



*All our knowledge falls with  
the bounds of experience.*  
(Kant, 1787)

## INTRODUCTION

---

The purpose of this chapter is to present the thesis research question, how I plan to address the research question through my aim and objectives, research approach, design and methods. The structure of the practice-led thesis is also presented and explained.

When I joined the University of Winchester in 2010 as a Senior Lecturer to head the new MA Digital Media Practice programme, I was a business owner in the process of launching a multimedia kiosk interpretation application<sup>1</sup> 'The Talking Walls-Beaulieu Abbey' for Beaulieu Abbey<sup>2</sup>, which I had researched, designed and created with the support of funding from a Micro Project SMART award. The research and development of the interpretation design of the application was also the subject of my MPhil/PhD, initially started at Winchester School of Art, University of Southampton.

---

<sup>1</sup> The Talking Walls Beaulieu Abbey website version: [www.thetalkingwalls.co.uk/Beaulieu](http://www.thetalkingwalls.co.uk/Beaulieu) requires Adobe Flash Player to view, which can be accessed here: <https://get.adobe.com/flashplayer/>

<sup>2</sup> Beaulieu is in the heart of the New Forest, Hampshire and is 'one of [the] South of England's top family days out'. The village is well known for Palace House and gardens, the National Motor Museum and Beaulieu Abbey. The World of Top Gear forms part of the National Motor Museum. Beaulieu Abbey's church no longer exists, although there are remains of the cloisters and cloister buildings. King John founded the royal abbey in 1203 in a 'beautiful place' (Beaulieu) for monks of the Cistercian Order, sent from Cîteaux Abbey, France. It was once one of the largest Abbeys in England and was the reason why there is now a village at Beaulieu ([www.beaulieu.co.uk](http://www.beaulieu.co.uk)).

The Beaulieu Abbey interpretation developed from a speculative approach I made to Beaulieu regarding a 3D 'The Talking Walls' style reconstruction of the abbey. During the presentation, the Beaulieu team, comprised of the Commercial Director, Archivist and Owner/Stakeholder, liked the idea presented of a 3D model with a flythrough/walkthrough of the Abbey as it once was. At the time of the approach, Beaulieu were developing an audio tour of the Abbey to help to increase footfall to the Abbey site. The team could see that a virtual model of the abbey at its full size, with additional narratives of people that lived in or visited the abbey in its heyday, would help visitors to understand the abbey's history and significance as a Royal Abbey, and could work well in parallel with their planned audio tour. An outline of what could be produced was developed, forming the initiation of a project brief which I would continue to shape, and for which I would eventually be awarded SMART Micro Project funding.

This thesis presents my research and reflection on practice, the development of my practice both as a professional designer and academic, and my contribution to knowledge in the field of heritage site interpretation design practice. This led to my thesis research question 'What is the nature and scope of communication gaps in the interrelationships between designer, curator and visitors in the ideation, designing and crafting of interpretation at heritage sites? As a design practitioner and academic, the approach used to answer this question was through Action Research and Interpretative Phenomenological Analysis as a Practice-led Design PhD.

The first chapter has been designed to present the research question, aim and objectives of the practice-led thesis. My proposed contributions to knowledge are presented in section 1.2.1, throughout the thesis and through my heritage site interpretation practice, the Beaulieu Abbey kiosk interpretation. The chapter also provides detail of the nature and value of the thesis, the methodology used and an explanation of my design practice and research background in heritage site interpretation design leading to the initiation of the thesis.

The structure of the thesis is presented with an explanation of why and how the structure has been designed to follow the cycles of Action Research, Practice-led Design Research and a typical design process. The chapter also details the journey in building expertise and experience in my role as a designer of heritage site interpretation, a reflective practitioner, design researcher and Senior Lecturer in digital media design.

'Heritage site Interpretation' (HSI) within this thesis, focuses on 'built heritage' (Kelly, 2009a; Uzzell, 1996), buildings that have undergone significant architectural changes no longer visible

(architectural time slices), and, therefore, difficult to imagine without forms of visual representation. The stories of inhabitants existing within the different time slices provide a method of relating cultural values and lifestyles to visitors. Specific inhabitants are recreated as characters which visitors may choose to learn about the heritage site, and its significance over time. Built heritage interpretation is, therefore, often different in the way information is portrayed compared to heritage interpretation at museums. Museums focus more on collections of artefacts and individuals/individual objects within a setting that is usually out of context to use and origin. Another reason for my focus on built heritage interpretation design rather than museum interpretation design is from seeing the more advanced creative use of technology within museums not echoed at built heritage sites, and exploring how this may be changed. The subsequent design of 3D reconstructed time slices with stories via a choice of characters as interpretation at a heritage site has proven to be a successful method of engaging visitors with the history of the site.

How my design practice and experiences in designing cultural heritage site interpretation (HSI) applications compared to other practices and processes, has been through the use of three comparative case studies of interpretations<sup>3</sup> chosen for aspects of similarity and contrast to the Beaulieu Abbey kiosk interpretation:

- Case Study 1 – *National Trust’s Lacock Abbey (2013 interpretation)*
- Case Study 2 – *English Heritage’s Bolsover Castle (2011-12 interpretation)*
- Case Study 3 – *Historic Royal Palace’s Kensington Palace (2012-13 interpretation)*

Comparisons of the different processes used at the three sites with the personal experience of designing, developing and curating interpretation for Beaulieu Abbey, provided useful insights to how complex the design processes can be. Three distinct areas in crafting and launching the Beaulieu Abbey kiosk interpretation, represented as Cycles throughout the thesis, are compared against the case studies with regards to curatorial practice, design practice and effectively, visitor practice. The comparisons of practice were a significant contribution to the literature review. For example, assumptions made in the design and development of the Beaulieu application prompted inquiry as to whether this was a common practice in design processes, specifically in the design of

---

<sup>3</sup> More information regarding the three heritage sites’ interpretations can be found in Appendix M Heritage Site Interpretation in Practice: The Case Study sites overview and subsequent infographics for each site can be found on this link: <http://thetalkingwalls.co.uk/wordpress/?p=2764>

HSI. Assumptions regarding the experience and conveyance of information between teams involved in the design process also provoked investigation in relation to the impact this may make on the interpretation design outcome. The relationship between curators and designers in forming HSI design, their cultural backgrounds, expertise and experiences in crafting HSI was a key aspect in understanding and comparing their heritage site interpretation design processes.

The knowledge gained has demonstrated that interpretation at the heritage sites differs from that of similar processes within heritage interpretation design at museums (Uzzell, 1996; Bonn *et al.*, 2007; Kelly, 2009b). The larger museums are more participatory in their interpretation design, involving visitors at different stages of the design process, are more collaborative across different areas/disciplines within the museum organisation, and are more creative in their use of technology (Simon, 2010; Petrelli *et al.*, 2016; Hornecker & Ciolfi, 2019). Understanding this has helped to form a more participatory and collaborative method or process for smaller heritage sites and museums to use in their interpretