's head with her right hand, Mary's elongated left hand and fingers – a distinguishable feature of medieval English alabaster carving – were animated to be show it gently stroking her son's dead body. Used as an auxiliary means to express the intimate connection between the two central figures, Mary's hand was animated to appear as active as her eyes in conveying sorrow and grief.[262]

Moving from the Mother-and-Son group to the surrounding mourners, eyes were similarly added to the latter. Although they remain dry-eyed, their compassionate, down-ward-cast gazes were aimed at directing viewers to the centre of the panel to encourage engagement with Mary's grief and sorrow.

Colour

Besides figural enhancements and animation, colour formed a crucial part of the digital interpretation strategy. Indeed, although many extant alabasters might appear white at present, research has shown that the application of pigments (including gilding) formed an integral part of medieval alabaster production and played a key role in the visual effect a medieval panel would have had on its original beholders.[263] Uncovering

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[262] Jung, "The Tactile and the Visionary," 229. For further explorations of gesture in medieval art, see Moshe Barasch, *Gestures of Despair in Medieval and Early Renaissance Art* (New York, NY.: New York University Press, 1976); and Jan Bremmer and Herman Roodenburg, eds., *Cultural History of Gesture* (Cambridge: Polity Press, 1991).

[263] Aurelie Mounier, Markus Schlicht, Maud Mulliez, Romain Pacanowski, Antoine Lucat and Pascal Mora, "In Search of the Lost Polychromy of English Medieval Alabaster Panels in the Southwest of France," *Color: Research and Application* 45, no. 3 (2020): 442, https://doi.org/10.1002/col.22482/. See also, David Park, "The Polychromy of English Medieval Sculpture," in *Wonder: Painted Sculpture from Medieval England*,

original polychromy, however, is problematic and original schemes are difficult to reconstruct without extensive technical analysis. Even in cases in which traces of polychromy do actually remain – such as it is the case for the Burrell Lamentation – it is possible that these are remnants of later overpainting, and thus not as contemporary as they may appear at first glance.[264] Although a more extensive study of polychrome remnants could be conducted to identify individual paint layer as part of a potential future study of the Burrell's alabaster collection, for the purposes of this project the Burrell Lamentation was digitally "re-painted" using the remaining traces of colour as hypothesis of how the panel might have looked originally. Digital re-colourisation was focused especially on the figures' garments, and enhanced the reds, blues, and greens. Comparative research conducted into the colour profile of extant medieval representations of the lamentation both in alabaster and other media, has shown that this colour palette would have indeed been especially popular in Western depictions of the Virgin. The faces, on the other hand, would

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ed. Stacy Boldrick, David Park and Paul Williamson (Leeds: Henry Moore Institute, 2002), 30-56.

[264] Scientific examinations of polychrome remnants showed that predominant colours used were red, green, black and gold. Occasionally, white and blue would have also been used. The lower background of many English panels was usually painted green on which a daisy pattern is scattered, each daisy typically consisting of five white dots enclosing a red spot, a characteristic pattern alabasters shared with manuscript illuminations of the period. In contrast, the upper background of panels were often gilded, with the surface being first decorated with applied dots of gesso; in many cases, these dots have become detached thus accounting for the gilded background being spotted white where the bare alabaster shines through. Colour would have similarly been used to make other fine sculptural detail readable from afar, including identifiable features such as hair, beards and additional attributes or items needing emphasis. While facial features, including pupils, eyebrows and lids would have been enhanced by paint, the faces of the figures were almost invariably left unpainted with the exception of "bad" characters such as torturers, soldiers and executioners whose faces were sometimes darkened. See, for instance, Lucía Pereira-Prado, Diego Tamburini, and Joanne Dyer, "Shedding Light on the Colours of Medieval Alabaster Sculptures: Scientific Analysis and Digital Reconstruction of Their Original Polychromy," *Color Res Appl.* 44, no. 2 (2019): 221-33, https://doi.org/10.1002/col.22323; Mounier et al., "In Search of the Lost Polychromy," 436-42.

have remained unpainted. Accordingly, these were left untouched in the digital interpretation.

Figure 4-3. Photograph of *The Lamentation of Jesus Christ* (ID Number 1.24) with remaining colour (Left). Screenshot of Lamentation once "re-colourised" (right).

As the colour spreads gradually across the panel, viewers can see the colour of the piece "re-stored" digitally. In the resultant instantiation, colour and movement come together to show the artful transformation of the object from white replica to colourful, animated canvas, adding a dynamic element to the viewer's exploration of the piece.

Soundscape

In addition to the design of these visualisations, an ambient soundscape was also prepared to support and enhance the emotive atmosphere of the interpretative narrative. The resultant soundscape consists of four distinct but complementary audio layers; atmospheric wind sounds (used to open and close the narrative sequence), heartbeats, solemn weeping, and dripping water sounds (to represent the tears as they drip down Mary's cheek). In line with the overall interpretative approach, these audio layers were designed to translate Mary's sorrow aurally. To ensure maximum impact, the aural cues were carefully mapped onto the figural enhancements they were meant to amplify.

4.3.3. Final Installation: Visual Narrative of the *Tears of Our Lady* Interpretation

The resultant *Tears of Our Lady* interpretation consisted of seven different audio-visual layers, presented cyclically during a one-and-a-half-minute sequence (see Fig. 4-4).[265]

Figure 4-4. Screenshots of the Key Narrative Layers of the Tears of Our Lady interpretation.

[265] The *Tears of Our Lady* interpretation is available at [link removed due to potential Copyright restrictions].

(a) **Layer 1: Contours [0-10 seconds].** As the interpretative narrative starts, shadows are seen slowly weaving their way around the figures to highlight the contours of the replica relief. Combining natural shadow with digital depth perception, the visual effect is enhanced aurally by an atmospheric wind sound which intensifies as the contours continue to spread over the bare replica.

(b) **Layer 2: Mary Comes to Life [11-15 seconds].** The next sequence of the installation sees the Virgin Mary, the central figure of the piece, come "to life". As the wind sounds give way to a heartbeat (first faintly at the onset, but increasingly louder), Mary's heart starts beating as her chest is shown moving up and down. Very subtly, eyes appear on Mary face, taking shape in the eye sockets that just seconds earlier lacked pupils. She is seen opening and closing her eyes (as if woken up from sleep) before looking down to Jesus on her lap. Upon perceiving her son, Mary starts moving her left hand as if gently stroking his dead body.

(c) **Layer 3: Tears of Our Lady [16-21 seconds].** Mary is then seen shedding her first tear. Flowing down her left cheek, the first tear is shown dripping down onto Mary's moving hand. The figural animations are accompanied by a solemn weeping.

(d) **Layer 4: Colour I - Mother-and-Son Group [22-30 seconds].** As the first teardrop touches Mary's hand, colour slowly starts to emerge, flowing organically down from Mary's hand onto Jesus' body. Seeping down onto his arms and legs, the colour spreads onto Mary's chest and up to her face and hood, momentarily making mother and son the sole focus of the composition. As Mary continues to weep, dripping water sounds can be heard as each tear "drips" from her hand onto the floor.

(e) **Layer 5: Colour II - Group of Mourners [31-50 seconds].** After the Mother-and-Son Group is illuminated, the colour continues to spread to the surrounding mourners. Once touched by colour, the mourners' eyes appear, visually emphasising their participation in the scene, as they, too, are shown looking down onto Jesus.

(f) **Layer 6: Climax [51-59 seconds].** Having reached the climax of the narrative at 51 seconds, all figural enhancements and sounds recede,

offering viewers a direct point of reference of what Burrell Lamentation might have looked like, without digital enhancements but for the "restored" colour.

(g) Layer 7: Fade Out [1-1:25 minutes]. As the animations and sound resume, the colour was designed to seep out of the piece in reverse, first draining from the surrounding mourners, leaving only Mary and Jesus illuminated. The colour then also seeps out of Jesus, yet again, leaving Mary as the sole focus of the piece. As the colours slowly start draining out of central female figure, only the outline of her eyes remains. Mary is shown shedding one last tear, before she, too, turns back to "stone", thus, bringing the narrative sequence to full circle.

This chapter presented the interpretive framework underpinning the design of the *Tears of Our Lady* interpretation. The chapter began with a discussion of the devotional context in which objects such as The Burrell Collection's *Lamentation of Jesus Christ* (ID Number 1.24) would have been produced and used. It then moved on to explore how the insights into the dynamic subject-object engagements (intellectual, somatic, emotive, and imaginative) with medieval Christian objects thus gained were used to inform the digital interpretation. The chapter that follows presents the findings of the evaluation activities carried out to test the impact of the *Tears of Our Lady* interpretation on user engagement with and understanding of the Burrell Lamentation on which the interpretation it is based.

Chapter 5 *Tears of Our Lady*: User Evaluation

5.1. Introduction

With the interpretive framework underpinning the *Tears of Our Lady* interpretative design outlined in the preceding chapter, this chapter presents the main findings of the evaluation activities that were carried as part of this research project. The evaluation set out to gain insights into participants' experience of the *Tears of Our Lady* interpretation and to analyse its impact on their engagement and understanding of the *Lamentation of Jesus Christ* on which the interpretation is based.

The findings presented here are drawn from the in-depth analysis of semi-structured interviews carried out with 17 participants between October 2020 and January 2021 (see Chapter 3.5.4). In line with the triangulated multi-method approach adopted as part of this evaluation, the findings from the interviews are corroborated and extended by the data gathered via the self-administered questionnaires (SAQs) which each participant was asked to fill in. Participants are referred to by pseudonyms only.

Before proceeding to the presentation of the evaluation findings, however, there are two things to note: firstly, it is crucial to bear in mind that the data presented here is based on participant responses to the ad hoc video of the *Tears of Our Lady* prototype and *not* – as initially planned – the physical, in-situ version of it (see Chapter 3.5.4). Thus, although the pilot study confirmed the feasibility of evaluating the installation video via Zoom as adequate alternative for in-person testing, it does not replicate the in-situ viewing experience, and any participant data presented here should be read accordingly.

Secondly, any understanding of the data presented below needs to take into account the prevailing demographic of the participants who took part

in the evaluation and who, due to accessibility issues relating to COVID-19, were limited to university staff and students (see Chapter 3.5.4). The resulting sample constituted of 17 individuals, all of whom hold a postgraduate degree or higher, with five among them having specialist, academic training in medieval art and/or literature. However, only three out of these 17 participants self-identified as religious.[266]

5.2. Evaluation Findings

As the main objective of the evaluation was to assess the impact of the *Tears of Our Lady* interpretation on participant engagement and understanding of the Burrell Lamentation (ID Number 1.24), a pre- and post-experience evaluative approach was adopted (see Chapter 3.5.4). Accordingly, participants were first asked to verbalise their thoughts and feelings towards the piece without any interpretation (digital or other). Only once participants had discussed the object in detail and expressed their prior interest and emotional connection with it, were they shown the object with the digital interpretation (i.e., projections), and asked to comment on its impact on them.

The section that follows is structured accordingly, presenting the pre-experience findings first, before moving on to examine how the digital interpretation impacted participants in Chapter 5.2.2 below.

[266] The three participants referred to here described themselves as “Congregationalist (Protestant)”, “Muslim” and “various”, respectively.

5.2.1. The Burrell Lamentation: Pre-Experience Encounter

(i) Prior Knowledge and Awareness

The interview began by asking participants "to describe" the Burrell Lamentation as shown in the video, that is, without any kind of interpretation – digital or other – but a static photograph projected onto the otherwise bare replica.[267]

Figure 5-1. Photograph of *The Lamentation of Jesus Christ*, The Burrell Collection, ID Number. 1.25, projected onto replica.

Best practice posits that starting off the qualitative interview process with such a straightforward task helps ease respondents into the interview process by enabling them to familiarise themselves with the research topic at hand.[268] For the *Tears of Our Lady* evaluation in particular, it

[267] A copy of the interview template is included in Appendix 5A.

[268] Cormac McGrath, Per J. Palmgren and Matilda Liljedahl, "Twelve Tips for Conducting Qualitative Research Interviews," *Medical Teacher* 41, no. 9 (2019): 1003, https://doi.org/10.1080/0142159X.2018.1497149; Alan Morris, "Developing the Interview Guide," in *A Practical Introduction to In-depth Interviewing* (Thousand Oaks,

also meant that the descriptors (e.g., words; nomenclature; phrases) participants used to describe the object could help determine their prior knowledge and awareness of the Lamentation motif and the figures presented.

Data analysis revealed that, although tentative in their initial descriptions (i.e., “probably”; “perhaps”; “maybe”), 15 out of the 17 participants rightly identified the central figures as Jesus and his mother, Mary, thus evincing at least a general, cultural awareness of the scene depicted. Beyond the identification of the biblical figures, seven of these 15 participants displayed a more in-depth awareness of the Passion narrative, explicitly placing the depicted scene as taking place *after* the Crucifixion – that is, Jesus having been removed from the cross – but *before* the burial. Four among them even referred to the motif by its art historical terminology, describing it as either a “Pietà”, a “Lamentation” and/or using both terms interchangeably. Cross-referencing these findings with the participant profiles confirmed a correlation between the use of nomenclature and participants’ formal qualifications in History of Art and Medieval Studies, respectively.

Only two of the overall 17 participants struggled with recognizing the scene or the figures depicted. Hence, although one of them, Kyle, identified the motif as “kinda biblical”, he was hesitant about which scene exactly it might be, or indeed who the figures depicted may be and their relationship between them:

> […] it is beyond my level of knowledge to tell you what biblical scene it is [but] there is clearly someone who is perhaps not well or unwell or… is possibly even died, I’m not sure […] there's obviously the person closest to them that's holding them. I would presume is related to them... it's hard to tell from the age thing: it could either be parental

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CA.: SAGE Publications Inc., 2015), 39-52,
https://dx.doi.org/10.4135/9781473921344.n3.

> relationship or it could be a, like almost a marriage relationship. It's quite hard to tell…

Similar difficulties in identifying the motif were observed for Aidan, the only self-identified Muslim respondent included in the sample. When asked to describe the scene, he commented that "it looks like people… people standing; one is lying down." Prompted to make any potential suggestions about who these "people" might represent, he reflected that "maybe it's like a family, and that's [*points to Jesus*] is their kid," thereby identifying the familial connection between the figures (at least in terms of mother and son), yet not formerly naming them. Initially, Aidan's unease with describing the piece was attributed to nervousness or concern about providing potentially incorrect answers. However, once the interview concluded and the video recording had stopped, he revealed that, although aware of the Lamentation motif in general terms, and of the biblical characters represented, as an adherent of Islam, he was taught not to "recognize" figural representations of Jesus or his followers. While the cultural implications of the question design were noted at the pilot study stage of the evaluation (see Chapter 3.5.4), any analysis of Aidan's responses need to be mindful of his religious background; for instead of stemming from a lack of knowledge per se, Aidan's hesitancy in identifying the motif has its root, rather, in the cultural and religious implications involved in the process of "naming" the Christian figures.

(ii) Emotional Engagement & Connection

After determining participants' prior knowledge of the Lamentation motif, the interview schedule moved on to two questions (A2 and A3) regarding emotion, that is, both the emotion depicted in the piece, and participants' own felt emotion associated with it (see Appendix E.1). In practice, this involved asking participants to verbalise which emotion(s) they thought was portrayed in the object when they saw it depicted on the computer screen. This question (i.e., A2), in particular, was included as a gateway question to question A3 (see Appendix E.1), and which was

geared at yielding insights into participants' *own* emotional connection to the piece and others similar to it.

Perceived Emotion

All participants – irrespective of their level of knowledge of Christian iconography – read the overarching emotion depicted as one of "sadness/sad" (N=8) and "mourning" (N=5).[269] Other recurring index terms included "concern" (N=4), "grief" (N=4), "sorrow" (N=2) and "hopelessness/loss of hope" (N=2). Beyond these discernibly poignant descriptors, three participants in particular offered more multivalent readings of the motif, referring, instead, to the wider theological meanings underpinning the lamentation, and the role of Christ's sacrificial death within the grander scheme of Salvation history. Accordingly, although agreeing with their peers that the panel depicts as scene of "tremendous sorrow" (Bree_Interview), these participants simultaneously described the lamentation as a moment of "bliss" (Ron_Interview) and "hope [and] ultimately faith that this [Jesus' death] is not the end of Jesus' use for humanity" (Jacob_Interview), in the process evincing an extensive understanding of the theological discourse underpinning the motif. Here too, once the descriptors were cross-referenced with the participant profiles, analysis showed that two of these three interviewees self-identified as religious. The remaining participant (i.e., Bree) specialises in Medieval Studies, and hence comes equipped with a distinct visual literacy that the rest of the interviewees might not share.

Where the responses of the other 14 participants are concerned, examination revealed that, despite rightly pinpointing the overall subject of the lamentation, they displayed a marked hesitancy when it came to identifying the emotion depicted. Contrary to initial expectations,

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[269] Terms with highest frequency among participants.

however, findings revealed that, instead of participants' biblical knowledge (albeit minimal for some), it was the low resolution of the projections, and the resulting lack of available visual cues on the object that impeded participants' ability to discern the emotion depicted. The paucity of discernible facial expression on the figures, in particular, appears to have caused difficulties in that regard. When prompted to identify what emotion(s) she thought where portrayed, for instance, Louise, a doctoral student in History of Art, commented,

> It's really hard because it's [i.e., the projection] blurry. Because I know the motif, I know what it is *supposed* to evoke. I find that quite hard to see because you don't actually see the facial features […] and you need to have some sort of gospel background or like knowledge to know what the emotion is. (emphasis in original)

Yet, while Louise's formal art historical background equipped her with the necessary "knowledge" (Louise_Interview) to fill in the gaps in the representation, the lack of facial features left those participants without comparable training and/or faith ties to "assume" (Elsa_Interview), and even "infer" (idem) emotions rather than seeing them per se. The findings indicate that without facial details to guide them, participants appear to have based their readings on what they could decode instead: the placement and posturing of the individual figures, such as the limp body of Christ or the tilted heads of Mary and the surrounding onlookers as they behold the latter in their midst. Rose's comments are an excellent case in point here:

> I think it's – it's a mourning scene from the detail that I can see; the heads are facing downwards of the people around, and the body of Jesus who appears to be dead.

In a similar vein, when asked to elucidate why she read the scene as one of "care" and "concern" Elsa reflected,

> I think [it is] the way the Christ figure is being held, like the person's trying to help or take care. […] But I feel like – like part of that's from the pose, like the pose of Christ being like really helpless and the arms around him seem to be trying to hold him up. I'm presuming the

> expressions on the others would be of concern, but I do – I don't quite know, I'm kind of inferring that rather than seeing it necessarily.

Felt Emotion

Having shared their thoughts on what emotion is portrayed, participants were then asked which, if any, emotion they themselves associate with artefacts such as the Burrell Lamentation. Only four out of the 17 participants who took part in the study voiced feeling any personal connection to the panel, drawing, as they did so, parallels between the motif and their own life. Yet, while for Jacob, as a self-identified practising Congregationalist, the lamentation carried personal, continuing meaning in that it depicts "a story that is quite a big aspect of [his everyday] life", for the other three participants, the lamentation instead triggered memories of the past. Whilst it reminded Bree, for instance, of a very specific, poignant experience in her life (i.e., the loss of a loved one), for the two remaining participants, Chloe and Rose, the motif brought back general childhood memories of attending church with their families.

Despite triggering similar memories for both Chloe and Rose, closer analysis of their respective responses showed that the emotions they each in turn associated with these memories could not be more antithetical. Hence, while Chloe recalled these church visits with certain fondness, allowing that these memories made her feel "sentimental", for the other participant, Rose, the panel and its religious associations raised deep-rooted feelings of "distrust" and "emotional manipulation":

> [B]ecause of my experience with religion […] I distrust this kind of [*chuckles*] image because I'm aware that […] it wants me to feel some kind of sorrow for the death of this person that I have a historical relationship with through my family and through their religious beliefs and those being applied to me as a child […] it brings up feelings in me of this kind of emotional manipulation from childhood that I educated myself out of by becoming more intellectually aware of the tools of iconography […].

As a self-proclaimed anti-religious secularist, Rose's criticism here is geared less towards the Burrell Lamentation itself (both the replica under scrutiny here and, by extension, the original on which the latter is based) and more with the wider belief systems and ritual networks as part of which it arose. Nonetheless, her strong reaction stands in marked contrast to the comparatively muted responses of the remaining respondents.[270]

Indeed, beyond acknowledging that it "is hard to see *any* human figure that helpless" (referring here to Christ's "limp body laid across someone's lap," Claire_Interview, emphasis in original), interviewees agreed that the Lamentation motif does not arouse any sense of direct personal involvement in them.

> [D]istanced isn't the right word [one participant reflected,] but I don't know that I directly connect with the imagery […] but no, I can – I can empathise with the scene without feeling emotionally connected to it. (Abbie _Interview)

Other participants shared this attitude. Seeking to rationalise her own dispassionate reaction towards the piece, Mia, for instance, attributed her lack of emotional connection to not having any personal religious ties to the motif, and, by extension, the theological concepts that underpin it. "I find it [the Burrell Lamentation] interesting, [she said, but] I'm not religious and I imagine that someone who is, would find more meaning in this [but] I don't have that sort of religious, emotional connection." This emotive distance towards the Burrell Lamentation, and other religious stimuli of its kind, is further amplified, Mia added, by the fact that, at least in the West, depictions of the crucified Christ are "displayed so much that I'm a bit dead – like my senses are a bit dead to it."

Fiona agreed:

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[270] The original statement here cited reads as follows: "I'm not objective in my secularism […] My secularism is anti-religion" (Rose _Interview). As will become increasingly apparent below, Rose's anti-religious stance permeates throughout her interview, and actively shapes her responses to the *Tears of Our Lady* interpretation.

> [W]e are quite – like in Christian […] culture we are quite used to seeing a dead Jesus somewhere. It's like something that happens all the time. Like when you enter church, you see a dead body on a cross which is terrible if you think of it but because we're social – *I* was socialised in this way, um, it's quite common to see [such] scenes and you – *I* don't really connect with them emotionally anymore. (emphases in original)

She continued, resonating again with Mia's response,

> I think the other aspect is also that I don't really see the faces of people in this piece, not really […] I don't really see their eyes; I don't really see their mouths; I don't really – like, there's not so much that can really transfer the feelings to me.[271]

Considering both these and earlier comments, the paucity of facial features on the figures did not only impede identification of the emotion depicted, but it also – more importantly – appears to have impacted the transference of said emotion to participants, and by extension their own emotional connection with the piece.[272] As a key component of the digital interpretive design constituted of humanising the otherwise theologically complex motif through digital enhancements, including the addition of facial features, these remarks provided a useful baseline for evaluating the impact of the *Tears of Our Lady* interpretation on participants' engagement and understanding.

(iii) Prior Interest

In addition to fostering emotional engagement, a central objective of the evaluation was to explore the extent to which, if any, the *Tears of Our Lady* interpretation enhances user interest in the Burrell Lamentation. It

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[271] Mia's comment referred to here reads as follows: "[Y]ou can't necessarily see much detail in the faces and in the emotion, and I think that makes a big difference as well."

[272] This is also confirmed by other participants' comments. Commenting on the lack of detail on Mary's face specifically, Sue stated explicitly that "[she does not] feel a connection to the… the Mary or the Pietà-kinda character because there's nothing to read on the face."

was thus vital to gauge participant interest in the piece before showing them the digital interpretation planned to enhance it.

Unsurprisingly, a particularly high interest in medieval art in general was recorded among those participants with formal qualification in the subject area (N=5). Once the discussion turned to the Burrell Lamentation in particular, however, participant responses became more ambivalent. When asked, for instance, if the Burrell Lamentation was an artefact that they would consider engaging with if they saw it displayed in a museum context, Claire – a participant with an undergraduate degree in History of Art, and a self-confessed interest in medieval art – replied that she would "probably look at it [but] maybe not for very long." Prompted to expand on why she thought that was case, Claire explained that there was nothing striking about the Burrell relief that would lead her to want to spend more time with it, especially when compared to other lamentations of its kind: "[c]os I've seen these – the same scene over and over again before and there's nothing like particularly interesting to me about *this* piece" (emphasis in original).[273] More revealing for the present analysis, however, is the fact that those participants without academic background in medieval art evinced the same attitude towards the Burrell Lamentation.

Beyond a general interest (declared by four participants) in the provenance and making of the Burrell Lamentation and other artefacts of its kind, the remaining interviewees agreed that they, like Claire above, would most likely walk by the piece without paying it much, or indeed any, attention.[274] Ron's response demonstrates this point very clearly.

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[273] The same sentiment was expressed by Louise (postgraduate researcher in History of Art): "This [the Burrell Lamentation] would not necessarily be one of the objects that I'd spent loads of time with […] This would be one of the 'Ah, yeah, Pietà, Lamentation,' and I would move on."

[274] These participants include Abbie, Elsa, Jacob, and Sam.

Asked if he would consider engaging with the Burrell Lamentation in a display context, he commented:

> Oh, it could be! But that […] depends on, eh, you know – I would stand and look at it if [had] nice colours, if it was done really well… um, but I might just pass it by if it's – well, 'I know what this is,' pass by it like that, you know. Unless I go, 'Oh, that's really something… that's really – Oh, that's done up really nice,' because that, that might make me engage with it, and then I'd go into the imagery. But if it doesn't look very nice, I might just pass by.

Visual impact was also highlighted by Mia as a leading factor for determining the initial attracting power of a museum object, and by extension, its ability to trigger interest beyond its immediate, physical appearance. She stated:

> It really depends on what the object looks like; how – I guess how it's displayed. For this one, for example, if I came across it in a museum… I'm not huge on like medieval artefacts, items, imagery so unless there's something that's very visually striking about it, I'm probably not gonna – I might not even look at the label or spend time at it.

The close correlation between visual impact and attracting power aligns these findings with other visitor research which indicated that objects with more attractive or visually striking appearance benefit from increased visitor attention.[275] By contrast, those artefacts, like the Burrell Lamentation here, which fail to stand out (especially at first sight) are often skimmed over or overlooked completely.[276]

Display strategies were also a main concern for Liam for influencing the holding power – that is, the inherent quality of an exhibit to not only draw but also hold attention – of artefacts, such as the piece under discussion here. Reflecting on his own experience of seeing devotional objects in

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[275] Francesca Monti and Suzanne Keene, eds., *Museums and Silent Objects: Designing Effective Exhibitions* (Farnham, Surrey: Ashgate, 2013), 1.

[276] Monti and Keene, *Museums and Silent Objects*, 6.

museum contexts, he mentions that it is particularly the typological display strategies adopted by museums that tend to curb his enthusiasm for engaging with these objects:

> You see – the thing about this object […] is that if they're placed in the right environment, in the right context, they're interesting. But whenever you go into – and this is something I find often – whenever you go into a museum and you find the religious icons or religious depictions area, it looks boring. It looks like they placed all of them together, and there's no real sense. Okay, yeah, there's 20 depictions of Jesus and 16 of Mary and a lot of gold, a lot of statues of sad people. But what's the story behind them? Where did you find that? Where would it attach to? So that kind of loses the entire feeling when you put it in a museum […] Instead, if you see something like this you think, 'Okay, so, well, this was in a church; There's many other things like this; I've seen already quite a few of them; Why would I look at this again in a museum? Let's go to the next thing'.

For the four participants who voiced interest in the piece, however, it appears to be exactly this removal from its original context, and the stripping of its ritual ties through its integration into new assemblages of objects and interpretative media that seems to attract them. Rather than thematic, these participants' interest in the piece is led predominantly by an ''admiration" and "respect" of the craftsmanship and skill involved in the making of the panel. Accordingly, these participants state that they would be particularly interested in finding out more about the context of its production, its materials and usage. Such an interest in making and use aligns with findings of audience research carried out as part of The Burrell Renaissance Project which found a distinct interest among new and existing visitors in the making of its collections.[277]

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[277] "The Burrell Renaissance Project: Content and Interpretation Strategy," 6.

5.2.2. Post-Experience Encounter: Impact of *Tears of Our Lady* on Participants

(i) First Thoughts and Impressions

The post-experience part of the interview began by showing participants the *Tears of Our Lady* installation video[278] and asking them to share their initial reaction(s) to seeing the Burrell Lamentation animated. Contrary to initial expectations, however, the visuals received barely any attention from participants despite having been designed as the central distinguishing feature of the *Tears of Our Lady* interpretation.

Thus, whilst it appears that figural enhancements (i.e., animated tears; hand and chest movement) were immediately apparent for some ("[Y]ou can clearly make out there's a tear obviously," Sue_Interview), a review of the interview transcripts revealed that overall, eight participants seem to not have noticed any of the animations other than the movement of the colour as it spread to illuminate the panel. Instead, it was the accompanying soundscape, and the crying noises in particular, that elicited the strongest reactions from participants, with the weeping remaining a key point of discussion throughout many of the interviews.

A central motive behind the inclusion of the soundscape, and the weeping specifically, was to supplement the emotive atmosphere of the visualisations, thus giving users access into the aural dimension of the lamentation motif (see Chapter 4.3). In-depth analysis of the transcripts recorded 5 participants who specially noted how the digital interpretation confirmed their initial readings of the Burrell Lamentation. This sense of confirmation was a recurrent talking point, especially, among those

[278] The video installation can be consulted at [link removed due to potential Copyright restrictions].

participants with only limited prior knowledge in medieval art and devotion. Commenting on the digital interpretation, for instance, Aidan commented:

> I think it made the object more, eh, alive, and it – like if you had an assumption about what this object is – this gave me more idea or confirmation […] I heard the crying which is something I didn't anticipate but, you know, gave it more detail […] on how to interpret the, the object.[279]

This was echoed by Elsa, who, as mentioned above, inferred much of her initial interpretation of Burrell Lamentation on the posturing of the figures. She remarked:

> [W]hat I find quite affecting is the noise of the crying, because I think that's like an immediate sign of distress […] So in terms of enhancing what like initially I sorta thought, 'Oh, well the posture [of Jesus] suggests that maybe something's gone wrong here,' it kind of draws that out even more […] and it […] adds like an extra layer onto it.

For these participants then, aurally enhancing the emotion of the central female figure appears to have added an interpretative layer that the initial static version lacked. Yet, as much as the weeping seems to have illuminated the Burrell Lamentation for some participants, others expressed a certain unease towards the choice of sound. Asked about his thoughts on the digital interpretation, Jacob, for example, remarked that "the audio is quite disconcerting, especially the kind of whimpering… so you do have a more guttural reaction to that […] It feels far more personal". Daisy voiced a similar feeling of discomfort:

> [I]t's affecting [she said, but] when you start to hear the crying, like the grief, there is discomfort there… […] that's not a bad thing. I think it's – it is quite a natural reaction, isn't it, to hear… when you

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[279] Aidan repeated this fact at a later stage in his interview: "I told you before that I thought people [the figures depicted] were sad, but when I saw the video, I felt that sadness more […] like, it confirmed it to me."

> hear crying or grief or that kind of emotional reaction, there is a bit of a – there is a bit of discomfort, along with the empathy.[280]

For others, the crying was almost too intense for comfort. Fiona's reaction is an excellent point in case here, and discussions of the soundscape, and its unexpected impact, dominated her interview from the onset: "So my initial reaction was actually that the sound was quite strong in kind of what it affected – in how it affected me." When prompted to expand how, and in what ways the sound affected her, Fiona explained,

> Well, I mean it was super emotional, and I felt it was very strong […] I mean there were these different levels, or kind of layers coming in: so first kind of a wind sound, and then – I'm not sure what started first, but it was like this heart beating, and then a woman crying, and especially the kind of female voice in a way and hearing her cry, I found disturbing in a way and I was just for a moment even not sure if it was part of this or if, if *you* [the author] were making some noises or someone else, like it was really – it kind of threw me a bit out of what I saw […] I almost felt a bit overwhelmed by it […] it makes clear what it [the Burrell Lamentation] is about, but I think it could be more subtle in a way. (emphasis in original)[281]

The strongest initial reaction, however, was evinced by Rose. Asked to share her first impressions of the digital interpretation, she commented,

> I feel a bit manipulated because it's asking me to really feel sorrow of the object, but at – but then at the same time, I feel bad for thinking that because it obviously is a very sad scene and there's an emotional aspect to hearing a woman sobbing in that way, and to hearing her sorrow; so, you know, I'm kinda – I'm torn between being a little bit annoyed… at the same time… hearing someone being emotional and that has an impact on me personally.

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[280] Other participants were recorded voicing similar thoughts: "It is not a sound that makes me feel very comfortable" (Abbie_Interview).

[281] A second participant also expressed initial concerns with locating the source of the crying: "[T]he crying that was very good [*chuckles*] At the beginning I thought that someone else was crying and then I thought, 'Oh, yeah, no [*chuckles*] it's part of the video [*laughs*]" (Liam_Interview).

While the impact of the choice of sound on participants' viewing experiences can thus not be overstated, any discussion of the soundscape also needs to take into account the videoconferencing platform by which the evaluation activities were taking place.

As discussed in the methodology, considerations of the practical implications involved in the shift from in-person to online testing were systematically examined during the pilot stage of the evaluation (see Chapter 3.5.4). But although the shift to online was overall successful, as the interviews moved from the pilot to the main evaluation stage, it became apparent that the volume of the sound in particular started to increasingly impact participants' viewing experiences. A key difficulty encountered here is that unlike face-to-face evaluation activities, during which researcher and participant share the same physical space, and are therefore exposed to the same audio levels, once transmitted remotely online, the researcher – whilst able to control the audio input on their end – no longer has any control over the audio settings on the participants' end, and ultimately the volume at which participants hear certain audio elements. Despite the fact that participants were informed about the soundscape prior to being shown the installation video and asked to adjust their audio settings accordingly, data analysis showed that the volume of the sound did have more direct impact on participants' viewing experiences than initially expected; with the crying, in some cases completely dominating the visuals altogether. Bree's response to the sound is particularly revealing in that regard.

Trying to pinpoint her own "mixed feelings" towards the crying ("I felt somewhat distanced with the crying"), Bree explained, "the thing is that […] in this circumstance, you see, you experience the sound – it does dominate more than the visual." What makes Bree's comment even more instructive for the present discussion is that, upon seeing the installation video for a *second* time, she stated that she "didn't mind it [the crying] as much, and [she] liked that it kind of receded" into the background. At

first reading, Bree's comments could be interpreted as the visceral impact of the crying becoming less affecting upon subsequent viewings. However, the reason why her statement is so important to this study is that, as Bree re-watched the installation video, the researcher – unbeknownst to the former – minimised the volume of the audio to better hear Bree's comments as she talked through the digital interpretation. It was only during data analysis that the impact of this volume reduction on Bree's viewing experience emerged; it appears that a simple reduction in volume allowed her to refocus attention on the figural animations, and so to take in the visual cues more closely. Thus, although it is impossible to determine, retrospectively, how much the volume affected other participants' responses – either by amplifying their responses or, indeed, leading them to "overlook" visual cues completely – it is likely that the volume played a bigger role in participants' viewing experiences than initially presumed.

(ii) Open-Ended Interpretation: Facts vs Feeling?

When asked to elaborate on what they thought the *Tears of Our Lady* interpretation was trying to convey, all participants, no matter their initial responses, agreed that it is aimed at translating the emotive dimension of the scene, most notably so Mary's sorrow upon beholding the dead body of her son.

> I think I can really sum it up to this is about Mar[y] mourning and grieving about her loss… no one else is really active in a way… and we see… three ways how her feelings are displayed, and one is the tear, one is the heart and one is the hand. (Fiona_Interview)

This was echoed by other participants. Reflecting on the individual audio-visual elements, for instance, Sam commented,

> [I]t's almost not even as Jesus is like a key figure in this. It's more all about Mary; her emotions that she's feeling […] she's kind of like the, the first figure when her like the heart starts to get some colour, and then also starts moving first [so] she is the main figure and the only one that matters.

More importantly, however, data analysis revealed that even those eight participants who appear *not* to have noticed any of the figural enhancements (i.e., the animated tears; hand/chest movements, see above), nonetheless read the interpretation as centring on Mary.

> I felt like a descent of, like, focus […] because of the way the colours came in and then they went out and it really just brought my attention to Mary because […] it was as if – like the warmth this sort of like very two dimensional scene lacked showed up in her to draw attention to her and what she was going through which is kind of the whole point of this image. (Claire_Inteview)

Other participants made similar observations. Elsa, for instance, commented that as the colour spreads through the panel "it was like it was life being put back into it… like, you know, blood goes through people's veins like it was going back into the people in the image." Similarly, Kyle, who, as mentioned above, struggled with identifying the scene and the figures depicted without interpretation, remarked how "the bleeding of that colour in and out of scene was useful for trying to interpret what was going on with the person in the centre." He added:

> [I]t was a good dynamic way of filling the gaps of information that I had from looking at the photo that we're looking at now […] Certainly the element of grieving that I was talking about certainly comes through from the crying. […] it was a nice way to explain what was happening without having to read something… it was nice to have that in a non-verbal, written way cos then it's less sort of language specific […] there's no words in it, so it's very easy to interpret it in your own way.

These findings confirm that despite issues with the execution of the audio-visual elements pointed out above (both due to the poor saturation of the projections and the volume of the sound), the interpretation was, nonetheless, successful in translating Mary's sorrow by guiding viewers' gaze to the centre of the panel through the addition of colour and sound. For Kyle in particular, the interplay of sound and colour even led him to rightly identify "the stricken character at the front" as Jesus, and thus the figure "who's holding him and crying" as his mother, Mary. It thus

appears, by capturing the emotion particularly of the central, female figure, the *Tears of Our Lady* interpretation, at least for Kyle, added a layer of meaning to the piece which the static version lacked. Yet, while Kyle praised the digital interpretation for conveying meaning "across languages", the lack of "words" (i.e., spoken and/or written content) appears to have posed difficulties for others.

This was the case, for instance, for Abbie who, from the onset, was noticeably confused by the lack of customary "verbal explanation" in the interpretation. Her initial reaction to the installation video shows this clearly: "Um, I think [*pauses*] I think at the beginning I was waiting for more of a… verbal explanation or of... I've – I think I misinterpreted [*pauses*] I think [*pauses*]" (Abbie_Interview). Once asked to explain what exactly she thought she "misinterpreted", Abbie explained,

> I don't think I've got the initial um – when you [the author] said about it being an interpretation, an audio interpretation… in my head interpretations often involve *words* of some kind... (emphasis in original)[282]

Instead, for Abbie, the soundscape appears to have raised more questions than it answered:

> [T]he wind sound, that kind of thing, I didn't quite get it and [it] pulled me away from the piece because I was trying to work out in my head why the wind was there […] like I can see why the wind could potentially set the scene, but [it doesn't] tell about the scene necessarily if that's something that you were wanting to learn a little bit more about.

Thus, while conceding, like her peers, that "the crying definitely makes you aware of exactly what the scene is", Abbie admitted that she found the overall interpretation too "abstract", an aspect she anticipates "would

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[282] This is a slight misrepresentation. *The Tears of Our Lady* interpretation was introduced to all participants as containing an "audio element" and not as "audio interpretation". See Appendix E.1 for the interview template.

work for some audiences [but] for others may be distracting from the piece."[283] Instead, she opined that "even just an introduction of what the piece is or what it is depicting" (Abbie_Interview) would help understand the object better.

Other participants also referred to the lack of didactic, factual information, commenting that the interpretation "doesn't educate [them] about Christian, like Bible stuff […] which you would usually find, in […] the object label or something" (Fiona_Interview). Yet, although they, too, acknowledged the usefulness of further, especially background information on the biblical figures, compared to Abbie, their responses reveal that they "liked" the open-ended character of the interpretation.[284] Reflecting on her initial expectations of the *Tears of Our Lady* interpretation, Sue, for example, commented,

> I think when I was looking at it before you showed me the video, I was wondering if more of the object would kind of be revealed to me […] I guess I thought … maybe what a video [interpretation] might do is… animate the characters; tell me about who is in the scene. And I think I like the fact it didn't do that, that it remained ambiguous… it didn't add a story and it didn't infantilise it in any way either. You know it does not – some of these things sometimes they layer something onto like, 'Explain to children a religious story,' and I think that this doesn't do any of that kind of like broader stroke stuff […] So it makes me think now, 'Oh, I've still got questions about the object […] like, 'What is this?'; 'Who are they?'; 'What's going on here?', and I like that that hasn't been resolved by the animations. So, I like that it's encouraged me to think about it more as a mysterious object […]

Elsa agreed with Sue on this matter:

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[283] This coincides with Abbie's response to statement C3 of the SAQ for which she, along with Ron, was the only participant to agree that the digital interpretation "distracted [her] from the actual object." In comparison, the remaining 15 participants either "disagreed" (N=10) or "strongly disagreed" (N=5) with this statement.

[284] Providing the names of the figures, especially, was commented on a lot, both by participants with specialist knowledge in medieval art as well as those without.

> Like in terms of the things that I was […] wondering about like, 'What's happening here?'; 'What – what is going on in this scenario?' […] when I was watching it [the digital interpretation], I was much less concerned about who made it [the Burrell Lamentation] and I was more concerned about what was happening in it. I mean it might be – it might be useful, and certainly for the person who made it for, for us to know their name and […] maybe of when it was made or like the time it's depicting, but […] that could be complementary, that could be easily enough conveyed. I think this does – or it felt like it did what a label couldn't do.

Asked to elaborate on what the interpretation does instead, Elsa said, "like emotion, right? […] it's less about the facts of it and more about the human experience […] instead of imparting information, it's about having you *feel* something." (emphasis in original)

Thus, while the choice of interpretive approach appears to have obscured some facets of the Burrell Lamentation for some, for other participants it seems to have shone a new light, quite literally, on the fragment, enabling them to experience a dimension of the piece that often remains hidden in customary museological settings (i.e., "what a label couldn't do"). For those participants willing to engage with the interpretive content beyond "literal cues", the *Tears of Our Lady* interpretation appears to have opened up a space for reflection and engagement.

(iii) Seeing Beyond: Experiencing the Past & Projecting the Self

This is confirmed by responses to question C7 in the questionnaire which asked participants to what degree they agreed or disagreed with the following statement: "made me reflect on the potential meanings of the object". With 9 participants "strongly agreeing" and 7 "agreeing" with this statement, this question received the highest rated responses in the questionnaire. A similar picture arises from the interview data, which show that several participants were recorded using the *Tears of Our Lady* prototype as a scaffold to contemplate on the potential meanings the Burrell Lamentation would have had for its original viewers and, by

extension, their own engagement (or indeed lack thereof) with it in the present. Daisy's comments are a good example of this. Asked about what (if anything) she thought the *Tears of Our Lady* interpretation was trying to convey, Daisy reflected:

> The key thing here is emotional engagement […] it's generating empathy; it sort of gets you to think about how *you* would feel if you were in that scene. But also, I think to me – and again, I don't know if this is coming from a sort of thinking about it from an academic perspective as well – but I also start to think about, um… how this would have been viewed by contemporary people […] and the, the sort of, eh, you know, emotional, devotional, intellectual engagement that they had, um, when they saw the- this object or these objects […] it's re-imagining and kind of revitalising, I think, contemporary [medieval] emotional engagement with something like this (emphases in original)

Reflecting on her own teaching practice, Daisy continued:

> […] I'm used to seeing these sort of things and thinking about these sorts of things in that kind of academic context which […] can become a little bit abstracted […] I can talk about the, the materiality and can talk about the, the sort of devotional culture and people touching and, or kissing or whatever it is, there's – there's obviously still a barrier there, right […] as I say – we can't all go around licking manuscripts or like pawing at, at sculptures. So, some ways this [is] kind of a snap back to like, "Right! This was a, a used object. Like, this was an object that had a purpose; it was created; it was used; it was interacted with in lots of different ways […] it's a reminder for me that, you know, that these objects were used and alive.

Other participants drew similar parallels between the *Tears of Our Lady* interpretation and past devotional practices. Louise, for instance, who pointed out that as devotional artefact, the Burrell Lamentation "would have been seen as a very emotional piece and [thus] also conceived that way", argued that by digitally enhancing the emotive resonance of the object, the digital interpretation "allows you to see how viewers at the time would have received it." Rose conceded with this reading despite her initial reservations about the interpretative approach. Accordingly, when reflecting on the interpretation as one that aims to bring the past closer, she said:

> People are distanced from this [religious imagery]. It is an old language that has lost its power. So, I think the interpretation is putting back that emotional narrative […] which is lost when this is just a static object. I'm sure that's not the case for everyone; I'm sure some people look at it and, and absolutely feel the original meaning. For me, the original message is gone but the interpretation is putting the emotion back in. It's enhancing the job of the object […] so the original object is in some ways the low-tech version that communicated a narrative. You have done the extremely up-to-date version and what that does is it shows […] how these objects had a purpose, had the purpose of making you feel an emotion. You created something that is a very up-to-date version of this that brings that alive, that emotion of these objects communicating to my mind, communicating to manipulate [*chuckles*], to make you feel something.

Thus, albeit more critical in her reading of the interpretation, what Rose's comments have in common with those of the other participants above is that by digitally "re-vitalising" (Daisy_Interview) the emotive potency of the Burrell Lamentation, the *Tears of Our Lady* interpretation provided these participants a momentary glimpse into the pre-accession felt-life of the panel.

Beyond contemplating the potential meanings and uses attributed to the Burrell Lamentation in the past, the digital interpretation encouraged other participants to reflect on their own present engagement with the piece. One such was Sue:

> It's quite interesting to use sound and image creatively like this to also make you think about, "How do *you* emotionally feel in response to this object?" (emphasis in original)

Elsa shared similar views:

> Normally when I'm looking at something that's maybe art or a sculpture relief, you're projecting stuff onto it, and you're almost trying to make it come alive for yourself. Whereas this was a bit more – like it was meeting you a bit closer.

She continued,

> [L]ike I'm looking at the original now, and yeah, there is an element of being detached, and I could infer certain things, but it was fairly two dimensional […] whereas I felt much more drawn into it just from a few of those very humanistic cues […] yeah, I think we're sort of

> primed to connect with things like heartbeats and tears and so on. So yeah, I did feel much more connected to it.

(iv) Catalyst for Engagement

While other interviewees similarly conceded that the inclusion of humanistic clues in the interpretation "softened" (Sam_Interview) them up, the evaluation findings revealed that, overall, participants' personal, emotional connection to the Burrell Lamentation remained broadly unchanged (i.e., intellectually detached).[285] What the evaluation did reveal, however, is a marked increase in the attracting- and, by extension, the holding-power of the Burrell Lamentation, a fact that participants agreed the panel lacked without interpretation (see Chapter 5.2.1: *iii. Prior Interest*, above).

Claire, for instance, who remarked in her pre-experience interview that there "is nothing interesting about" the Burrell Lamentation that would lead her to want to engage with it further, remarked that the addition of the digital interpretation "made it a lot different than all other versions of this or that scene and [that she] would stop and look at it if it something like that was available." Asked to reflect on the impact of the interpretation she commented that seeing the Burrell Lamentation animated "makes [her] appreciate how easily [she] overlooks something like this." This is supported by Louise who admitted that one of her main takeaways from the *Tears of Our Lady* experience is "to spend more time in the museum with objects that [she] at first do[esn't] find that interesting." She continued,

> Like, I don't mean to slander your object [the Burrell Lamentation] but [*chuckles*] this would not necessarily be one of the objects that I'd spent loads of time with […] This would be one of the 'Ah, yeah,

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[285] The quotation referred to here reads as follows: "It [the digital interpretation] softens me up a bit, but I still don't feel sadness looking at it" (Sam_PS_Interview).

> Pietà, Lamentation,' and I would move on but […] if the Burrell was to exhibit it now, I would definitely go and have a look at it.

Rather than having changed these participants' emotion(s) towards the Burrell Lamentation per se then, the *Tears of Our Lady* interpretation appears to have affected them by instilling in them a renewed appreciation for the object, and, by extension, a shift in motivation to engage with it and other objects of its kind, in both a digital as well as analogue manner.

More revealing for the present discussion, however, is the fact that the same increase in the attracting and holding power of the Burrell Lamentation was recorded among those participants with only limited, if any, self-confessed interest in medieval art (see Chapter 5.2.1: *iii. Prior Interest*, above). Here too, the findings show that participants agree that, if available in a live display setting, the *Tears of Our Lady* interpretation would lead them to spend more time and engage with the object more closely.

> […] the first version you showed me… it's hard to feel too much because it is… it's very planted… it does look like a lot of, you know, general museum objects that you look and you might have a glance at the description and just walked past… but having this […] it almost forces you, doesn't it, to look a bit closer at the object [*laughs*]. (Jacob_Interview).

The same sentiment was echoed by other participants. One such was Mia:

> I think I mentioned that it [the Burrell Lamentation] is probably not an object I would even like stop by if I were walking by. However, if I was walking by a room and that object was there aside… next to… sort of that sounds and that being projected and sort of the colours, the crying, the emotions coming through, I would stop, I would pay it attention. It's quite emotionally affecting […] and seeing that would prompt me to want to learn about the object, whether that's reading the label or asking, maybe, a gallery attendant there about it. It makes me interested in the object in a way I would never have otherwise been.

Elsa concurred. Prompted to relate if the interpretation changed her perception of the Burrell Lamentation, she responded,

> Yeah, I'd say so. Because it's very humanising; It feels like 'Oh, maybe this isn't so disconnected from me or my experience,' because a lot of human emotions are really universal. So yeah, then once – and I think that's the thing – once you make the emotional connection then you end up with more of a desire to know more factually about it.

By commanding the viewer's attention from the start of the experience, the *Tears of Our Lady* interpretation emerged for these participants as a key incentive for exploring the piece in more detail, an incentive, as they put forth, it lacked without interpretation. More importantly, both Mia's and Elsa's responses here reveal that, beyond triggering a first, vital key act of engagement, the "humanistic cues" appear to have *created* interest in those participants with only limited, if any, interest in the Burrell Lamentation prior to the interview. This finding is substantiated by statement C.8 in the SAQ which recorded the majority of participants agreeing that the *Tears of Our Lady* interpretation "made [them] want to know more about the object" (N=6 Strongly Agree; N=8 Agree). Only three participants noted that they neither agreed nor disagreed with this statement.

Key in furthering this enhanced engagement and interest, however – and here participants (both specialists and non-specialists) agree – is a balanced approach.

(v) A Double-Edged Sword

All participants agreed on the effectiveness of using emotion as an interpretive tool for increasing, and indeed fostering interest and curiosity, both regarding the Burrell Lamentation in specific, and in display contexts more generally. In doing so, however, participants also cautioned that pro-actively harnessing emotion in exhibition design is a balancing act. Fiona's comments are an excellent point in case here:

> I think it's like a double-edged sword. So in one way [she put forth] it's really good to make people feel something about what they see because it actually, you know, then you get the attention, and it's not just a boring place with all dead things but things come alive […] so whenever you manage to create an emotion […] the visitor feels something and connects in a way… but it can often be too strong, and especially sounds.

Recalling a "scaring" sound experience in a past exhibition, Fiona continued by recounting how the inclusion of sound (i.e., children crying) overpowered her viewing experience by turning the exhibition in a "haunted house" fairground attraction:

> [S]o that would definitely be a direction where there was too much [sound] for me, so I think coming back to this example, it's a really good way for conveying a story, and not just in an intellectual way but in an emotional way, but the way that it starts and stops, and what role the visitor plays in this […] would make, I think major differences […] I would always go for the option that leaves more freedom instead of manipulation.

Other participants agreed on this point:

> I think it depends on how emotion is used [Claire commented] because it could be quite manipulative, um, depending on the message of the exhibition or, um, but I think the message here is about maternal suffering and I think it's a really effective way to make people look twice and to decide what they think about the piece.

What emerged from participant responses was thus less a case of *whether* emotion should be used in display contexts, but rather *how* it should be used. Two considerations, in particular, emerged as key among participants for ensuring a successful practical implementation, *interpretive approach,* and *user input and interaction*.

Interpretive Approach: Subtlety is Key

A key concern among participants centred on the interpretive approach. During the evaluation, a distinct correlation emerged between a refined audio-visual design and an overall positive user experience. Thus,

participants concur that only “if done well” (Bree_Interview) and in a “thoughtful” (Kyle_Interview) manner, does an emotive interpretative approach have the potential for engaging new and existing visitors more deeply with the material on display. Otherwise, the interpretation runs the risk of becoming “corny”:

> It could be really corny [Sue commented] like if, if you started having the faces all like completely well fleshed and giving them [the figures] all characters, I would find that a little bit infantilising or something along those, those ends.

The need for a respectful interpretive approach is amplified, Kyle opines, when displaying artefacts, such as the Burrell Lamentation here, that may hold very personal meanings for some visitors.

> You never want it to be gimmicky [Kyle asserted] because obviously what you’re doing is representing old things that are […] impressive or meaningful in their own way as they are. But I think that when it’s done right […] it can stay with you […] it’s more likely to stick in the memory.

To ensure that this is the case, participants recommended subtlety when it comes to digital content design. If done well, however, their responses suggest that emotive digital practices are effective and affective means to facilitate and even amplify opportunities for long-term engagement, by “sticking” in viewers’ memory.

Optionality & the Role of the Visitor

Discussions about the interpretative approach also triggered wider, more critical reflections among participants on the physical, in-situ viewing experience of the *Tears of Our Lady* interpretation, raising intriguing questions regarding user input and interaction.

A key concern for participants was the role of the visitor in the viewing experience. Discussing the impact the audio had on her viewing experience, in specific, one participant, Sam, for example, commented:

> I feel like it makes it more engaging – and I'm, I'm trying to imagine that if it's in a museum setting, if it would be kind of like, a piece that you would pick up headphones and listen to because that could be, like, definitely very moving because it's like you're in your own kind of like bubble at that point um…. but if it was just generally being played in a room, I think it would be hard to look at anything else.

Other participants also raised similar questions: "Would it be running all the time in a loop? [Fiona wondered, or] would it just like start when visitors would enter the room, or would visitors turn it on themselves?". Prompted to expand on these thoughts, she continued:

> [I]f it would run automatically without the visitor having any say in it, then it would be like, it would really define how you can see this object, right? It's like, it's then more like a film screening: You enter the room; it's black; then you see the faces; then you see the mourning; then it would end and you will probably leave […] the positive aspect of you turning it on yourself would be that you have more freedom and looking at the object before and after, comparing what you see, maybe also reflect after you've seen the projection: 'Does this change anything in the way I see the object?' […]

What participants agreed upon, however, was that optionality – that is, the freedom to make the choice on whether or not to see the digital interpretation – is an essential prerequisite for any in-situ, physical instantiation. Discussing the impact of the digital interpretation on her viewing experience, Louise, for instance, stated that if "you actively opt to have it, I think it can be a very, very powerful tool. But you should also have the possibility of seeing the object without the interpretation." Asked if she herself would "opt to" see, the latter responded,

> I would opt to see it absolutely […] but I think as long it's like a personal choice, it's an amazing option to have, because it will force you to have… or just to spend more time with an object and to look at it more thoroughly.

Having the option to choose between engaging with an artefact via digital intermediaries or without (i.e., turning them off when desired) was also a key point of discussion for Claire. Thus, whilst she confirmed that the projections, in this case, "improved [her] understanding of the piece,

[she] could [also] see it ruining the experience of an art piece for [her] if it didn't have the option to see the piece without it."

This chapter presented the findings of the user evaluation carried out to investigate the impact of the *Tears of Our Lady* interpretation on participants' engagement with and understanding of *The Lamentation of Jesus Christ* on which the interpretation is based. Drawing on interviews and self-administered questionnaires conducted with 17 participants online, findings confirmed that the *Tears of Lady* interpretation was successful in facilitating user engagement with the Burrell Lamentation beyond the formal, stylistic dimensions that normative museum displays tend to stress. Crucially, by allowing users unprecedented insights into the interactive, particularly so emotive, engagements that medieval devotional objects would have engendered in their pre-accession existence, the digital interpretation did not only increase appreciation of the Burrell Lamentation among participants with academic background in medieval art and devotion, but also, and more importantly, triggered interest in the object for those participants without.

Beyond these immediate findings, the user evaluation highlighted three wider, but intersecting themes pertaining to discourses (theoretical and practical) surrounding the public display of (medieval) devotion more widely. These include (a) user expectations and the importance of providing visitors with layered interpretation (i.e., content- and media-wise), (b) the complex challenges involved in promoting public engagement with the emotive felt-life of (medieval) devotional artefacts, as well as (c) the wider opportunities and rewards such interpretive endeavours hold for user engagement, reflection, and interest.

Before discussing these themes in more detail, however, the chapter that follows begins with a reflection of this project as a whole. This includes a critical review of the research aims and questions underpinning this project, and how these were met.

Chapter 6 Discussion and Conclusions

6.1. Introduction

The discussion presented in this chapter synthesises and critically reflects on the insights gained from this research project. Starting with a brief review of the overarching research aim and motivation, this chapter provides a summary of the research questions that underpinned this project and reflects on how these were met. This includes a discussion of the three overarching themes that emerged from the practice-based component of this research, particularly the evaluation of the *Tears of Our Lady* interpretation, and how they contribute to the wider discourses (theoretical and practical) pertaining to the public display of late medieval art and devotion. These themes include (a) user expectations and the importance of providing visitors with layered interpretation (i.e., content- and media-wise), (b) the complex challenges involved in promoting public engagement with the emotive felt-life of (medieval) devotional artefacts, as well as (c) the wider opportunities and rewards such endeavours hold for visitor engagement user engagement, reflection, and interest.

The chapter concludes with a reflection on the main limitations of this project and how these may be addressed in future research. This is followed by a final summary of this research project and its contributions to existing scholarship and cultural heritage practice.

6.2. Research Aim and Motivation

This thesis began by arguing that, although late medieval devotional objects were inherently interactive, the prevalent practice of museums is to display these artefacts as decontextualised works of art. It was put forth that, by continuing to primarily stress the formal qualities of these artefacts, contemporary curatorial practice is missing a vital opportunity

not just for enhancing public understanding of the meanings these objects would have had in the past but also – and arguably more importantly – for creating new avenues for engagement with them in the present. The use of digital technologies can enable cultural heritage institutions to enhance audience accessibility and engagement with dimensions of an object's biography that traditional interpretive media cannot accommodate. However, based on personal observations in museum displays across Europe, the thesis posited that rather than pushing normative, aesthetic display practices, in most cases, digital interpretation is used to reinforce them, thus leaving much of the potential of the medieval artefact(s) as well as that of the digital itself unlocked.

Predicated on these premises, the overarching aim of this project was to conduct practice-based research into how digital technologies can be meaningfully employed to foster and enhance user engagement with late medieval artefact collections beyond the formal, stylistic emphases that normative museum displays tend to stress. To address this aim, this research centred on three distinct but complementary research questions (RQs). The first of these questions, RQ1, was aimed at reviewing how digital tools are currently used in public displays of late medieval art. RQ2 was geared specifically at carrying out practice-based research into how digital interpretation may be used to enhance the interactive, particularly so emotive, resonance of late medieval devotional artefacts. RQ3 examined how the digital interpretation designed in answer to RQ2 might impact user experience of and engagement with these objects. The sections that follow summarize findings relevant to each of the research questions in turn.

6.2.1. RQ1. How are digital technologies currently used in the interpretation of late medieval Christian collections in public display settings?

The first research question (RQ1) sought to investigate how cultural heritage institutions use digital technologies for interpreting their late medieval Christian collections. Any insights into current digital practice(s) gathered as part of RQ1 were then to be used to help contextualise and lend focus to the digital interpretation designed and evaluated as part of RQ2 and 3.

This thesis began addressing RQ1 through a detailed review of existing literature – books, academic journals, exhibition catalogues and reviews – on the topic. As outlined in Chapter 2, however, the literature review revealed that, despite the extensive scholarly attention both medieval, and digital cultural heritage studies have received in the last decade alone, presently only limited (and even less empirical) research is available which explores how digital interpretation is used in public display of late medieval collections. A key contribution of this research was thus to address this gap by carrying out a cross-site survey into the adoption and use of in-gallery digital interpretive media provision in galleries of medieval art. This included a critical examination of the wider museological questions raised by these applications for object interpretation and visitor engagement. The findings generated from this survey contribute directly to scholarly discussions pertaining to the public display of late medieval artefact collections.

The findings of the cross-site survey are detailed in Appendix A.2 and A.3, respectively. They can be summarised as follows:

Of the 17 institutions surveyed, 10 employ digital interpretive media for interpreting their medieval collections. For the seven remaining institutions, object labels and captions remain the main interpretive

media. In the cases where digital interpretation was recorded, three overarching thematic emphases emerged:

(a) Iconography and Style. The most widely used thematic emphasis in the digital interpretation of medieval art is iconography and style. Primarily provided via touch-screen kiosks, the digital is used here to provide users primarily with audio-visual content on iconographic details of individual objects and/or period styles.

(b) Techniques & Materials. Another prevalent use for digital interpretation recorded is the visualisation (predominantly via video content) of processes and materials used in the making of selected medieval artefacts on display. Particularly effective in this regard are those videos that show contemporary craftspeople recreating the techniques involved in the making of the objects on display.

(c) Contexts and Use. In other cases (albeit less frequently), the digital is used to introduce visitors to the original functions and uses of the devotional objects on display. Digital interpretation here includes audio provision (especially period music) to evoke devotional atmospheres and videos (including projections) of actual and/or recreated devotional rituals (e.g., liturgical processions). This change in interpretive approach reflects a wider shift in medieval scholarship towards devotion as an embodied, and (multi/inter)sensory practice (see Chapter 2.2.2).

Combined, these findings validate both hypotheses (i.e., H1 and H2) formulated at the onset (see Chapter 3.4.1). Indeed, not only did the survey reveal limited adoption of digital in public display of medieval art, but it also – and more importantly – indicated that, despite a noticeable shift towards the functional uses of medieval devotional artefacts, digital is used predominantly to help visualise factual content on iconography and style. These findings confirm, as argued throughout this thesis, that, instead of pushing interpretive boundaries beyond traditional art-historical emphases, current digital interpretation tends to reinforce them, leaving both the potential of the objects as well as the digital unlocked.

6.2.2. RQ2. How can the original use and impact of late medieval Christian objects inform their digital interpretation today?

With the cross-site survey complete, and the research hypotheses confirmed, attention moved to answering RQ2, the most important question in addressing the overall aim of this research project. Adopting a practice-based approach, RQ2 set out to investigate how digital technologies may be used for enhancing public engagement (especially among non-specialist audiences) with medieval devotional artefacts beyond the formal, aesthetic qualities that normative displays tend to stress. In particular, it explored how insights into the original meaning(s) and use(s) of medieval artefacts can be used to inform contemporary digital interpretive practice. The *Tears of Our Lady* interpretation and prototype that resulted as part of this practice is one working example of how this may be achieved.

As a creative output of this practice-based research, the *Tears of Our Lady* interpretation and prototype constitutes the main contribution of this research project. However, just as important as the output itself were the wider methodological and empirical decisions underpinning that creative practice. A key component of answering RQ2 then consisted of documenting and critically reflecting on the design and development of the *Tears of Our Lady* interpretation and prototype, from initial object selection, digital content strategy and design to the implementation and final user evaluation. This included a discussion of the challenges encountered along the way (i.e., collection access; COVID-19) and how these impacted the final instantiation. The results of that reflective practice were formalised in chapters 3 and 4, respectively.

6.2.3. RQ3. What is the impact of digital interpretation of late medieval Christian objects on visitors' experience and engagement?

To extend the practice-based research carried out as part of RQ2, the third research question (RQ3) sought to evaluate the public's response to the *Tears of Our Lady* interpretation and prototype. The aim of the evaluation was to assess the impact of the digital interpretive approach adopted on users' experience of and reaction to *The Lamentation of Jesus Christ* (ID Number 1.24). The user evaluation findings, including the wider museological questions these raise (see Chapter 6.3 below) are pertinent not just to The Burrell Collection specifically (i.e., the institutional partner of this project) but are of significance to both academics and practitioners working on the contemporary (digital) engagement with the medieval past more widely.

However, answering RQ3 did not come without problems. As outlined in Chapter 3, the sudden onset of COVID-19 just days prior of the evaluation activities, necessitated all face-to-face evaluation plans to be abandoned and rethought. In order for the *Tears of Our Lady* evaluation (RQ3) to go ahead in the period following the nation-wide lockdowns and ensuing social distancing policies, the decision was made to transfer all in-person evaluation activities to the online platform Zoom. Yet, while this shift in research environment and data generation format was theoretically sound, it gave rise to an unexpected, fourth research question:

RQ4: How to evaluate a physical exhibit online?

Informed by initiatives adopted by other museums and cultural heritage institutions as they were forced to close their door to the public due to COVID, RQ4 was addressed by turning the initially planned physical, in-situ installation into a purposively curated installation video which could

be shared with participants synchronously online via Zoom and allowed them to provide feedback remotely. The resulting online evaluation, especially, made a timely and significant contribution to the post-pandemic discussions of visitor research and evaluation. Besides acting as a testament to the researcher's resilience and dedication for carrying out the evaluation despite the unprecedented challenges of the pandemic, the *Tears of Our Lady* installation video provides a first-hand insight into how to translate an initially planned in-person installation into the digital realm. Moreover, it raised vital insights into remote user evaluation. Whilst the implications the change in evaluation format had on participant profiles was addressed in detail (see Chapter 3.5.4), one of the key findings of the user evaluation was that the shift from in-person to online evaluation did not negatively impact the user engagement with and understanding of the *Tears of Our Lady* interpretation. Instead, the evaluation revealed that it was not despite these mitigations but indeed *because* of them that participants were able to provide a distinctly rich set of in-depth answers that in-situ testing in Kelvingrove may very well have inhibited (e.g., due to ambient noise; visitor saturation). Crucially, albeit not being able to replicate the exact viewing experience of the initially planned physical prototype, the research found that the affordances offered by the video installation furthermore enabled participants to engage with, and reflect on, the *Tears of Our Lady* interpretation, its individual design choices (i.e., animations, visualisations and soundscape), as well as the broader interpretive approach underpinning it, in a manner that the physical counterpart would not have permitted. The camera movements and close-ups in particular allowed participants to take in details of the interpretation (i.e., the tears; Mary's hand movements) that might not have been as discernible otherwise. A detailed overview of the impact of the digital interpretation on participant engagement, reflection, interest, and viewing experience are outlined in Chapter 4. Together with the practice-based output of this research, that is the *Tears of Our Lady* interpretation and prototype, these findings constitute the key contributions of this thesis.

The section that follows reflects on these findings holistically and explores how they contribute to the wider discourses (theoretical and practical) pertaining to the public display of late medieval art and devotion. In so doing, it reflects critically on three wider yet intersecting themes that the user evaluation highlighted.

6.3. Key Themes

The user evaluation of the *Tears of Our Lady* interpretation shed light on three intersecting themes: (a) user expectations and the importance of providing visitors with layered interpretation (i.e., content- and media-wise), (b) the complex challenges involved in promoting public engagement with the emotive felt-life of (medieval) devotional artefacts, as well as (c) the wider opportunities and rewards such endeavours hold for visitor engagement user engagement, reflection, and interest. The sections that follow elaborate on each of these themes in turn, all the while continuing to draw on findings from the evaluation and relating them to relevant discourses in existing scholarship and practice in the field.

6.3.1. Visitor Expectations and the Provision of Layered Interpretation

The overarching aim of this practice-based research project was to explore how digital technologies may be meaningfully employed to facilitate user engagement with late medieval artefact collections beyond the formal, stylistic dimensions that normative museum displays tend to stress. The *Tears of Our Lady* interpretation which resulted as part of that practice has emerged as an effective (and affective) means of how this may be achieved. However, whilst the digital interpretation was received positively overall, and did indeed increase participant interest in the Burrell Lamentation, for one participant in particular, the interpretive decision of omitting any kind of contextual information (written and/or

spoken) about the Burrell Lamentation (see Chapter 4.3.2) foreclosed engagement with it instead of promoting it. The participant responses in question are detailed in Chapter 5.2.2.

Although that particular participant remained the only one to be left overtly confused by the lack of contextual information provided, other interviewees also commented on how the *Tears of Our Lady* interpretation momentarily disrupted their initial expectations of what they thought a digital interpretation of a (medieval) artefact would do. Besides recurring comments regarding the visual enhancements of the colours and figural animations (specifically so the animated tear), for instance, participants remarked that they would have "expected" the digital interpretation to provide them with additional historical and/or contextual information on the Burrell Lamentation, its motif, and the individual figures it depicts.[286]

Thus, while it remains to be explored if and how visitor expectations change depending on the collection(s) and/or audience demographic under investigation, for this study specifically these findings point towards a tension between participants' receptiveness to an interpretation that pushes interpretive boundaries, and a continuing expectancy, and for some, reliance, for more structured, didactic information for furthering historical understanding, meaning making and engagement. This is the case especially for participants without extensive prior knowledge of medieval art and devotion, and for whom the presence – or indeed lack – of additional interpretive resources may very well make the difference between alienation and engagement with an artefact on display.[287]

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[286] Participants referred to here include Aidan, Daisy, Elsa, Fiona, and Sue.

[287] Peter Samis, "Revisiting the Utopian Promise of Interpretive Media: An Autoethnographic Analysis drawn from Art Museums, 1991-2017," in *Routledge Handbook of Museums, Media and Communication*, eds. Kirsten Drotner, Vince Dziekan, Ross Parry and Kim Christian Schrøder (London: Routledge, 2018), 60.

However, these findings should not be used to diminish the overall value of providing audiences with increasingly open-ended, experiential interpretations.[288] Rather, the findings confirm that, instead of eclipsing cognitive, knowledge-based outcomes, different interpretive approaches (whether open-ended/didactic and/or cognitive/emotive) should act as constitutive forces in enhancing user engagement and understanding of medieval devotional collections.[289] The same applies to the mode of display.

The *Tears of Our Lady* interpretation clearly reinforced the potential of digital for engaging users with medieval artefacts beyond the formal art-historical dimensions normative curatorial practice tends to stress. Yet, it also acts as a vivid reminder – as detailed in Chapter 2.4 – that, albeit digital does indeed facilitate subject-object engagements that the "real" thing or, in this case, traditional, mainly analogue means cannot, approaching them in binary terms (e.g., digital vs analogue/physical) does injustice to their individual capabilities. Instead, and in line with the interpretive approaches above (i.e., open-ended/didactic and/or cognitive/emotive), the digital and analogue should be used in tandem, that is, as distinct yet complementary modes for furthering user engagement with medieval collections, both immediate and long-term.[290] Key then is to provide users (both in-situ and online) with layered interpretive offerings.

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[288] Galani and Kidd, "Evaluating Digital Cultural Heritage 'In the Wild': The Case for Reflexivity," 10.

[289] Sara Perry, Maria Roussou, Maria Economou, Hilary Young, and Laia Pujol, "Moving Beyond the Virtual Museum: Engaging Visitors Emotionally" *2017 23rd International Conference on Virtual Systems and Multimedia, VSMM* (2017), 3, https://doi.org/10.1109/VSMM.2017.8346276; Galani and Kidd, "Evaluating Digital Cultural Heritage 'In the Wild': The Case for Reflexivity," 10.

[290] Perry, Roussou, Economou, Young, and Pujol, "Moving Beyond the Virtual Museum: Engaging Visitors Emotionally," 3.

The *Tears of Our Lady* prototype specifically was designed as a scaffold for exploring the impact of emotive, digital interpretation on user interest in and reflection on the Burrell's *The Lamentation of Jesus Christ* (ID Number 1.24). Hence, while the interpretation was successful in meeting the interpretive objectives defined as part of it (see chapters 3.5.4 and 4, respectively), in its current conception, the *Tears of Our Lady* interpretation does not yet provide users with the possibility of accessing any alternative content beyond the immediate audio-visual sequence, or, indeed, any follow-up information once curiosity and/or interest are peaked. Based on these above findings, however, any future instantiation of the *Tears of Our Lady* interpretation, as well as any other research and practice into digital engagement with medieval museum collections, should endeavour to provide users with multiple points of entry into these inherently complex artefacts, and so facilitate and enhance engagement for wide audiences with diverse needs and expectations.

6.3.2. Interpreting Devotional Objects: A Balancing Act

This practice-based research also drew attention to the broader complexities associated with displaying devotional heritage, particularly so those interpretive endeavours, such as the present one, that aim at facilitating public engagement with the emotive felt-life of (medieval) devotional artefacts. As noted variously throughout this thesis, the aim of this practice-based research, and the *Tears of Our Lady* interpretation that resulted as part of it – while informed and inspired by the devotional, affective context(s) in which the lamentation motif arose and circulated – was never to recreate digitally a pseudo-devotional experience in a secular space (see chapters 1.3 and 4.3, respectively). Instead, it was argued that, even if it were possible to capture a past experience in the present, the interpretation of these experiences is socially and temporally situated, making it impossible for contemporary, twenty-first-century audiences to interpret them the way period audiences would have done.

Rather, the objective of the digital interpretation was to temporarily displace the "museum effect", and to break the often dispassionate, objectifying distance gaze it engenders by opening up a space for the historical imagination of the dynamic networks at play in the reception and use of the many, now seemingly static remnants of the medieval past.

As the user evaluation highlighted, however, it appears that it was precisely this break with traditional museum practice that some participants found issue with. One participant who was very vocal about this was Rose. Reflecting on the museumification of devotional, specifically Christian, artefacts, she commented:

> [I]n their original context their use was to communicate stories from the Bible […] to create emotional narratives whereby people would engage on an emotional level, and be convinced by the stories, you know, they operated as a tool to make sure that people believed in this and therefore followed the rules of the church […]

Once relocated into a museum, however,

> [i]t lifts that message and puts it into an alien environment where we can be much more objective about what we're looking at; we can then fully recognise it as an object […] Whereas when it's in church you're surrounded by vaulted ceilings and architecture and everything that is created in the that environment is pressuring you to feel and to be convinced by [an] ideological message. When that's lifted into the museum space it doesn't have that ideology around it or you can at least question what the ideology is.

At least for Rose then, the objectification of devotional artefacts that the *Tears of Our Lady* interpretation aimed to push appears to be an essential prerequisite for her to engage with these artefacts as "objects". By extracting *devotionalia* from their original contexts, and turning them into works of art, the museum frees them from ritual networks and entanglements, and in the process, presumably, neutralises these ideologically loaded artefacts by turning them into objects for dispassionate, intellectual appreciation. The *Tears of Our Lady* interpretation, however, by momentarily "revitalising and reinvigorating contemporary (i.e., medieval) emotional engagement" (Daisy_Interview),

for Rose, it re-instils the Burrell Lamentation with some of its past, devotional potency, "communicating to [her] mind to manipulate, to make you feel something" (Rose_Interview).

Without wanting to undermine the importance of Rose's comments for this research, and their wider implications for other projects of its kind, it is crucial to bear in mind that the practice of museums to eschew affective, devotional interpretations in favour of assumed objective, rational interpretations of style and iconography, is all but neutral.[291] As touched upon in Chapter 2.3 of this thesis, the history of the modern museum is intimately intertwined with the socio-political ideologies of its time. Accordingly, as Margaret Wetherell pointedly put it, the "professional neutrality and the flat affect of expert interpretations of the past that played down the more febrile emotional response are [themselves] emotionally situated."[292]

Importantly, however, Rose's reaction also acts as a reminder that visitors – whether in-situ or online (as was the case here) – play an active role in meaning making and understanding. Much scholarship, for instance, has explored how different visitors react differently to the same object or/and exhibit, in the process evidencing that their viewing experiences, as well as their interpretations thereof, are necessarily

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[291] Paul Ariese, "Interpreting Religion with Cultural Heritage Students," *Museum & Society* 19, no. 1 (2021): 1-4, https://doi.org/10.29311/mas.v19i1.3430; Hughes and Wood, *A Place for Meaning*, 26-7; Promey, "Foreword: Museum, Religion, and Notions of Modernity," xix-xxv.

[292] "Introduction: Affective Heritage Practices," in *Emotion, Affective Practices, and the Past in the Present*, eds., Laurajane Smith, Margaret Wetherell, and Gary Campbell (Abingdon, Oxon: Routledge, 2018), 8; Laurajane Smith and Gary Campbell, "The Elephant in the Room: Heritage, Affect, and Emotion," in *A Companion to Heritage Studies*, eds., William Logan, Máiréad Nic Craith, and Ullrich Kockel (Chichester: John Wiley & Sons, 2016), 448; Sheila Watson, "Emotions in the History Museum," in *The International Handbooks of Museums Studies: Museum Theory*, eds. Andrea Witcomb and Kylie Message (Hoboken, NJ.: John Wiley & Sons, Ltd, 2015), 287, https://doi.org/10.1002/9781118829059.wbihms992; Alys Cundy and Yvonne Pörzgen, "Emotional Strategies in Museum Exhibitions," *Museum & Society* 14, no. 3 (2016): 359-62.

contingent on their own social, cultural, and political backgrounds.[293] This is enhanced ever more when dealing with the public display of difficult, emotional heritage, such as the material culture of religion. As a result, it is possible that some individuals might resist or even reject an interpretation altogether.

The notion of emotional interpretive approach as "double-edged sword", as postulated by one of the participants, emerged as a particularly fruitful critical lens through which to approach the (digital) interpretation of devotional artefact collections, and the wider, potentially disparate, user responses to it. Consequently, even a well-meaning interpretation aimed at bridging the distance between object and viewer may very well have the opposite effect, foreclosing engagement, and at its worst, may run the risk of entrenching ideological positions potentially irrevocably:

> Cut one way and we can inspire meaningful engagement, deep investment in subject matter, and long-lasting impressions. Cut the other way and we risk manipulation, stunted learning, cynicism […][294]

Participant responses to the *Tears of Our Lady* interpretation clearly illustrate this fine line referred to here between fostering enhanced engagement, on the one hand, and manipulation (or indeed perceived proselytization), on the other. Thus, while fundamentally in favour of employing emotion as an interpretive approach for actively engaging

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[293] See, for instance, Eilean Hooper-Greenhill, Museums and the Interpretation of Visual Culture (London: Routledge, 2000); and John H. Falk and Lynn D. Dierking, *Learning from Museums: Visitor Experiences and the Making of Meaning* (Walnut Creek, CA.: AltaMira Press, 2000). With regard to affective practices, Laurajane Smith, for instance, introduced the notion of "registers of engagement" for accounting for the understanding that individuals react and engage differently to the same site or exhibition. See Smith, "Visitor Emotion, Affect and Registers of Engagement at Museums and Heritage Sites," *Conservation Science in Cultural Heritage* 14, no. 2 (2014): 125-32, https://doi.org/10.6092/issn.1973-9494/5447; and Smith, *Emotional Heritage: Visitor Engagement at Museums and Heritage Sites* (London: Routledge, 2020). ma

[294] Stacey Mann and Danny M. Cohen, "Crying at the Museum: A Call for Responsible Emotional Design," *exhibition* (2017): 90, https://static1.squarespace.com/static/58fa260a725e25c4f30020f3/t/5aed1b92575d1f3002e40fe5/1525488531877/15_Exhibition_CryingAtTheMuseum.pdf.

audiences, participants also cautioned against "manipulating visitors", that is, leveraging emotion to pressure visitors towards a specific, preconceived interpretation and/or feeling.

Barbara Franco argues that it is exactly that "fear of appearing to advocate for a particular religion or particular set of beliefs" that keeps many museums from interpreting religion more overtly.[295] After all, religion is a subject that is "highly emotive as well as hugely complicated."[296] Accordingly, "if [as Crispin Paine states] museums are sometimes reluctant to get involved with religion […] that is understandable."[297] It is similarly understandable that some institutions may choose to display their religious/devotional objects, especially those of Christian origins, at a safe distance, both literally, through glass vitrines, and metaphorically, through interpretive approaches that eschew devotional meaning(s), practices and belief in favour of seemingly simpler, and potentially less divisive, foci such as aesthetics or objects' material qualities.[298] As this research has shown, however, much can be gained from actively engaging with difficult, and inherently complex subjects, such as medieval art and devotion.

6.3.3. Embracing the Challenges of Engaging Visitors with Devotional Artefacts

Religion is a fascinating subject; but it can also be very divisive. The weight of that subject is felt especially strongly when it comes to the

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[295] Franco, "Issues in Historical Interpretation: Why Interpreting Religion is so Difficult," in *Interpreting Religion at Museums and Historic Sites*, eds. Gretchen Buggeln and Barbara Franco (Lanham, MD.: Rowman & Littlefield, 2018), 152-54.

[296] Paine, "Change – But Not Enough Yet," 3; Reeve, "A Question of Faith," 128-30; Gretchen Buggeln and Barbara Franco, "Introduction," in *Interpreting Religion at Museums and Historic Sites* (Lanham, MD.: Rowman & Littlefield, 2018), xi.

[297] Paine, "Change – But Not Enough Yet," 3.

[298] Reeve, "A Question of Faith, 128; Tythacott, "Curating the Sacred," 4.

display and interpretation of religious heritage (past and present; tangible and intangible) in public museum settings. Yet, as important as it is to acknowledge the many complex concerns posed by the public display of religion, it is equally important to highlight the many potentialities involved in museums actively engaging with them, and the resulting impact on visitor engagement.[299]

As pointed out above, it is understandable that some institutions may shy away from overtly interpreting devotional meaning(s), practices and beliefs associated with their collections, and choose to foreground presumably "safer" foci, such as style, iconography, or technique. Ultimately, museums have a responsibility to all their visitors (for what are museums without visitors?) and they need to endeavour not to alienate any demographics through their display practices.

As has been argued throughout this thesis, however, by exploring but one facet (e.g., stylistic; iconographical) of these dynamic and very much interactive artefacts, contemporary display practices only tell part of the story of these artefacts and are thus missing vital opportunities for facilitating and enhancing visitors' understanding of the deeper meanings associated with their (medieval) devotional collections. More importantly, these types of approaches inhibit museums from creating new and innovative avenues for engaging their visitors with these collections in the present. Indeed, one of the key recommendations coming out of the findings of this research is that, instead of omitting (digital) interpretations of objects' devotional meanings and uses completely, the focus should be on harnessing these interpretations responsibly, and above all, sensitively.[300] This is not a simple task, and

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[299] Buggeln and Franco, "Introduction," xi.

[300] Gretchen Buggeln, Crispin Paine, an S. Brent Plate, "Afterword: Looking to the Future of Religion in Museums," in *Religion in Museums: Global and Multidisciplinary Perspectives* (London: Bloomsbury, 2017), 249. Cundy and Porzgen, Emotional

the stakes are high.[301] But if done thoughtfully and creatively, the rewards are high too.

6.4. Research Limitations

This research had a number of limitations. Firstly, some limitations were identified as part of the cross-site survey carried out in Phase I of this thesis. Due to the agentic role of the researcher in purposively selecting cases from a target population, caution should be exercised when drawing generalisations from the data thus gathered.[302] Despite this, the findings generated from the cross-site survey serve as representative indicators of the curatorial trends in the adoption and use of digital in public displays of medieval art, especially amongst institutions fulfilling the same selection criteria (i.e., period; provenance; collection type). The findings from Phase I were furthermore meant to be enhanced by interviews with selected staff members (e.g., curators of medieval art) of some of the institutions that took part in the cross-site survey. However, the significant time and resource constraints involved in the planning and execution of the practice-based component of this research (i.e., Phase II), and the *Tears of Our Lady* output that resulted as part of it, led to the decision to omit carrying out these follow-up interviews. This could

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Strategies, Museum and Society, 360; Watson, "Emotions in the History Museum," 296. Stacey Mann and Danny M. Cohen, "Crying at the Museum: A Call for Responsible Emotional Design," exhibition (2017): 90, https://static1.squarespace.com/static/58fa260a725e25c4f30020f3/t/5aed1b92575d1f3002e40fe5/1525488531877/15_Exhibition_CryingAtTheMuseum.pdf. + Developing a Toolkit for Emo

[301] Buggeln and Franco, "Introduction" xi.

[302] Elisabeth Bigsby, "Sampling, Nonprobability," in *The SAGE Encyclopedia of Communication Research Methods*, ed. Mike Allen (Thousand Oaks, CA.: SAGE Publications, Inc., 2017), 1537; Lillemor Hallberg, "Quality Criteria and Generalization of Results from Qualitative Studies," *International Journal of Qualitative Studies on Health and Well-being* 8, no. 1 (2013): 20647, https://doi.org/10.3402/qhw.v8i0.20647; Lara Carminati, "Generalizability in Qualitative Research: A Tale of Two Traditions," *Qualitative Health Research* 28, no. 13 (2018): 2094-101, https://doi.org/10.1177%2F1049732318788379.

easily be completed by future research. Further research in this area would also allow for the review of the digital provision in those museums that were undergoing redisplays when the survey was carried out.

Secondly, limitations were also identified as part of Phase II of this thesis. Thus, while the *Tears of Our Lady* prototype is the main contribution of this practiced-based research, it centres around the digital enhancement and interpretation of but one distinct artefact (i.e., The Burrell Collection's *The Lamentation of Jesus Christ*, ID Number 1.24). The result, however, is a uniquely detailed investigation which provides in-depth insights into the methodological and interpretive frameworks underpinning its design and development, from initial conceptualisation to final user evaluation. This level of detail and depth of analysis would have been difficult to achieve otherwise. The methodological implications the COVID-19 pandemic had on the *Tears of Our Lady* evaluation were detailed in Chapter 3.5. Although successfully adapting the in-situ prototype for remote evaluation is one of the main achievements of this research, it is crucial to reiterate that as a result of COVID, and related restrictions on social contacts, the participant profiles were necessarily limited to demographics to which the researcher had approved and relatively easy access during this period, that is, university staff and students. This means that the findings of the user evaluation discussed in this thesis belong to a distinct and quite homogenous group of participants, with several among them having extensive awareness of medieval devotional art and/or museum interpretation and engagement more widely. Caution should thus be exercised when drawing generalisations from that data. Crucially, however, participants' subjective experiences of the *Tears of Our Lady* interpretation, combined with the insights into its interpretive approach design, offer a uniquely fruitful starting point for larger scale, future investigation into digital engagement of medieval devotional collections.

6.5. Future Research

This research project was inherently interdisciplinary. As a result, its contributions are equally interdisciplinary and span both theory and practice. This thesis made a significant contribution to the still limited research on the contemporary public display of medieval, specifically Christian, collections. This lack of research into the display of Christian material culture has emerged quite markedly, especially in comparison to the extensive (and growing) body of research on the display and interpretation of non-Western museum collections. Crucially, this research confirmed a discrepancy in interpretive approach (both digital and analogue) adopted for different religions.[303] Indeed, this research identified an enhanced interpretive focus on the experiential, performative dimensions of religious/devotional artefacts belonging especially to religions and beliefs other than Christianity. Where Christian material culture is concerned specifically, this research found that, despite a clear move towards embracing devotion in temporary exhibitions, and increasingly functional approaches in permanent displays, (late medieval) Christian material culture continues to be presumed appropriately interpreted as art to be looked at dispassionately from afar.[304] Why museums often retain these differences in approach would merit further research. This would include a critical exploration of the legacies of the Enlightenment, and its (seemingly) continuing implications on the contemporary display of Christian material culture. In-depth historical and comparative research in exhibitionary legacies

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[303] Clifton, "Truly a Worship Experience?" 107-15; Brooks, "Seeing the Sacred Conflicting Priorities in Defining, Interpreting, and Conserving Western Sacred Artifacts," 10-27; Freudenheim, "Museums and Religion: Uneasy Companions," 181-88.

[304] Clifton, "Truly a Worship Experience?" 110; Freudenheim, "Museums and Religion,", 182; Classen, The Museum of Senses, 5-6; Paine, "Change – But Not Enough Yet, 2.

could be extended through interviews with curators, funding bodies and visitors (both those of different faiths and those of none).[305]

The *Tears of Our Lady* interpretation itself provides vital insights into the design (e.g., layered interpretation; optionality; and balanced approach) and user experience of other, potentially future installations of its kind. Plans are already in place for the findings of this doctoral project to be used as stepping-stone for further research at The Burrell Collection into encouraging emotional engagement via digital interpretation onsite.

Crucially, however, the wider museological insights gained through this research laid the qualitative groundwork for wider future explorations specifically into digital engagement with medieval devotional collections in different contexts and with different parameters (e.g., co-creative practices, internally with museum staff as well as externally with visitor groups; larger, more representative visitor demographics). Ultimately, the aim of this research project was not to design a perfect, one-size-fits-all solution for how to use digital to facilitate user engagement with late medieval devotion collections. Rather, the *Tears of Our Lady* was meant to highlight the thus far often untapped power of digital to open up creative, imaginative, and above affective interactions with late medieval objects in ways that bring their past meanings to the fore as well as open up new avenues for exploring and experiencing them in the present, and, ideally, keep them relevant for generations of visitors to come.

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[305] St Mungo Museum of Religious Life and Art, https://www.glasgowlife.org.uk/museums/venues/st-mungo-museum-of-religious-life-and-art.

Appendix A. Research Phase I: Additional Documentation

A.1. Email Survey

Dear *INSERT NAME,*

Please let me introduce myself. My name is Lynn Verschuren, and I am a second-year PhD student in Information Studies at the University of Glasgow. Funded by the Scottish Graduate School of Arts and Humanities' Applied Research Collaborative Scholarship (ARCS), I am exploring how medieval Western artefacts are displayed in contemporary museum contexts and how digital tools can be used to re-instate some of their past performativity.

In addition to the University of Glasgow, I am joined in this multidisciplinary project by two other Glasgow institutions, the Computer and Information Department of the University of Strathclyde, and The Burrell Collection, which has recently embarked on an ambitious £66m four-year redisplay project, known as the 'Burrell Renaissance Project' (https://www.glasgowlife.org.uk/museums/venues/the-burrell-collection). The latter in particular has kindly offered me the unique opportunity to work with its medieval collection, and to develop and set up prototypes in other Glasgow Museums' venues during its closure. All data thus gathered will be used to inform The Burrell Collection's interpretation and redisplay plans for these curatorially-challenging objects prior to their final implementation in 2020.

A vital part of this undertaking is to review how other museums interpret and display their medieval collections. I have been researching online, but the information available on the interpretative methods used is very limited. It is in this regard that I was wondering if you could share information with me on the following:

- Does *INSERT NAME* use non-textual interpretation methods (be those manual/tactile, hybrid or digital) to interpret and display its medieval Western collection? Information on specific examples would be very helpful.

- Do you have any additional information on the interactives (digital & non-digital), such as how they work and visitors' engagement with them?

I realize that this is a lot to ask, especially via email, but please rest assured that any information shared will solely be used for the purpose of this research project. I am also very happy to send you additional information on my project as it develops, if this would be of interest.

Thank you very much in advance for you time and assistance, and I am looking forward to hearing from you.

Kind regards,

Lynn Verschuren

A.2. Research Phase I: Survey Report

1. Introduction

This report presents the findings of the cross-site survey carried out in Phase I of this project into how cultural heritage institutions use digital technologies for interpreting their late medieval Christian artefact collections. Undertaken in response to a lack of existing research in the area identified during the literature review (see Chapter 2), the overarching aim of the survey was to map the current state of adoption and use of digital in 31 museums across Europe and North America holding significant collections of medieval Christian art. The report that follows presents data of 17 institutions for which it was possible to generate data either via email (N=4), site visits (N=10) or a combination of both (N=3). All data referred to here can be found in Appendix A.3 below.

2. Types of Digital Tools Identified

The cross-site survey revealed that out of 17 investigated 10 employed digital interpretation. Among those institutions three recurring types of digital tools were identified: multi-media touchscreen kiosks; audio stations and projections.

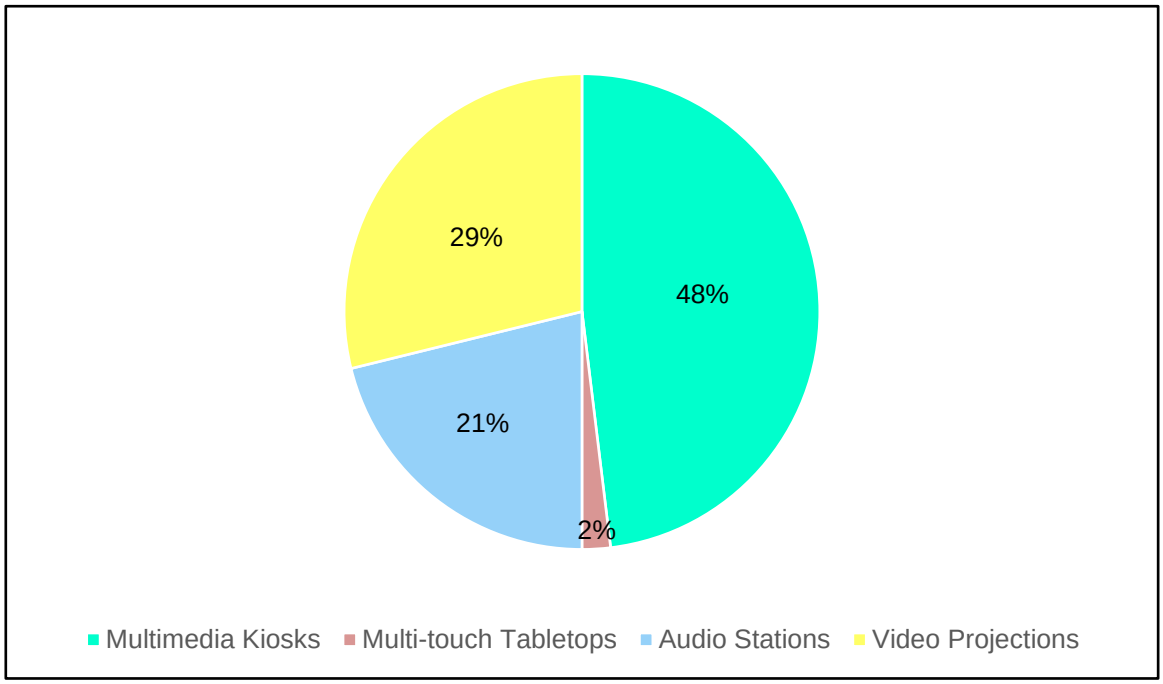

Figure A2-1. Types of Digital Tools identified in Phase I.

Among the 10 institutions that used digital, **multimedia touchscreen kiosks** (single and/or multi-user) emerged as the most widely used type of digital interpretive tool. Overall, 25 such touchscreens of note were recorded across 7 institutions. This finding is in line with other research which found that – as one

of the earliest applications of technology in the heritage sector – touchscreen kiosks remain one of the most popular and widely used digital interpretive tools in museum contexts.[306] Situated throughout the exhibition galleries, these (primarily freestanding) kiosks come equipped with built-in touchscreen interfaces via which users can access multimedia content (i.e., text, audio, images, animations and/or videos) on the artefacts on display. In comparison, **multi-touch tabletops** (i.e., primarily horizontal table-like interactive surfaces for multiple users) were significantly less widespread. Only one such instance was recorded as part of this survey. Offered as part of the digital interpretive provision in the Undercroft Museum at the York Minster, this "communal" interface allows for up to four visitors to explore multimedia content on the daily life of the minster concomitantly.

A second type of interpretive media recorded were **projections** (N=15). Besides video projections, instances identified include a Pepper's ghost and an interactive book (see below).[307]

Audio points (N=11), that is, listening stations that deliver audio content – be that spoken commentary, oral testimonies, music and/or ambient sound – were similarly well represented. Of the 10 institutions that used digital, five integrated audio content into the display of their late medieval collections. Four of these employed fixed audio points (i.e., listening stations) situated within the galleries. Only one institution, the Teseum, used a multimedia guide (via IPod).[308] Overall, 11 individual audio stations were identified, 9 of which constituted of audio points at which the audio content is delivered via headphones (either traditional or mono-stick headphones). Only 2 instances were identified in which directional speakers were used to transmit audio content, more notably so at the Durham Cathedral Museum (formerly Open Treasure) and as part of St Mungo's *Heavenly Creatures: Angels in Faith, History and Popular Culture* in which a selection of modern pop songs are used to enhance the "Angels in a Material World" display. Compared to the "Cathedral and Choir Station" in the Durham Cathedral Museum, however, which is fitted with sensors that allow for the audio to be triggered by visitor motion only, St Mungo's is the only instance in which the music is set to run on a continuous loop. Due to the comparatively small size of

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[306] Maria Economou, "A World of Interactive Exhibits," in *Museum Informatics: People, Information, and Technology in Museums*, eds. Paul F. Marty and Katherine Burton Jones (New York, NY.: Routledge, 2008), 137.

[307] A Pepper's Ghost is special effects technique for creating transparent "ghostly" images. It works by reflecting a chosen object/image/live character off an angled (45°) piece of reflective, transparent material (e.g., glass). The technique was popularised by John Henry Pepper in the 1860s and Pepper's Ghosts can now be found in different variations in amusement parks, haunted houses, theatres, and museums.

[308] The multimedia guide was a prerequisite for visiting the Teseum.

the exhibition space, this implies that the music can not only be heard near the distinct display case that it is meant to enhance but that the audio intrudes into other areas of the gallery and can thus be heard – albeit faintly – throughout the entire exhibition space.

The high number of headphone-fitted audio stations across the institutions is in keeping with findings of previous studies conducted into in-gallery audio provision which revealed that – due to its potential intrusive impact on the visiting experience – ambient sounds and music are not universally appreciated by visitors and gallery staff, especially within permanent galleries.[309] As all galleries under scrutiny here are of a permanent nature, the low number of ambient audio provision is not surprising. Nor is then a surprise that the only semi-ambient music installation (i.e., St Mungo's *Heavenly Creatures*) recorded in this survey forms part of an exhibition for which the interpretive methods adopted were likely governed by the initially temporary nature of the exhibition as a whole (see Appendix A.3.).

3. Object Types Accompanied by Digital Media

The object types accompanied by digital interpretive tools largely vary across institutions and range from stone slabs and saint effigies to tapestries and ecclesiastical paraphernalia (incl. a crozier, chalice, paten, and mitre). Across the 10 institutions investigated, however, the object type most often accompanied by digital interpretation were medieval manuscripts. Of the 24 touchscreens identified alone, six were used to enhance medieval manuscripts. The physical make-up of codices themselves often delimits the ways in which they can be presented to be public as it is not possible – unless the decision is made to disband them - to display more than one opening (that is, two facing folia) at once.[310] As a result, visitor often only see a fraction of their content. Using digital media, however, offers institutions the possibility to provide their audiences with access to complete digitised facsimiles or to high-resolution photographs of selected folia, and so to encounter them up close and in detail.

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[309] Frost and Nuti, "Another Dimension: Integrating Music with the Medieval & Renaissance Galleries".

[310] James Loxley, Joseph Marshall, Lisa Otty, and Helen Vincent, *Exhibiting the Written Word* (Edinburgh: University of Edinburgh, 2011), 4.

4. Digital Interpretation of Medieval Art: Thematic Emphases

Overall, the cross-site survey revealed three overarching thematic emphases for which institutions use digital in their displays of late medieval art. These include **(a) iconography and style**, **(b) materials and techniques**, and **(c) context and use**. Some of these emphases overlap, with instances of digital interpretation on the iconography of artefacts including references to their making and/or use. Nonetheless, the above foci are clearly discernible. The sections that follow discuss each three thematic emphases in turn. Any claims thus made are enhanced by illustrative examples.

(a) Iconography & Style

Across the institutions investigated, iconography and style emerged as the most widely used thematic emphasis in the digital interpretation of late medieval art. In this category, physical objects on display are typically enhanced via touch-screen kiosks which enable users to access supplementary multimedia content (i.e., text, audio, images, animation) on the individual, physical objects they accompany. Although all the kiosks identified in this category included textual information on the objects they enhance, the unique strength of multi-media touchscreens lies in the provision of images, whether still or moving. The provision of such enhanced visual access is vital, especially, for artefacts such as illuminated manuscripts to which (as touched upon above) access is often limited to single folia.

A case in point here is the digital interpretation found accompanying the famous *York Gospels* (York Minster Ms. Add. 1) which arrived in York in circa 1020 and can now be found on display in the Undercroft Museum below the York Minster. Delivered via two (but identical) multimedia touchscreens, visitors can "leaf" through a digitised facsimile of the Gospels at their leisure and explore the pictorial and textual programmes up close and in detail: including a "turning-the-page feature visitors can swipe through the facsimile and learn about highlighted phrases or pictorial details; tapping onto highlighted areas, users are similarly provided with translations and transcriptions of the text. The provision of the digital facsimiles on the gallery floor is made ever more crucial by the fact that the *York Gospels* – which are still in active use today – are removed from display upon the installation of new canons to the York Minster. The multimedia

touchscreen thus enables visitors to explore the Gospels even during those periods in which the physical copy itself is not on display. The same applies to the *Meyer van den Bergh Breviary*, a sixteenth-century Flemish manuscript which forms part of the collections of the eponymously named art dealer and collector, Fritz Mayer van den Bergh. At the time this museum was visited (December 2018), the breviary had been removed from display for on-going digitisation project carried out in collaboration with the Katholieke Universiteit Leuven, making the touchscreen kiosk the only point of access to the manuscript until it is returned to the gallery floor.

Besides object-specific interpretation, other examples in this category were identified in which digital is used to add to the overall stylistic theme of the gallery. Instead of focusing on individually selected objects or collections of objects, the digital is used here as a means to unify the different objects on display under a common thematic thread. One such instance, for example, was recorded in the medieval galleries of Victoria and Albert Museum (V&A). Here two multimedia touchscreen kiosks are used as so-called "Style Guides" that provide information on distinct period styles, most notably Romanesque and Gothic. Located within the *Faiths and Empire 300-1250* (V&A Room 8) and *The Rise of Gothic* (V&A Room 9) galleries respectively, these kiosks enable users to access multimedia content on the stylistic particularities that characterise each of these styles, and to explore key artefacts and buildings from these periods up close.

Beyond purely visual emphasis, period music, that is, the new, contemporary recording of past musical and literary pieces, has emerged as another popular interpretive means for enhancing connections between the medieval objects on display and wider iconographic themes they depict. An interesting point in case here is the V&A's digital interpretation of the *Boar and Bear Hunt Tapestry* (Museum No. T.204-1957). One of four large-scale tapestries making up *The Devonshire Hunting Tapestries*, the audio point features a collection of contemporary renderings of fourteenth-century literary and musical pieces that evoke the themes of hunting and courtly love depicted on the tapestry and the rest of the gallery, thereby tying the tapestry with the rest of the objects displayed in the gallery. A similar approach is adopted as part of the digital interpretation of

the *Saint Denis Missal* (Museum No. MSL/1891/1346), a fourteenth-century missal made for use in the Royal Abbey of Saint-Denis in Paris in 1350, and similarly on display in the V&A's medieval galleries. While the missal itself is discussed in more detail below, it is the inclusion of two instrumental pieces of music on the famous medieval chivalric romance of Tristan and Isolde, including the fourteenth-century *Lamento di Tristano* ("The Lament of Tristan"), and a more up-beat version called *La Rotta*, that are of import here. The verbal introduction to the instrumental pieces informs visitors that scenes from the romance are used in the decoration of *The Tristan Quilt* (V&A, Museum No. 1391-1904) displayed nearby in the gallery, thus adding an aural component to the otherwise predominantly visual, iconographic focus of museum galleries. Made aware of this connection between the music and the theme of the quilt, the visitor may now go and explore the quilt in question. The movement from audio point to the Tristan quilt facilitates visitor movement around the gallery and encourages the contemplation of objects and iconographic connections between them that would otherwise remain hidden.[311]

(b) The Art of Making: Materials & Techniques

A second thematic emphasis recorded is the use of digital for visualising the techniques and materials used in the making of the medieval artefacts on display. Used to extend the more traditional iconographic emphasis, in this category digital is used to offer visitors insights into the craftsmanship involved in the original production of the objects on display. An illustrative example here is the digital interpretation of the *Fetternear Banner* (NMS, Museum Ref. H.LF 23), for instance, now held at the National Museums Scotland, and the only known surviving church banner from medieval Scotland. Besides providing visitors with information on the *Confraternity of the Holy Blood* which underpins the visual content of the banner, it also provides information on how the tapestry was made and embroidered. In addition to photographs of the loom, the wrap and weft threads as well as close-ups of the bobbins on which the dyed weft threads would

[311] Snape, "*Medieval Art on Display*," 172-3.

have been wound, the interpretive content includes a "flip the banner" option that enables visitors to examine the banner from the back and so learn about how it was embroidered and dyed. The digital interpretation *Holy Helpers: Enshrining the Saints* found accompanying the sculpture of Saint Catherine of Alexandria (AIC, Museum No. 1924.1324), on display at the Art Institute of Chicago, even includes 360º PNG sequences that allow visitors to explore the figure from the rear and so learn about how the clues of the physical make-up of objects yield vital information about the original purpose and location of such artefacts.

A similar approach was adopted as part of *Unter der Lupe* ("Under the Magnifying Glass"), the temporary exhibition held at the Museum Schnütgen (2018-19).[312] Besides exploring the materials and techniques involved in the making of 12 selected devotional artefacts of different media and type, the digital interpretation includes never-seen-before x-ray images thereby allowing visitors to literally see beneath the surface of some of the objects on display. Strategically placed next to the physical object to which they relate, the images help visitors visualize how these objects might have looked and for which purpose(s) and location they would have originally been made.

Particularly interesting in this category, however, are those instances in which digital is used not just to illustrates the materials used but to provide insights into the actual manufacturing processes. Especially effective in this regard are videos showing contemporary craftspeople re-creating the original processes and techniques. A case in point here is the multimedia touchscreen found accompanying the V&A's twelfth-century reliquary from Limoges, France (Museum No. 7945-1862). The casket itself is an exquisite example of champlevé enamelling, a distinct technique of enamelling as part of which intense heat is used to fuse glass onto a prepared metal surface (i.e., copper) to create brightly coloured images. The video accompanying the physical display shows a contemporary craftsman at work as he recreates a detail from the casket from the initial cutting and drawing of the copper plaques, to the manual making of

[312] Personal correspondence with the Museum Schnütgen.

pigments and their application through to the firing of the enamel plaques.[313] The V&A has produced a series of similar videos, including videos on the making of stained glass windows and book printing and binding.[314]

(c) Context and Use

A third thematic emphasis identified in the digital interpretation of medieval artefacts – and possibly the most revealing for this research project – are those cases in which digital is used to move beyond aesthetic and/or function appraisal to introduce visitors to how the medieval objects on display would have originally been used and experienced. Here, videos have emerged particularly popular, and effective tools.

One such example, for instance, is the video found accompanying the *Palmesel* (V&A, Museum No. A.1030-1919) in the V&A's *Devotion and Display 1300-1500* gallery. Here, a short documentary film shows contemporary footage of the *Palmesel* as it is being processed through Thaur, a small Austrian town near Innsbruck. In so doing, the video help visitors visualise the otherwise static museum object in use. Moreover, by emphasising *Palmesel*'s active role in contemporary religious ceremonies, the digital interpretation similarly makes a clear reference to the often continuing, and enduring meanings and uses attached to these objects today.[315] It is interesting to note that the procession seen in the video footage is mirrored by the physical display in the gallery, as the *Palmesel* here too is shown leading a procession of chasubles and croziers (see Fig. A.2-2).

[313] The video referred to here is available on the V&A's website. See, https://www.vam.ac.uk/articles/how-was-it-made-champlev%c3%a9-enamelling/.

[314] For the video on stained glass, see https://www.vam.ac.uk/articles/stained-glass-an-introduction. The video on book printing and binding can be accessed here, https://www.vam.ac.uk/articles/how-was-it-made-printing-and-binding-a-book.

[315] Snape, *Medieval Art on Display*, 175.

Figure A.2-2. Photograph of *Palmesel* (Museum No. A.1030-1919) Video Station on far-left. V&A, Room 10, Case 11. Photograph taken by Author. January 2019.

Another museum that uses digital for illustrating the ritual use of its liturgical collections is the Teseum, the museum situated within the Basilica of Our Lady in Tongeren, Belgium. Here, a selection of saint effigies is enhanced digitally by silhouettes of priests and lay people on procession: projected in white onto black background, visitors can watch these silhouettes are as they "process" along the gallery wall. The core, and indeed highlight, of the Teseum, however, is its extensive collections of relics and reliquaries, now on display in the museum's treasury. At the far back of the treasury, a large video shows a re-enacted *ostentio reliquarium*, a "relic showing"; as priests (played by actors) are seen removing relics from the treasury, laypeople (also played by actors) are seen making their way from countryside to the church; at the climax of the video, the priests are seen lifting the reliquaries high above their heads, while a crowd of worshippers gathers to witness the event. Similar footage is included in the Teseum's "Liturgy" gallery. Here, two parallel videos depict a re-enactment of the holiest of Christian rites, the Holy Communion. Running on a continuous loop, the videos show the unvarying ritual actions at the altar and the liturgical objects used to enact them, many of which are displayed within the adjacent display cases. The museum visit ends with a display on the "Culture of Processions and Devotions to Our Lady", and which includes a selection of the more recent acquisitions of the Teseum. Incorporated within the display are three video screens that depict archival footage of the *Heiligdomsvaart* ("Relics Pilgrimage"), a ritual procession held once every seven years, and which has drawn pilgrims to Tongeren since the Middle Ages. The inclusion of footage from the festivities at three different points in time – from 1946, 1988 and 2002 – that the liturgical artefacts displayed throughout the exhibition and rites through which they were enacted in the past are still very much part of Tongeren today.

A similar, but slightly more gamified attempt to enhance the enduring legacy of the historic site and collections, can be found in the "Pilgrimage Gallery" at

Durham Cathedral Museum. Referred to as so-called “community interactives”, two touch-screen kiosks here enable visitors to explore where previous visitors to the site came from, read the messages they left behind, and even invites them to input their own “pilgrim” data. The result of the application is a large-scale virtual map – projected onto wall behind the kiosks – which is populated by the personalised data of visitors, thus allowing them to become an active part of Durham’s story.

Beyond primarily visual emphasis, insights into objects’ devotional functions and uses are also evoked through the strategic use of audio content. The use of (period) music for highlighting iconographic themes has already been touched upon above. Other cases, however, have been identified in which audio is being used to extend beyond these more traditional art-historical approaches to promote, instead, increasingly experiential, and affective modes of engagements with the artefacts on display. An example of note here is the digital interpretation found accompanying the Master Bertram von Minden’s altarpiece triptych (V&A, Museum No. 5940-1859) depicting 45 scenes of the Apocalypse, and now on display at the V&A. Besides a short introduction to the altarpiece itself, visitors can here listen to examples of Gregorian chant. As altarpieces such as this one would have traditionally been displayed in ecclesiastical settings in which these chants were performed, the audio content allows visitors to gain a unique glimpse (or rather ear) into the devotional context of which this artefact would have originally formed part.

Period music has also emerged as an effective tool for enlivening medieval objects with musical notation. Once animated by the performative rites and rituals that characterised their pre-accession existence, their status as museum objects has transformed them into mute material witnesses of a previously vibrant aural past. This is true particularly for medieval manuscripts such as service books for churches and private devotion. The integration music within the display, however, is re-invigorating these otherwise silent objects with some of the original meaning and use. Again, the V&A here includes two telling examples. While one such audio point features sung prayers written on loose leaves of three thirteenth-century illuminated choir-books (Museum No.1517; 1519; 244.2) displayed within an adjacent display case, another one can be found accompanying the St Denis Missal referred to briefly above. Besides the secular musical pieces referring to Tristan and Isolde, the audio point features a contemporary recording of *Salve Pater Dyonisi* (‘Hail Father St. Denis’), a Latin hymn performed on the Feast Day of Saint Denis. Interesting to note here is the fact that the folio on display in the gallery is the exact musical notation that is heard on the audio recording. Compared to other displays that predominantly stress medieval manuscripts’ visual qualities, visitors here can appreciate the missal here an artefact that would have been both seen and heard.

Perhaps the most interesting approach identified in this regard, however, has been recorded in the “Musical Life in Tongeren” gallery at the Teseum. Tongeren is home to an extensive collegiate church music library and is the only such in Flanders in which the books are still today displayed in their original setting (i.e., the Basilica). Here, the interpretation of two medieval choir books is taken one step further by extending engagement with them to include not just sight and sound, but also touch. The digital interpretation referred to here is are two interactive manuscript installations (see Fig. A.2.-3).

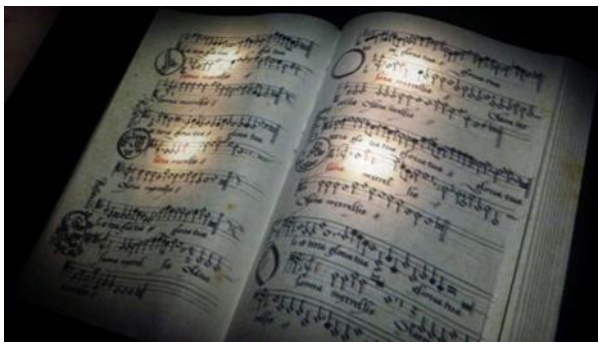

Figure A.2-3. Close-up of one of the two Interactive Manuscript Installations at the Teseum. Photograph taken by Author. March 2019.

The plain, white pages of the facsimiles are augmented digitally via over-head projectors. The visuals mapped onto the pages emulate a selection of mono- and polyphonic chants included within the medieval manuscripts displayed in the adjacent case. As the visitor listens to the chants, individual notes and words appear in red on the pages – as if by magic – when they are uttered by the choir thus allowing the visitor to follow the song as it is sung.

5. Discussion

This report presented the findings of the cross-site survey carried out in Phase I of this research project into how cultural heritage institutions use digital technologies for interpreting their late medieval Christian artefact collections. Overall, these findings validate both hypotheses (i.e., H1 and H2) formulated at the onset (see Chapter 3.4.1) Indeed, not only did the survey reveal limited adoption of digital, but it also – and more importantly – indicated that, despite a noticeable shift towards the functional uses of medieval devotional artefacts, digital is used predominantly to help visualise factual content on iconography and style. These findings confirm, as argued in the introduction of this thesis, that instead of pushing interpretive boundaries beyond traditional art-historical emphases, current digital interpretation tends to reinforce them, leaving both the potential of the objects as well as the digital unlocked.

However, two considerations need to be borne in mind, namely funding and museum type. While some museums may very well make the conscious curatorial choice to not include any interpretation, be digital or other, for other institutions the lack of digital provision specially may be the consequence of financial restraints. Personal correspondence (23/03/2019) with the Bayerisches Nationalmuseum in Munich, for instance, revealed that, although plans for a redisplay (including digital provision) were in place, the museum lacked funding to put these plans into action. Unsurprisingly, the Medieval and Renaissance galleries at the V&A, for example, the galleries in which most digital applications were identified, had received major funding as part of their recent redisplay (2003-2009).

Beyond funding, a crucial point to bear in mind, especially when exploring the interpretation of devotional heritage and material culture, is the type of the museum investigated. Heritage sites with clear links to religious institutions (e.g., Teseum, York Minster, Durham Cathedral), for instance, often overtly stress the religious/devotional meanings and uses associated with their collections. In comparison other, predominantly secular museums (such as the majority of institutions investigated here) are based other agendas than devotion, and thus need to be more careful in how to interpret their liturgical/devotional holdings.

A.3. Research Phase I: Survey Data

This section outlines the research data gathered as part of the cross-site survey carried out in Phase 2 of this research into how cultural heritage institutions use digital technologies for interpretating their late medieval Christian artefact collections. Of the 17 institutions for which it was possible to gather information, 10 used digital to interpret their medieval collections. This document presents the digital interpretation identified in each of these 10 institutions.

The institutions are listed alphabetically.

1. Art Institute of Chicago

Location: Chicago, IL
Data Collection Method*:* Email Correspondence – 19-02-2019

Founded in 1879, the Art Institute of Chicago is one of the oldest and largest art museums in the United States. Of particular interest to the present study is the institute's rich collection of art from 1200 to 1600. Nearly 700 objects of that collection are presented in the new *Deering Family Galleries of Medieval and Renaissance Art, Arms, and Armor* (Galleries 235-239) which opened its doors to the public in March 2017. Presenting objects of spiritual, domestic and chivalric contexts, the artefacts are contextualised not just through the design of the gallery space itself (including vaulted ceilings) but also through the strategic inclusion of digital tools.

Digital Interpretation Tools Used On-Site: In addition to touch-screen multimedia kiosks allowing visitors to explore the institute's rich collection of arms and armour (incl. video footage on the making of Elizabethan armour), particularly revealing for this project are the digital interpretation used to enhance the devotional objects on display. One such tool is a multimedia touch-screen interactive found accompanying a life-size sculpture of Saint Catherine of Alexandria (1924.1324), produced in Germany at the beginning of the sixteenth century. Entitled *Holy Helpers: Enshrining the Saints*, the interactive allows visitors to explore the sculpture up close through the inclusion of high-resolution photographs. In addition, by visualizing the altarpiece of which the sculpture may have formed part of in the past, it further provides visitors with a unique glimpse into how the artefact would have originally been experienced. Besides this multimedia touch-screen kiosk, a video station has been incorporated near a fourteenth-century retable and frontal, known collectively as the *Ayala Altarpiece* (1928.817). The latter includes footage of the Ayala family funeral chapel in the Castile region of northern Spain which the altarpiece decorated for over 500 years, thus allowing visitors the opportunity to see the original setting for which the object was initially produced.

2. Durham Cathedral Museum

Location: Durham, UK
Data Collection Method: Site Visit – 02-02-2019

Durham Cathedral's extensive collections form a unique, tangible record of all aspects of the life – past and present – of the site, its people and benefactors. Some of the cathedral's most precious artefacts are on display at the Durham Cathedral Museum, formerly Open Treasure, which explores the spread and cultural tradition of Christianity in Northumbria and Durham's role in it. In addition to an exquisite selection of regional stonework, one of the highlights of the museum are undoubtedly the Treasures of St Cuthbert which have been the focus of veneration for centuries, and still continue to draw thousands of visitors to Durham today. One of the most popular medieval English saints, the treasures of St Cuthbert consist of the objects that were found in his tomb when it was first opened in 1827.

Digital Interpretation Tools Used On-Site: The Durham Cathedral Museum includes eight individual multimedia touch-screen kiosks. No less than five of these are situated in The Weston Gallery in the Monk's Dormitory, an extant fourteenth-century dormitory now recognized as the best preserved large monastic dormitory of its kind in the UK. Four multimedia touch-screen kiosks are used to provide visitors with information on the exquisite selection of stonework on display. Divided into four distinct chronological and typological sections, the kiosks include not only textual information on the monuments that visitors can read at their leisure, but they also include filmed interviews with experts on the stones on display; while provided with subtitles, visitors can listen to the footage via mono stick headphones with which each kiosk is fitted. The fifth touch-screen kiosk found in the Monks' Dormitory centres around the daily life of the Benedictine monks at Durham and allows visitors to explore the *Rule of St Benedict* which, in seventy-three individual chapters, outlined and regulated the life of the monks living in the community. Featuring bespoke animations that based on Latin monastic manuscripts, visitors can choose between ten different monk characters, and learn about the roles and responsibilities of each of them in turn.

Three additional touch-screen kiosks are located within the 'Pilgrimage Gallery', the last room of the exhibition. Referred to as a so-called 'community interactive', the first application in this gallery space is fitted with two individual yet functionally-identical, touch-screens which let visitors explore where previous visitors to the museum came from, read the messages they left and even invites them to input their own data. The result of the application is a large-scale virtual map – projected onto the wall directly the behind the kiosks – which is populated by the personalized data of visitors to museum, thereby allowing them to become an active part of Durham's story. Similarly centred on the

pilgrimage theme, but geared towards a slightly younger demographic, the 'Design Your Own Pilgrim Badge' touch-screen kiosks enable users to design their own pilgrim badges from a number of pre-selected colours and motifs, before offering them the opportunity to share them with others via email.

In addition to these multimedia touch-screen kiosks, Durham Cathedral Museum includes three further digital interpretation tools, a 3D CGI animation, an audio station and a so-called 'Pepper's Ghost' reflection. Situated within the Monk's Dormitory, the former is composed of a screen showing a 3D computer-generated animation of the architectural changes that Durham Cathedral has undergone between 1093 and the present day. Although activated through touch, the animation then proceeds without needing any further input from the visitor. The 'Cathedral and Choir Music' audio station, located at the back of the same gallery, gives visitors the unique opportunity to read about and listen to six different pieces played and sung at Durham between the sixteenth and the twenty-first century. Recorded by the cathedral's Master of the Choristers and Organist, Dr Lancelot and the Cathedral Choir, visitors can listen to the sounds of the Durham Cathedral's Harrison & Harrison organ through a set of replica pipes; triggered by visitor motion, the individual recordings begin with a narrator reciting the name of the piece, its date and the name of composer, before playing a section of the piece selected.

A highlight of the digital provision at the Durham Cathedral Museum is undoubtedly the 'Pepper's Ghost' reflection enhancing the display of the remains of St Cuthbert's coffin. The strategic superimposition of animated 3D wire-frame graphics and text above the artefact – content of two LED screens within the display case is reflected onto mirrors at the bottom which then project it onto another set of screens above the coffin itself - allow for the faded, broken and even lost iconographic details to be traced and explained before the visitors' eyes without conservation risks to the seventh-century coffin itself. Visitors are even able to have an unprecedented look inside the coffin and to explore the exact spots within the coffin in which Cuthbert's treasures – now displayed alongside the coffin – were originally found when it was first opened in 1827.

3. Musée Art et Histoire

Location: Brussels, Belgium
Data Collection Method: Site Visit – 16-12-2018

Part of the Musées Royaux d'Art et d'Histoire, the Musée Art & Histoire – formerly known as the Musée du Cinquantenaire – displays a broad range of artefacts from around the world. In addition to holding one of Belgium's most important collections of national archaeology, the museum boasts an impressive accumulation of objects from non-European civilizations, including Asia, Oceania and the Islamic world. Particularly intriguing for the present study, however, are

the museum's holdings of medieval European decorative arts, more notably so its representative collection of fifteenth- and sixteenth-century altarpieces from Brussels and Antwerp, and now displayed in the museum's Gothic and pre-Renaissance galleries.

Digital Interpretation Tools Used On-site: The only digital interpretive application provided at the Musée Art et Histoire is a six-minute-long, looped film on the tapestry depicting *La légende de Notre Dame du Sablon*. This is the third of a series of four tapestries commissioned by François de Taxis in the sixteenth century for St Ursula's chapel in the church of Notre-Dame du Sablon.

4. Museum Mayer van den Bergh

Location: Antwerp, Belgium
Data Collection Method: Site Visit – 09-12-2018

Located in the centre of Antwerp, the Museum Mayer van den Bergh houses the collection of art dealer and collector Fitz Mayer van den Bergh (1858-1901). While the museum displays a number of early seventeenth-century portraits, the collection consists primarily of works produced in the Netherlands and Belgium between the Gothic and early Renaissance periods. In addition to two paintings by Pieter Brueghel the Elder (c.1525-1569), highlights of the Museum van den Bergh include beautifully executed altar panels and an extensive collection of medieval sculptural works, including the world-renowned polychrome statue of *Christ and St John the Evangelist* (MMB.0224; c.1280-1290), which shows John resting his head on Jesus' chest.

Digital Interpretation Tool(s) Used On-Site: Besides a short video on Brueghel the Elder and his work (projected directly onto the gallery wall), the only digital interpretation offering within the galleries is a multimedia touch-screen kiosk which allows visitors to explore the Mayer van den Bergh Breviary (MMB.0618), an early sixteenth-century Flemish manuscript now attributed to the Ghent-Bruges School. Touch-activated, the kiosk enables users to learn about the manuscript, its style and contents, and allows them to zoom in and out of its numerous miniature and bas-de-page illuminations at their leisure. Information is further provided on the Ghent-Bruges Style of which the breviary is a prime example as well as on the digitisation project which, in collaboration with the Katholieke Universiteit Leuven, aims to digitise, investigate and conserve the entire collection of illuminated manuscripts purchased by Mayer van den Bergh. Interesting to note here is the fact that, at the time this survey was conducted, was removed from display, leaving the information kiosk as the only point of access to the breviary.

5. Museum Schnütgen

Location: Cologne, Germany
Data ***Collection Methods:*** Email – 06-02-2019; Site Visit – 18-12-2018

Displayed within the Romanesque Church of St Cecilia, one of Cologne's oldest churches, the Museum Schnütgen houses an impressive collection of medieval art, ranging in scope from wooden and stone sculptures to textiles and expands in time from the era of Charlemagne to the beginning of the Enlightenment. Its collection of private devotional objects is particularly exquisite, and consists of beautifully-crafted *Andachtsbilder*, paternoster necklaces and rosaries.[2]

Digital Interpretation Method(s) Used On-Site: At the time of the site visit, the only digital interpretation found at the Museum Schnütgen form part of *Unter der Lupe* ('Under the Magnifying Glass'), a temporary exhibition (November 2018 – June 2019) exploring the materials and techniques used to create twelve selected artworks of varied media, including wood, crystal and parchment. Creatively interwoven as part of the permanent display, each of the 12 artefacts explored as part of the exhibition is accompanied by a state-of-the-art multimedia touch-screen kiosk through which visitors can access X-ray images, thereby allowing them to literally see beneath the surface of the objects on display; textual information combined with high-resolution pictorial data allow visitors to explore each object at their own leisure.

Personal correspondence with the museum (18-12-2018), has confirmed that the integration of digital interpretation is a relatively new development for the institution, and no such provisions have thus far found their way into the permanent display. Interestingly for the present study, however, and the reason why these temporary instances of digital provision form part of the discussion here, is the fact that the curatorial team have been discussing the option to retain these multimedia stations and make them a permanent part of the museum's interpretation provision.

6. National Museum of Scotland

Location: Edinburgh, UK
Data Collection Method: Site Visit 23-02-2019

Displaying a wealth of objects of both national and international significance, the National Museum of Scotland's (NMS) collection ranges from archaeology and ethnography, applied art and design to science and zoology. A highlight of the NMS is the new Museum of Scotland which opened in 1998 and which tells the Scotland's history from earliest times to the present day. Of particular interest to the present study is the Kingdom of Scots gallery within this new building, and particularly the 'Medieval Church' section which you can find on Level 0.

Digital Interpretation Tools Used On-Site: Hidden out of sight in the 'Medieval Church' gallery of the museum, a multimedia touch-screen kiosk is found accompanying the Fetternear Banner, the only known surviving church banner from medieval Scotland. The interpretation accompanying the display enables users to explore the iconography of the banner in more detail; clicking on highlighted areas of the artefact, visitors can look at enlarged high-resolution photographs. Enriched by textual information on the iconography surrounding the Confraternity of the Holy Blood, visitors can actively further their knowledge of the series of events surrounding the various stages of the Crucifixion and so gain a better understanding of the meaning of the banner as a whole. Additionally, the kiosk includes a 'flip the banner' option which enables visitors to examine the banner from the back and so learn about how it was embroidered and dyed. The integration of the multimedia kiosk here is especially vital as, the original banner had been removed from display for conservation treatment at the time NMS was visited. Besides a picture of the front of the banner, the kiosk provided visitors with the only access point to the original artefact.

7. St Mungo Museum of Religious Life and Art

Location: Glasgow, UK
Data Collection Method: Site-Visit – 23-02-2018

Named after Glasgow's patron saint, Saint Mungo, St Mungo Museum of Religious Life and Art is a self-proclaimed multi-faith museum which "aims to promote understanding and respect between people of different faiths and those of none".[316] Extending across three floors, the museum is divided into four distinct gallery spaces: the Gallery of Religious Art in which objects are exhibited to make visitors better understand the religious traditions that underpin the creation of the objects on display; the Gallery of Religious Life which offers visitors the opportunity to explore artefacts of the six largest religions in the world - Buddhism, Christianity, Hinduism, Islam, Judaism and Sikhism – and to learn how people from different faiths weave religion into their daily lives; the Scottish Gallery which, as its name denotes, explores how Scotland, and Glasgow in particular, has been shaped by different religions; and an exhibition space hosting *Heavenly Creatures: Angels in Faith, History, and Popular Culture*. Although initially planned as a temporary exhibition (October 2015 – April 2016), financial restraints have resulted in the exhibition remaining on display indefinitely.

Digital Interpretation Tools Used On-Site: Upon entering St Mungo's on Level 1, the reception area is fitted with a 'video room', situated in a small alcove on the

[316] Glasgow Life, St Mungo Museum of Religious Life and Art, https://www.glasgowlife.org.uk/museums/venues/st-mungo-museum-of-religious-life-and-art.

right-hand side of the Enquiry Desk. Furnished with chairs, a TV screen and four directional speakers (one speaker located in each top corner of the alcove), visitors can watch a short introductory film on St Mungo's, its historical context, mission, and collection. Interviews with Glaswegians of different faiths are included who share what religion means to them. For those hard of hearing, the film script is included as subtitles.

Proceeding into the Gallery of Religious Life, visitors can find three instances of digital interpretation. The two audio stations offer visitors the opportunity to listen to four-minute oral testimonies of people of different faiths as they talk how their religion as influenced major steppingstones in their lives, from childhood and coming of age to sex and marriage. Delivered via headphones (two pairs per station), each audio station is fitted with a button through which visitors can trigger the audio content themselves. At the far-right corner of that same gallery, visitors can watch a short, looped film on the different rituals associated with Islam, Catholicism, Judaism, Hinduism and Buddhism. As prayer(s) and song(s) are vital to many of these rites, the video station is similarly fitted with a directional speaker allowing visitors not just to see but also hear the rituals as they are performed.

Another video station can be found in The Scottish Gallery; set to run on a continuous loop, the film centres on *The New Scots Project* and includes interviews with Glaswegians of different ethical backgrounds, giving them a platform to tell the stories they associate with individual objects on display at St Mungo's. Besides subtitles, visitors can listen to the interviews via single-ear headsets. A second audio station in that same gallery consists of four corded telephones which visitors can lift up to access audio content.

Temporary exhibition, *Heavenly Creatures* too includes a number of digital interpretation tools of note. Entering the exhibition space from the central staircase, visitors are greeted by a video station. Fitted with audio and subtitles, this station plays two different films running on loop: a nine-minute introductory film about the exhibition and 'Maybe It Is', a three-minute poem by Tawona Sithole. Due to the respective length of each of the films, two chairs are provided adjacent to the video stations, inviting visitors to sit if they wish to do so. In addition to the video station, the exhibition space is fitted with four e-labels, four tablets which visitors can use to explore the individual objects to which they relate.

The last digital tool located in this space, is an audio point which accompanies the 'Angels in a Material World' section of the *Heavenly Creatures* exhibit. Fitted with a directional speaker, it plays a selection of contemporary POP songs on a continuous loop that relate to the theme of angels in one way or another.

8. Teseum

Location: Tongeren, Belgium
Data Collection Method: Site Visit – 16-03-2019

Located in a new museum in the Basilica of Our Lady in Tongeren, the Teseum houses one of the largest collections of church treasures in the Low Countries. Besides a rich collection of precious vestments, gold and silver vessels and illuminated manuscripts, the museum's – and indeed the city's – most precious holdings, are the holy relics which visitors can explore up close in the treasury. The rest of the church collections are displayed throughout the upper floor of the cloister.

Digital Interpretation Tools Used On-Site: The visit at the Teseum begins in the treasury, where visitors can explore the precious reliquaries both within their display cases and via two screens. Containing identical footage, the looped video on the screens takes visitors through high-quality close-up of selected reliquaries and monstrances on display thereby allowing visitors to explore intricate details of these precious objects which would otherwise not be discernible by the naked eye. In addition to drawing visitors' attention to the exquisite craftsmanship behind these artefacts, a film – running on continuous loop – on a large screen at the far end of the treasury offers visitors a unique insight into the original function, meaning and use of these objects. Recreating an *ostentio reliquarium* ('relic showing'), it shows priests (played by actors) remove the relics from the treasury and display them to worshippers (also actors) as it was – and indeed still is – done on important feasts days, such as the *Heiligdomsvaart*, a ceremony held once every seven years and which has drawn pilgrims to Tongeren since the Middle Ages. Similar footage is included in the 'Liturgy' section of the exhibition; two parallel videos depict a re-enactment of the holiest of Christian rites, the Holy Communion. Running on a continuous loop, it visualizes the unvarying ritual actions at the altar and the liturgical objects used to enact them, many of which are displayed within the adjacent display cases.

A highlight of the Teseum, however, is undoubtedly the display centring on the 'Musical Life in Tongeren'. With a selection of the physical manuscripts displayed within traditional glass cases on the right-hand side of the gallery, the left-hand side is fitted with two manuscript facsimiles. Flanked by two elongated video screens showing silhouettes of the choir master and choir, the plain white pages of the facsimiles are augmented digitally via over-head projectors. The visuals mapped onto the pages emulate a selection of mono- and polyphonic chants included within the physical manuscripts in the adjacent display case. In addition to being able to listen to excerpts of the chants selected via the multi-media guide provided upon entry to the museum, the individual notes and words appear in red on the pages - as if by magic – when they are uttered by the choir

thus allowing the visitor to follow the song as it is sung. While visitors can manually leaf through the plain white pages of the replica, the projections themselves run on a continuous loop and do not change when a page is turned as it is often the case in other installations of this type. Instead, the projections are timed and the folio changes automatically as a new chant begins.

The section that follows 'Musical Life in Tongeren' centres on the veneration of saints. It is here that visitors can admire a selection of extant saint effigies. The physical display is enhanced by silhouettes of priests and lay people on procession: projected in white onto black background, visitors can see these silhouettes as they "process" along the gallery wall.

The museum visit ends with a display on 'Culture of Processions and Devotions to Our Lady' which includes a selection of more recent acquisitions of the museum. Here, three video screens show archival footage of the coronation celebrations that take place throughout Tongeren every seven years; footage from the festivities at three different points in time, including from 1946, 1988 and 2002.

9. Victoria and Albert Museum

Location: London, UK
Data Collection Method: Site Visit – 06-01-2019

Home to over 2.3 million objects spanning five thousand years, the Victoria and Albert Museum (V&A) is the world's leading museum of decorative arts and design. Particularly interesting for the present investigation, are the V&A's extensive medieval collections (c.300-1500). The late medieval artworks that form part of the current investigation are displayed primarily on Level 0 in Rooms 8 to 10c.

Digital Interpretation Tool(s) Used On-Site: Of the 15 cultural heritage institutions explored as part of this investigation, the galleries of late medieval art at the V&A (Rooms 8c-10c) boast most instances of digital interpretation applications. Indeed, no less than 19 individual instances were identified.

Just outside Room 10, with support of the Parasol Foundation Trust, The V&A has installed a so-called 'medieval Study Room', an eight-piece computer workstation which provides visitors with additional information on every object on display in the Medieval and Renaissance galleries as well as access to all the digital and audio material provided. For those visitors looking for information on objects in storage or on display in other parts of the museum, these workstations come similarly fitted with access to the V&A website which they can browse at their leisure.

Moving on to Gallery 10, *Devotion and Display 1300-1500*, visitors are greeted by a video station showing a short documentary film (3:30mins) of a *Palmesel* ('Palm Donkey') being processed through Thaur, a small Austrian town near Innsbruck. Still an active part of the yearly Palm Sunday Procession in Thaur, the film – which runs on a continuous loop – helps visitors visualize how the *Palmesel* (A.1030-1919) displayed in Case 1 of Room 10 would have originally been used. Gallery 10 further accommodates a multi-media touch-screen kiosk which relates to a fourteenth-century devotional booklet (11-1872) which was made in Germany in between circa 1330 and 1340. Flicking through the individual folia of the manuscript, visitors can click onto so-called 'hotspots' of the illumination to see selected details up close and to find more information about them.

A similar touch-screen kiosk can be found accompanying the fifteenth-century 'Boar and Bear Hunt Tapestry' (T.204-1957) which visitors can see displayed in Gallery 10a, *Noble Living 1350-1500)*. Situated just in front of the tapestry, visitors can use the kiosk to explore the provenance, production and iconography of the tapestry at their leisure. In addition to this touch-screen, the 'Boar and Bear Hunt Tapestry' is similarly enhanced by an audio point. Delivered via headphones, visitors can here listen to a selection of literary and musical pieces evoking the themes of hunting and courtly love depicted on the tapestry. In addition to a short introductory commentary on the tapestry itself, the audio station includes a reading of the boar hunt described in the late fourteenth-century poem, *Sir Gawain and the Green Knight*, as well as renderings of a *caccia* ('hunt', 'chase') – one of the principal Italian musical forms of the fourteenth century – and *O Rosa Bella* (O Lovely Rose), a song about courtly love.

A second audio point is found in Gallery 10 and accompanies an altarpiece panel depicting forty-five scenes from the Book of Revelation (5940-1859) and which was made by Master Bertram von Minden in circa 1400. Besides a short introduction to the panel itself, visitors can here listen to examples of Gregorian chant. Moving on to Room 9, *The Dorothy and Michael Hintze Gallery*, an audio station is found accompanying the St Denis Missal (MSL/1891/1346), a mid-fourteenth-century manuscript made in Paris. This interactive allows visitors to listen to a contemporary rendition of the music written on the opening of the book displayed in front of them, more notably so the *Salve pater Dyonisi* ('Hail Father Denis'), a song which would have been sung in the abbey for which the manuscript was initially made on feast days of St Denis. In addition to this modern interpretation of this sacred piece, the audio point further includes two instrumental pieces of music, including the fourteenth-century *Lamento di Tristano* ('The Lament of Tristan'), , and *La Rotta*. The St Denis Missal is further fitted with touch-screen information kiosk which – similarly to the stand-alone kiosk in Gallery 10 – allows visitors to explore the manuscript in more detail and to zoom in and out of its illuminations at will.

A second stand-alone touch-screen kiosk in Room 9 lets visitors explore and discover the distinctive features of the Gothic style (12th-16th c.). In addition to its core characteristics - pointed arches, curving figures, naturalism and emotion – visitors can discover key buildings and proponents of the style at their leisure. An identical touch-screen kiosk is available in Room 8, *Faiths and Empires 300-1250* – The William and Eileen Ruddock Gallery - but instead of illustrating the Gothic style, this kiosk outlines the stylistic particularities of Romanesque. The content of both interactives is available on the V&A's website.

Room 8 features an audio station as part of the *Great Churches & Monasteries 1000-1250* subject display. The audio content here includes sung prayers written on loose leaves of the choir-books in the adjacent display case. Additionally, Room 8 includes two video stations, each 3:30-minute-long with subtitles but no audio content. While one focuses on a casket or *chasse* (M.66-1997), depicting the murder of Thomas Becket (1118-1170), Archbishop of Canterbury, and the exquisite champlevé enamelling technique with which it was decorated, the other relates to the provenance and design of the *Lorsch Gospels*, of which the front cover (138:1 to 6-1866) is on display in case 12 of *The William and Eileen Ruddock Gallery*.

10. Undercroft Museum, York Minster

Location: York, England
Data Collection Methods: Email – 02-03-2019

York Minster has been one of the main centres of Christianity in the north of England since the seventh century, and remains a vibrant place of worship and prayer today. While the Gothic architecture of the site – it is the largest church of this kind in Northern Europe – itself bears witness to the building's two-thousand-year-old history, most of the minster's historic collections are displayed below the cathedral's floor, in the undercroft. The result of a five-year HLF-funded project, The Undercroft Museum takes its visitors on a journey through the history of the site from its pre-Roman occupation through to the Gothic masterpiece it is today.

Digital Interpretation Tools Used On-Site: With a history that spans over two centuries, the site on which the current minster stands boasts a rich and eventful past. To help visitors visualize the architectural changes the minster underwent since its inception, The Undercroft Museum incorporates 9 video installations which show 3D computer-generated animations of how the minster looked at distinct stages in its history. Situated strategically throughout the undercroft to support the chronological narrative of the exhibition as whole, these CGI animations show the evolution of the site from the Roman fortress as which it first emerged in 300 through to the Norman Minster into which it was turned in around

1100 right up to 1472 when it became the Gothic masterpiece that is today. While two of these video installations are shown on traditional screens, seven of these CGI animations are projected directly onto wall via overhead projectors, thereby merging directly with the very fabric of the minster.

A last projection is found within the last gallery of the museum and includes filmed footage of the 'Diocesan Pilgrimage of Prayer, Witness and Blessing' on which Archbishop Sentamu set out between Advent 2015 and Trinity 2016. The footage features interviews with people who met the Archbishop along the way and who relate how they and their beloved were blessed by him.

In addition to these video installations, the Undercroft Museum further incorporates a number of multimedia touch-screen kiosks. One of these lets visitors explore the coffin of Archbishop Walter de Gray which was found in the minster in the 1960s. Fitted with a game that lets visitors "drag & drop" images of the items excavated from within the coffin into the original position in which they were found; once placed in their right location, a text box pops up on the screen which provides visitors with additional information on the objects, their meaning and use. Another touch-screen kiosk is used to enhance the famous York Gospels. Fitted with two individual, yet functionally-identical screens, the kiosk lets visitors explore the textual and pictorial contents of selected folia from the manuscript. Including a turning-the-pages feature, visitors can swipe through these folia and learn about highlighted phrases or pictorial details; tapping onto specific areas, users are provided with translation and at some points even a transcription of the text. The inclusion of this particular kiosk is vital as the York Gospels are still in used and are removed from display, for instance, to be used in the installation of a new canon. During these periods, the kiosk constitutes the only point of access to the manuscript.

The Undercroft Museum also features the only multi-user kiosk identified as part of the present investigation. Designed to be used by up to four users concomitantly, it allows visitors to use the tabletop interactive to explore the daily life of the cathedral staff and so get a better sense of how the minster is run and maintained.

Appendix B. Ethics Form (Revised Version)

College of Arts Research Ethics Checklist

This checklist is used to identify whether a full application for ethics approval needs to be submitted. Before completing this form, please refer to the College of Arts Ethics policy and procedures (http://www.gla.ac.uk/colleges/arts/research/ethics).
The principal investigator (PI) or supervisor (where the PI is a student) is responsible for exercising appropriate professional judgment in this review. This checklist must be completed before potential participants are approached to take part in any research.

Please answer each question by ticking the appropriate box:	YES	NO
Does the research involve human participants?	☒	☐
Does the research involve data not in the public domain? (i.e. data still in copyright)	☒	☐
Does the study involve people in a dependent relationship, minors, or vulnerable people who may be unable to give informed consent? (e.g. your own students, children, people with special needs) I*f your research involves minors or vulnerable subjects, please elaborate as fully as possible on the reasons why this is needed and the ways in which you intend to fully protect the interests of such subjects. If the research involves unsupervised contact with vulnerable groups, you may need to join the Protection of Vulnerable Groups Scheme*.	☒	☐
Will the study require the co-operation of a gatekeeper for access to participants? (e.g. teacher, local authority)	☒	☐
Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people in non-public places)	☐	☒
Will the study involve discussion of sensitive topics? (e.g. sexuality, drug use)	☐	☒
Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	☐	☒
Are there issues of safety for the investigators or subjects? (see also "Ethical Issues in Interviews" on http://www.gla.ac.uk/colleges/arts/research/ethics/)	☐	☒
Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?	☐	☒
Are there issues of confidentiality? (see also "Ethical Issues in Interviews" on http://www.gla.ac.uk/colleges/arts/research/ethics/)	☐	☒
Are there issues of security? (e.g. data storage security)	☐	☒
Are there issues of balance? (e.g. cultural, social or gender-based characteristics of the research subjects affecting the design of the project or its conduct)	☐	☒

If you have answered NO to all of the questions above, you need take no further action before starting your research.

If you have answered YES to any of the questions above, you need to submit an application to the College of Arts Research Ethics Committee before you begin the research. Please

complete Part B) of this form and address any ethical issues of your research project in section 12 of the application form. Append your research proposal and any other supporting documents such as questionnaires, consent form, information letter for participants etc. and submit your application through the online Research Ethics System (log in via the University's Business Systems page: https://frontdoor.spa.gla.ac.uk/login/).

Will the study require the co-operation of a gatekeeper for access to participants? (e.g. teacher, local authority)	☒	☐
Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people in non-public places)	☐	☒
Will the study involve discussion of sensitive topics? (e.g. sexuality, drug use)	☐	☒
Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	☐	☒
Are there issues of safety for the investigators or subjects? (see also "Ethical Issues in Interviews" on http://www.gla.ac.uk/colleges/arts/research/ethics/)	☐	☒
Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?	☐	☒
Are there issues of confidentiality? (see also "Ethical Issues in Interviews" on http://www.gla.ac.uk/colleges/arts/research/ethics/)	☐	☒
Are there issues of security? (e.g. data storage security)	☐	☒
Are there issues of balance? (e.g. cultural, social or gender-based characteristics of the research subjects affecting the design of the project or its conduct)	☐	☒

If you have answered NO to all of the questions above, you need take no further action before starting your research.

If you have answered YES to any of the questions above, you need to submit an application to the College of Arts Research Ethics Committee before you begin the research. Please complete Part B) of this form and address any ethical issues of your research project in section 12 of the application form. Append your research proposal and any other supporting documents such as questionnaires, consent form, information letter for participants etc. and submit your application through the online Research Ethics System (log in via the University's Business Systems page: https://frontdoor.spa.gla.ac.uk/login/).

APPLICATION FORM FOR ETHICAL APPROVAL

1. Name(s) of person(s) submitting research proposal:
Lynn Verschuren

2. Position
Undergraduate Student ☐/ Postgraduate Student ☒/ Staff ☐

3. Subject/ Centre/ School:
Information Studies/School of Humanities

4. Contact Address:

5. Email (please use your GU email address):
l.verschuren.1@research.gla.ac.uk

6. *For Students only*	
Course name	Postgraduate Research (PGR)
Supervisor's name	Maria Economou
Supervisor's email address	maria.economou@glasgow.ac.uk
Supervisor's contact address	George Service House, 11 University Gardens, Glasgow G12 8QJ

7. *For Supervisors of Student Applications*

Please note that by submitting this application the supervisor confirms that:

- The student has read the College's Ethics Policy and Procedures.
- The topic merits further research.
- The student has the relevant skills to begin research.
- If interviewing, the student has produced an appropriate information sheet for participants.
- The procedures for recruitment and obtaining informed consent are appropriate.

8. Project title:
Multisensory Interpretation in Museum Displays: Evaluating Digital Engagement with Burrell's Late Medieval Collections

9. Proposed project end date:
September 2020

10. *Have all investigators read, understood and accepted the College Ethical Policy, a statement of which is available on the College website at* http://www.gla.ac.uk/colleges/arts/research/ethics
YES☒/NO☐

11. Independent contact name (in case of complaints or questions from participants). *This could be your head of department, line manager, dissertation supervisor, etc.:*
Maria Economou

12. Ethical Issues

What in your opinion are the ethical considerations involved in this proposal? You should consult the ethical policy statements of the AHRC and other funding and professional bodies (these can be found on www.gla.ac.uk/colleges/arts/research/ethics).

Please address in detail all ethical issues that you have identified in the checklist above, as well as any further potential ethical issues of your research. Please explain how you will deal with these issues.

In accordance with Government advice and University policy on reducing social contact, the ethics application (100180209) below has been revised to ensure the safety of all human participants even in the period following lockdown when social distancing might be still recommended. All changes and/or additions to the original form are highlighted in red.

As per the research ethics checklist above, the following ethical issues have been identified as part of this project:

1) HUMAN PARTICIPANTS

The research will involve the following groups of participants:
- Cultural heritage professionals;
- Visitors to museums (e.g. Kelvingrove, Riverside, Kelvin Hall, The Hunterian) and other public spaces where medieval collections are displayed (e.g. cathedrals);
- Focus group and individual participants interested in museums and the arts (e.g. students and staff members from the University of Glasgow);
- Glasgow Museums' youth, teen and adult advisory panel;

Due to Covid-19, all of the above human participant groups might have to participate only and/or mainly in online research activities, including taking part in video-recorded interviews that will take place via Zoom, unless another online platform is requested by participants. For more information, see highlighted sections below.

These participants will be involved in one or more of the following phases*:

*Participation in all phases will be voluntary and consent will be sought from each participant prior to data collection.

Phase 1 – Email Survey & Site Visits

As part of this project a survey will be conducted with cultural heritage institutions across Europe and North America to access qualitative data into the curatorial strategies underpinning the display and interpretation of late medieval collections. The survey will be conducted via email which will be send to selected institutions (selected by the researcher via exploratory desk research) displaying late medieval collections. A standardized email will be send to selected contacts (e.g. curators of medieval art) of each institution and will include a brief introduction of the researcher, the institutions and funding body involved as well as an outline of the research project. A number of open-ended questions will be devised in line with the research objectives of the survey to ensure that the data collected is as relevant to the research as possible. The number of questions will deliberately be kept to a minimum to ensure as high a response rate as possible. Care will also be taken to be as transparent as possible about how the data collected will be used, and that, if useful, information on the process of the project and its findings may be shared with the institutions that respond.

To compliment the research data gathered via the email survey, site visits will be carried out by the principal researcher (Lynn Verschuren) to as many of the selected institutions as possible. These site visits will focus exclusively on galleries displaying medieval art; the exact location of these within each institution will be identified prior to the visit to ensure that time spend on-site is used as effectively as possible. Notes (e.g. hand-written, photographs, videos) will be taken of any digital interpretation methods used, of their location within the gallery and of their relation to the object or collection of objects which they are meant to enhance. Photographs and videos will be taken of the digital interpretations tools and objects they enhance ONLY. Visitors will at no point be included in these photographs and/or videos.

Phase 2: Interviews with Cultural Heritage Professionals

Informed by the email surveys and site visits carried out in Phase 1, semi-structured interviews (attached) will be conducted with a number cultural heritage professionals (e.g. curators of medieval art) working in institutions displaying late medieval collections. These interviews will be carried out by the principal researcher (Lynn Verschuren) either in person or online, and are aimed at gaining qualitative data on the curatorial strategies underpinning the display and interpretation of the late medieval objects on show at each of the institutions selected. In cases in which interviews are carried out in person, it is expected that some will take the form of one-to-one interviews between the principal researcher (Lynn Verschuren) and the interviewee (e.g. curator of medieval art); should this be the case, the researcher will ensure that the interviews are carried out ONLY at the interviewee's workplace (e.g. museum) or, where convenient, in a public space nearby (e.g. museum café). To ensure the safety of the researcher (Lynn Verschuren), contact details of the

interviewee, as well as time and place (e.g. name of cultural heritage institution) of interview will be left with a colleague or a friend whenever an interview is conducted. In cases in which interviews are carried out online, these will be conducted via Zoom, unless otherwise requested by the interviewee.

Data gathered from the interviews will be recorded by the researcher on paper (by hand), by audio and/or video recording (incl. screen capture). Permission for this will be sought prior to data collection through the signing of a consent form (attached). All participants will be advised that their participation is entirely voluntary and that they may withdraw at any point without providing a reason. No financial compensation will be provided.

Phase 3: Evaluation I

Diverse visitors to cultural heritage institutions (e.g. Kelvingrove Art Gallery and Museum; Riverside Museum; Kelvin Hall; The Hunterian) as well as those interested in museums and the arts will be asked to participate in the evaluation of the experimental prototypes developed as part of this project.
The schedule for data collection in Phase 3 has been revised and adapted due to Covid-19 to run during July-August 2020 but might be extended in line with the progress of the research.

Due to the on-going Covid-19 pandemic, evaluation activities will be adapted in line with Government guidance policies to ensure the safety of participants at all time.

If physical/in-person evaluation is deemed safe, evaluations will be carried out in cultural heritage institution (e.g. Kelvingrove Art Gallery and Museum; Riverside Museum; Kelvin Hall; The Hunterian). In these cases, signs (attached) notifying visitors about the on-going research activities will be displayed in proximity to the prototypes. Specific locations for where to set up prototypes will be approved by the venue manager(s) of each venue. Requests for participation in these research activities will occur in person by the principal investigator (Lynn Verschuren) and will be carried out on a random basis to ensure representative sample selection.

Due to the on-going Covid-19 pandemic, participants might be asked to participate in online evaluation activities that will be carried out via Zoom, unless otherwise requested by participants. Requests for participation in the online evaluation will occur via email. Beginning with students and staff from the University of Glasgow's Information Studies department, participant recruitment will be expanded to include students and staff from other departments and institutions (e.g. University of Strathclyde) and members of the public interested in museums and the arts.

For both physical/in-person and online evaluation, data will be gathered via one or more of the following qualitatively driven research methods:

i) 'Think Aloud' Protocols (attached) during which participants are asked to verbalize their thoughts, feelings and opinions on the interventions.

ii) Semi-Structured Interviews (attached) to gain qualitative data on visitor engagement with and understanding of the experimental prototypes.

iii) Visitor Observation during which the principal researcher (Lynn Verschuren) records and describes participants' reaction to and engagement with the experimental prototypes (e.g. gestures, facial expressions). Doing so, only data will be gathered that is directly relevant to the study and the resulting analysis. To mitigate any ethical concerns relating to participant observation, all participants will be notified in writing (see Information Sheet) and verbally that observations may take place prior to data collection.

iv) Questionnaires (attached) to gain qualitative data on visitor engagement with and understanding of the experimental prototypes. This will offer participants the opportunity to evaluate the effect and impact of the digital interpretation tools on their intellectual, social and emotional experience of the interventions.

Data gathered as part of these research activities will be recorded by the principal researcher (Lynn Verschuren) on paper (by hand), by audio recording, by video recording and/or photography. Permission for this will be sought prior to data collection (see Consent Form). All participants will be advised that their participation is entirely voluntary and that they may withdraw at any point without providing a reason. No financial compensation will be provided.

All physical/in-person research activities will be carried out in public spaces ONLY (e.g. museums); at no time will the researcher be spending any one-on-one time with the participants. Online evaluations might include one-on-one sessions with participants.

Phase 4: Evaluation II

In addition to approaching random visitors at selected venues (e.g. Kelvingrove; Riverside; Kelvin Hall Hunterian), a second data collection stage may involve testing the interventions with focus groups/panel participants that will be carried out either online or in-person (when/if it is safe to do so). These focus groups/panel discussions were scheduled to run in autumn 2019 but will be extended in line with the progress of the research to take place in Summer/Autumn 2020.

i) A number of these focus groups may involve the participation of students and staff from the University of Glasgow. Participants in these focus groups will consist of adults only (+18). Requests for participation in these focus groups will be done either in person or by email. All participants will be advised that their participation is entirely voluntary and that they may withdraw at any point without providing a reason. No financial compensation will be provided.

ii) This 4th phase may also involve evaluating the interventions with Glasgow Museums' advisory panels (youth, teen & adult panels).

Although Glasgow Museums have an on-going agreement with the participants and/or guardians of participants of these panels, information sheets and consent forms will be provided to each panel prior to data collection. Care will also be taken to explain the purpose of the project verbally prior to data collection to ensure that all participants are aware of what the project entails. This will also provide participants with the opportunity to ask any questions that may arise. Here too, all participants will be advised that their participation is entirely voluntary and that they may withdraw at any point without providing a reason. No financial compensation will be provided. While these panels will be led primarily by the principal researcher (Lynn Verschuren), the latter will never be in sole charge of these panels, nor will she be spending one-on-one time with the panel participants. Instead, Susie Ironside, Glasgow Museum's Visitor Studies Curator, will be present at all times and will function as a gatekeeper between the researcher and the respective panels. For further information see Sections 3 & 4 below.

***

For each of the four phases outlined above the following steps will be adhered to in order to mitigate any potential ethical issues:

- Requests for Participation & Consent for ALL Phases of Research

Requests for participation in the study will be made by principal researcher (Lynn Verschuren) and will occur either in person or via email. To mitigate any potential ethical issues arising from either of the four research phases above, all participants will be provided with an information sheet (attached and revised in line with changes in evaluation outlined above, see REVISED Information Sheet) prior to data collection which outlines the research project, its aims and use of participant data. The information sheet further includes information on the funding and review of the project as well as a list of useful contacts for further information. All participants will be advised that their participation is entirely voluntary and that they may withdraw at any point without providing a reason. No financial compensation will be provided. Having agreed to participate in the study, all participants will be asked to sign a consent form (attached) outlining the mode of recording, anonymization of data, use (and re-use) of data and data storage prior to data collection. Care will also be taken to explain the purpose of the project and all underpinning research activities verbally prior to data collection to ensure that all participants are aware what the project entails. This will provide participants with the opportunity to ask any questions that may arise.

- Confidentiality & Anonymization of Data derived from ALL Phases of Research

All data collected from each of the four phases above will be kept strictly confidential. All participants will be given the opportunity to remain anonymous if they so wish (see Consent Form). Participants wishing to remain anonymous will at no point be identified other than by confidential identification numbers within this research project or any outputs arising as part of it (e.g. reports, conference papers, publications). A master list identifying participants (i.e. identifier keys) to individual numbers will be stored separately from the data and will be accessible only to the principal researcher (Lynn Verschuren).

As most video, audio and web conferencing tools collect personal data from their users in order to optimise their service provision (e,g. Zoom collects technical information about user devices, network and internet connection; approximate location; online meeting settings and preferences; metadata), any issues concerning the confidentiality of data shared via online platforms will be elucidated in the REVISED Information Sheet (attached) and explained verbally by principal researcher prior to data collection. Similarly the Information Sheet has been revised to include a link to the privacy of the selected online platform (i.e. Zoom).

To mitigate any further ethical issues arising from online evaluation/interviewing, the principal researcher will ensure that all interviews are password protected for access. Additionally, all in-meeting file transfer will be disabled; instead, all necessary files (e.g. questionnaires) will be forwarded to participants prior to the online interview via email. If consent is given for the interview to be recorded and transcribed, the researcher will download and encrypt all videos and store these securely on her password-protected account at the University of Glasgow's approved cloud storage solution OneDrive for Business. Once securely downloaded and encrypted, all online files will be deleted.

- Data Collection & Storage of Data derived from ALL Phases of Research

Data collection will be carried out in compliance with Article 8 of the Charter of Fundamental Rights of the European Union, 'Protection of Personal Data'. In addition to the EU charter, data collection will be carried out in compliance with the data protection acts, legislation, and directives of the partnering cultural institutions. Data will be recorded by the principal researcher (Lynn Verschuren) on paper (by hand), by audio recording, by video recording and/or photography. Permission for this will be sought prior to data collection (see Consent Form). All data will be anonymised, unless participants specify otherwise (see Consent Form). Participants have the right to access their data at any point by contacting the principal researcher (Lynn Verschuren). The principle researcher (Lynn Verschuren) is committed to the principle of 'data protection by design and default' and will collect a minimum amount of data necessary for the project.

Data will be securely stored on the approved, password-protected University of Glasgow cloud storage solution OneDrive for Business, accessible only to the principal researcher (Lynn Verschuren). Physical data (e.g. audio recordings; interview transcriptions; completed questionnaires) will be stored in a locked room in the University of Glasgow. Electronic copies of the physical data will be stored on the University of Glasgow's approved, password-protected OneDrive for Business that will be accessible to the principle researcher (Lynn Verschuren) only. Documents with personally identifying information (e.g. identifier keys & consent forms) will be stored separately from the data, and will be accessible only to the principle researcher (Lynn Verschuren).

Data underpinning this research will be retained in the University of Glasgow' data repository for a period of minimum 10 years after completion of the project (2020) in adherence with the university' records retention schedule.

- Basis for Data Processing for Data derived from ALL Phases of Research

In line with the General Data Protection Regulation (GDPR) and the University of Glasgow's Charter which states that we advance learning and knowledge by teaching and research, personal data will be processed for research purposes under Article 6 (1) (e) of the GDPR: Processing is

necessary for the performance of a task carried out in the public interest. Special category data is processed under Article 9 (2) (j): Processing is necessary for archiving purposes in the public interest, or scientific and historical research purposes or statistical purposes.

Research will only be undertaken where ethical approval has been obtained, where there is a clear public interest and where appropriate safeguards have been put in place to protect data. In line with ethical expectation and in order to comply with common law duty of confidentiality, consent for participation in this study is sought where appropriate.

- Re-Use of Data derived from ALL Phases of Research

The University of Glasgow is committed to ensuring that data derived from publically funded research is made available to other organisations and individuals. If consent is given (see Consent Form), data will be made publically available in a trusted, open access repository for re-use by others.

2) DATA NOT IN THE PUBLIC DOMAIN

Due to the collaborative and applied nature of this project, the principal researcher (Lynn Verschuren) may receive 'grey literature' from contributing organisations. Permission to use these documents as part of the thesis or as part of any outputs resulting from it (e.g. reports, conference papers, publications, etc.) will be sought by the contributing organisations and their staff prior to using them.

With regard to the 3D model and 3D print produced as part of this research project: Glasgow Museums retains the rights to the original object (ID Number 1.24) but granted the principal researcher (Lynn Verschuren) the permission to use a 3D model and subsequent 3D prints of the object as part of her research.

3) MINORS

As the project aims to explore how digital interpretation tools impact diverse visitors' engagement with and experience of late medieval collections, including families and teenagers, the research may involve minors (8 years old and above) in the research activities listed above. In this case, permission will always be sought from the accompanying adult who will be asked to sign the specific consent form for minors (attached, see Consent Form for Parent/Guardian of Minors). Research activities involving minors will be carried out in public spaces only (e.g. museums) and will be conducted ONLY in the presence of a parent/guardian. The principal researcher (Lynn Verschuren) will at NO time be one-on-one time with the minors involved in this study.

The same research instruments (e.g. think aloud protocols; questionnaire, etc.) will be used for minors. Specially adapted research instruments will be created only if evaluation testing indicates that the language in these need to be adjusted, in which case they will be re-submitted to the Ethics Committee.

In addition to approaching diverse visitors (incl. families and teenagers), data collection may also involve testing the interventions with Glasgow Museums' two youth panels – the junior advisory panel and the teen advisory panel (see Phase 4 above). Comprising of a representative mix of children and teenagers (ranging in age from 8 to 16) from two local primary schools and one local secondary school, Glasgow Museums have an on-going agreement with the participating schools which includes informed consent and permission by guardians of the minors to participate. While these panels will be led primarily by the principal researcher (Lynn Verschuren), the latter will never be in sole charge of these panels, nor will she be spending one-on-one time with the panel participants. Instead, Susie Ironside, Glasgow Museums' Visitor Studies curator, will be present at all times and will function as a gatekeeper between the researcher and the respective panels.

Although Glasgow Museums have an on-going agreement with the participant schools which includes informed consent and permission by guardians of the minors to participate, information sheets and consent forms will be provided to each panel prior to data collection. Care will also be taken to explain the purpose of the project verbally prior to data collection to ensure that all minors

are aware of what the project entails. This will also provide participants with the opportunity to ask any questions that may arise. All participants will at this point be advised that participation is completely voluntary and they may withdraw at any point without providing a reason.

4) CO-OPERATION OF A GATEKEEPER

i) Glasgow Museums

This research project is funded through SGSAH's Applied Research Collaborative Studentships (ARCS). In addition to the University of Glasgow and the University of Strathclyde, this project is carried out in collaboration with The Burrell Collection, Glasgow Museums, which functions as partner organisation. All research activities carried out within Glasgow Museums venues (Kelvingrove & Riverside) require the co-operation of a gatekeeper (here: Susie Ironside, Visitor Studies Curator, Glasgow Museums). All interventions and sample questions will be reviewed and approved by David Scott, Digital Manager of the Burrell Renaissance Project, Susie Ironside, Visitor Studies Curator, and Susan Pacitti, Glasgow Museums' Publishing, Commissioning and Licensing Manager prior to data collection. The same applies to the participant information sheet and consent forms. Locations for where to set up prototypes too will be approved by the venue manager(s) of each venue. Signs notifying visitors about on-going research activities will be reviewed and approved by Susie Ironside and will be displayed in close proximity to the prototypes.

Dates and times for data collection within Glasgow Museums' venues (Kelvingrove & Riverside) will be reviewed and approved by Susie Ironside, Visitor Studies curator. The venue manager(s) and front of house staff present in the venues during these times will be notified prior to each data collection session. The principal researcher (Lynn Verschuren) will have successfully completed a safety induction to each venue/building prior to data collection to ensure adequate knowledge of procedures in case of emergency.

Co-operation with Glasgow Museums is similarly required for gaining access to Glasgow Museums' advisory panels (incl. youth, teen & adults panels). While these panels will be led primarily by the principal researcher (Lynn Verschuren), the latter will never be in sole charge of these panels. Instead, Susie Ironside, Glasgow Museums' Visitor Studies curator, will be present at all times and will function as a gatekeeper between the researcher and the respective panels.

ii) The Hunterian

For any research activities carried at The Hunterian, express permission will be sought from Lee Scott, Visitor Experience Manager, and Harriet Gaston, Communications Manager. All interventions and sample questions will be reviewed and approved by Lee Scott and Harriet Gaston prior to data collection. The same applies to the participant information sheet and consent forms. Locations for where to set up prototypes too will be approved by the venue manager(s) of each venue. Signs notifying visitors about on-going research activities will be reviewed and approved by Lee Scott and Harriet Gaston, and will be displayed in close proximity to the prototypes.

Dates and times for data collection within The Hunterian will be reviewed and approved by Lee Scott and Harriet Gaston. The venue manager(s) and front of house staff present at the venue during these times will be notified prior to each data collection session.

iii) Kelvin Hall

For any research activities carried at Kelvin Hall, express permission will be sought from Jade Graham, Kelvin Hall site manager. All interventions and sample questions will be reviewed and approved by Jade Graham prior to data collection. The same applies to the participant information sheet and consent forms. Locations for where to set up prototypes too will be approved by the venue manager(s) of each venue. Signs notifying visitors about on-going research activities will be reviewed and approved by Jade Graham and will be displayed in close proximity to the prototypes.

Dates and times for data collection within Kelvin Hall will be reviewed and approved by Jade Graham. The venue manager(s) and front of house staff present at the venue during these times will be notified prior to each data collection session.

13. If applying for funding for this research, please give name of funding body:

14. Have you submitted, or are you intending to submit this application to another College in the University?
Yes☐/ No☒ If yes, please specify:

End of Project Report
The Committee requires that a brief report be provided within one month of the completion of the research, giving details of any ethical issues which have arisen (a copy of the report to the funder, or a paragraph or two will usually be sufficient). This is a condition of approval and in line with the committee's need to monitor research.
In addition, any unforeseen events which might affect the ethical conduct of the research, or which might provide grounds for discontinuing the study, must be reported immediately in writing to the Ethics Committee. The Committee will examine the circumstances and advise you of its decision, which may include referral of the matter to the central University Ethics Committee or a requirement that the research be terminated.

Please note that it is the responsibility of the researcher to follow the College of Arts Ethics policy and procedures and any relevant academic or professional guidelines in the conduct of the study. This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data. Any significant change in the question, design or conduct over the course of the research should be notified to the College Ethics Officer and may require a new application for ethics approval.

Date of submission of form: 26/06/2019
Date of submission of REVISED form: 02/07/2020

Signature of person making the proposal: Lynn Verschuren
(please type name)

Signature of supervisor (for student applications only): Maria Economou
(please type name)

Thank you for filling in this form. You should receive confirmation of ethical approval within four weeks of submitting it.

Appendix C. Phase II: Participant Information

C.1. Email Invitation

Dear *INSERT NAME*,

I would like to invite you to take part in a research project which is part of my PhD. The aim of that project is to explore the impact of digital interpretation on visitors' experience of late medieval artefacts.

If you are interested in participating, an online meeting (approx. 30mins) via Zoom will be arranged at a time and date of your convenience. During this online session you will be shown an object and you will be invited to discuss the digital interpretation that has been planned for it. There are no right or wrong answers for this. I am simply interested in hearing your thoughts and perspectives on the interpretation. As you have a distinct interest in museums and digital engagement, you are particularly well suited in that regard, and your participation will be a valuable addition to my research.

I enclose a 'Participant Information Sheet' for your perusal which contains detailed information about the project, including your role within it. If anything you read is not clear or you would like more information, please do not hesitate to get in touch; I am happy to answer any questions you might have.

Thank you in advance for your time and consideration.

Kind regard,
Lynn Verschuren

C.2. Participant Information Sheet

University of Glasgow

Participant Information Sheet

Project Title: Multisensory Interpretation in Museum Displays: Evaluating Digital Engagement with the Burrell's Late Medieval Collections
Principal Researcher: Lynn Verschuren, PhD Candidate - Information Studies, l.verschuren.1@research.gla.ac.uk
Purpose of Project: To explore how digital interpretation tools impact visitor experience of late medieval collections.

You are being invited to take part in a research project. Before you decide if you would like to participate, you need to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Feel free to ask the principal researcher (Lynn Verschuren) if anything you read is not clear or you would like more information.

1. **What is this project about?**

This research project investigates how digital interpretive tools may be used to improve the public display of late medieval museum collections. Carried out in collaboration with the University of Glasgow and the University of Strathclyde, the project's case study is The Burrell Collection, Glasgow Museums, whose late medieval collections will be used to evaluate the potential of digital interpretive tools for supporting meaningful engagement with these artefacts and their impact on visitors' intellectual, social and affective experience. All data you provide will be used to inform the findings of this research project.

2. **Do I have to take part?**

No. Your participation is completely voluntary. You may withdraw at any time without giving a reason. You may withdraw any data previously supplied. You may decline to answer specific questions without giving a reason.

3. **What will happen if I decide to take part?**

If you decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. You will then be asked to take part in one or more of the following research activities:

- Participate in an email survey;
- Take part in an online interview;
- Participate in a 'think aloud' protocol;
- Participate in visitor observation & tracking;
- Complete a questionnaire;
- Take part in a focus group/panel discussion.

For safety reasons relating to Covid-19, all of the above research activities might take place online via Zoom (unless another online platform is requested by you).

Data from these activities will be recorded by the researcher on paper, by audio or video recording, by photography, and/or screen capture. Your permission for this will be sought before data collection begins through the signing of a consent form. Your participation is voluntary and no financial compensation will be provided

4. Will my information be kept confidential?

Yes. All information that is collected will be kept strictly confidential. If you wish, you may remain anonymous. In this case your name will at no point be included in this project or any outputs that may result as part of it (e.g. reports, publications, etc.). Participants wishing to remain anonymous will at no point be identified other than by identification numbers on digital transcripts, digitised research notes and publications. A master list identifying

participants to individual research codes (i.e. identifier keys) will be stored separately from the data and will be accessible only to the principal researcher (Lynn Verschuren). If you prefer to be identified by your name so that your contributions are acknowledged, the primary researcher will ensure that this is respected in the PhD thesis and any related publications and/or presentations.

In case, you are asked to participate in a research activity online, please be aware that most video, audio and web conferencing tools collect personal data from their users in order to optimise their service provision (e.g. Zoom collects technical information about user devices, network and internet connection; approximate location; online meeting settings and preferences; metadata). For further information, please visit <https://zoom.us/privacy>.

5. How will my data be stored?

All data collected will be stored securely on the approved, password-protected University of Glasgow cloud storage solution OneDrive for Business accessible only by the principal researcher (Lynn Verschuren). Physical data (e.g. audio recordings, transcriptions, etc.) will be stored in locked rooms at the University of Glasgow, until digitised at which point the originals will be destroyed. Participants wishing to remain anonymous will at no point be identified other than by identification numbers on digital transcripts, digitised research notes and publications. A master list identifying participants to individual research codes (i.e. identifier keys) will be stored separately from the data and will be accessible only to the principal researcher (Lynn Verschuren).

Data will be retained in the University of Glasgow's data repository for a period of minimum 10 years after date of deposition (2020) in adherence with the institution's retention schedule.

The University of Glasgow is committed to ensuring that data derived from publicly funded research is made available to other organisations and individuals. Your data will be made publically available on trusted research data repositories only if you give your consent and only under the conditions of anonymity that you define in the consent form.

6. What will happen to the results of this research?

This doctoral research may result in subsequent publications, both in print and online, which will integrate and analyse the research fieldwork and present it in academic journals, digital resources and conferences. If you wish to remain anonymous, your name will at no point be included as part of these publications.

7. On what basis is my data being processed?

Under the General Data Protection Regulation (GDPR), the University of Glasgow has to identify a legal basis for processing personal data and, where appropriate, an additional condition for processing special category data. In line with the University of Glasgow's Charter which states that we advance learning and knowledge by teaching and research, the university processes personal data for research purposes under Article 6 (1) (e) of the GDPR: *Processing is necessary for the performance of a task carried out in the public interest.* Special category data is processed under Article 9 (2) (j): *Processing is necessary for archiving purposes in the public interest, or scientific and historical research purposes or statistical purposes.*

Research will only be undertaken where ethical approval has been obtained, where there is a clear public interest and where appropriate safeguards have been put in place to protect data. In line with ethical expectations and in order to comply with common law duty of confidentiality, we will seek your consent to participate where appropriate. This consent will, however, be our legal basis for processing your data under the GDPR.

8. What are my rights in relation to my data & how can I report a complaint?

Under GDPR, you have a general right of access to your data, a right to rectification, erasure, restriction, objection or portability, and a right to withdrawal. Please note, not all rights, apply where data is processed purely for research purposes. For further information see: https://www.gla.ac.uk/myglasgow/dpfoioffice/gdpr/contact/.

9. Who is funding this project?

This research project is funded by the Scottish Graduate School for Arts and Humanities (SGSAH)'s Applied Research Collaborative Studentships (ARCS) and is carried out in collaboration with the University of Glasgow, the University of Strathclyde and The Burrell Collection, Glasgow Museums.

10. Who has reviewed this research?

Ethical clearance for this project has been granted by the College of Arts Research Ethics Committee on the 16th of September 2020.

11. Contacts for Further Information

If at any stage you have any concerns about the research project, you can contact either of the following:

Prof Maria Economou
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Information Studies, University of Glasgow
Email: maria.economou@glasgow.ac.uk;
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Susie Ironside
Visitor Studies Curator
Glasgow Museums
Email: susie.ironside@glasgowlife.org.uk
Tel: +44 141 287 2644.

Thank you for taking the time to read this Information Sheet.

Appendix D. Phase II: Consent Form

University of Glasgow

INFORMED CONSENT FORM – REVISED VERSION

Date: _____

Please read and tick ALL THE BOXES below to indicate your agreement:

1. I have read and understood the project Information Sheet and have had the opportunity to ask questions about the research and my participation.	
2. I voluntarily agree to take part in this research project.	
3. The procedures regarding confidentiality (e.g. anonymization of data) have been clearly explained to me.	
4. I have been notified and understand that Zoom may record some of my personal data (e.g. IP address, etc.).	
5. I agree for the data collected by the researcher and/or produced by me during the research activities (hereafter called my data) to be used to inform the project's findings and publicity.	
6. I understand that my data is of long-term value for academic research and will be retained in secure storage of the university for a period under the conditions of anonymity I define below.	
7. I understand that I may withdraw at any time without consequence.	

8. Condition of Anonymity
Please choose ONLY ONE as appropriate:

☐ **I would like my name used** and understand that what I have said or written as part of this study as well as video, photo or audio records will be used in reports, presentations and other form of outputs so that anything I have contributed to this project can be recognised.

OR

☐ **I DO NOT want my name used** in this research project and understand that my identity will be altered/obscured in photo, video and audio records.

9. Mode of Recording
Please Select ONLY ONE of the following:

☐ I agree for the research activities to be digitally recorded. This includes photographs and/video recordings. I understand that **I may be recognisable** in the resulting photographs and/or video recordings.

OR

☐ I agree for the research activities to be digitally recorded. This includes photographs and/video recordings. I ask, however, for **my identity to be altered/obscured** in photo and/or video records.

OR

☐ I **DO NOT** agree for the research activities to be recorded at all. I ask the researcher to record my data on paper (by hand).

10. Re-Use of Data
Please choose ONLY ONE as appropriate

☐ I give consent for my data to be published in a trusted open access data repository **under the condition of anonymity selected above**.

OR

☐ I give consent for **an anonymised version of my data** to be published in a trusted open access data repository.

OR

☐ I **DO NOT** give consent for my data to be published in a trusted open access repository.

Name of Participant: _____ Signature: _____

Name of Researcher: Lynn Verschuren Signature: _____

Researcher's name and email contact: Lynn Verschuren
l.verschuren.1@research.gla.ac.uk

Supervisor's name and email contact: Maria Economou
maria.economou@glasgow.ac.uk

Appendix E. Phase II: User Evaluation Materials

E.1. Semi-Structured Interview Template

[Part A : Pre-digital evaluation]

If you could please look at the object. Feel free to approach it and look at it up close.

A1. Would mind describing to me what you see?

A2. Have you seen anything like this before?/Does it remind you of anything?

Prompt: If yes - A2.1. Do you know the story behind it? Do you recognise any of the figures?

If no – A2.2. What do you think it shows?

A3. Where do you think you would normally encounter such an object?

A4. What feelings do you associate with this object? What emotions would you say are depicted here? What makes you say that? How does it make you feel?

A5. Is this the kind of object that you have stopped and looked at in museums or in other places in the past? Why?/Why not?

[Part B: Post digital evaluation]

I will now show you the interpretation that was planned for this object.

B1. What is your initial reaction to this?

B2. Could you describe to me what you saw? What did you hear?

B3. Is there something that stood out for you? What did you like most/least?

B4. What do you think it is about? What do you think it is trying to convey/what do you think the interpretation is trying to do? Would you mind elaborating on that?

B5. We briefly talked about feelings/emotions earlier [REFER to A3 + A4].

Have your feelings changed now that you've seen it like this? If yes, how?

B6. What are your thoughts on using emotion for engaging with an object like this?

B7. What are your thoughts on using projections as delivery method?

B8. Having experienced a display like this, do you think you'll perceive this and similar objects differently? Does this display change your response to this object?

Did it make you look at it differently? Is there anything that you personally take away from this?

E.2. Questionnaire

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Feedback Questionnaire

Participant Name (Optional) : _____

C. Please select **ONLY ONE** to indicate your agreement:

Statements	**Strongly Agree**	**Agree**	**Neither Agree nor Disagree**	**Disagree**	**Strongly Disagree**
The interpretation of the object (Part 2):					
C1. … made me see details of the object that I did not notice without it.					
C2. … made me look at the object in more detail.					
C3. … distracted me from the original object.					
C4. … moved me.					
C5. … made me engaged in the experience.					
C6. … made me connect with the object on a personal level.					
C7. … made me reflect on the potential meanings of the object.					
C8. … made me want to know more about the object.					
C9. … makes me want to find out more about other objects of this kind.					

And finally, a question about yourself. Please rest assured that all information you provide is used for research purposes only.

C10. Would you consider yourself religious?

Yes ☐ No ☐ Prefer Not to Say ☐

If yes, please specify _____

Thank you very much for your time.

E.3. Questionnaire Results

University of Glasgow

Feedback Questionnaire

Participant Name (Optional) : _____

7. Please select **ONLY ONE** to indicate your agreement:

Statements	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The interpretation of the object (Part 2):					
C1. … made me see details of the object that I did not notice without it.	11	3	1	2	
C2. … made me look at the object in more detail.	13	3	1		
C3. … distracted me from the original object.		2		10	5
C4. … moved me.	3	8	6		
C5. … made me engaged in the experience.	7	9	1		
C6. … made me connect with the object on a personal level.	2	8	6	1	
C7. … made me reflect on the potential meanings of the object.	10	7			
C8. … made me want to know more about the object.	6	8	3		
C9. … makes me want to find out more about other objects of this kind.	3	5	9		

And finally, a question about yourself. Please rest assured that all information you provide is used for research purposes only.

C10. Would you consider yourself religious?

Yes ☐ No ☐ Prefer Not to Say ☐

If yes, please specify _____

Thank you very much for your time.

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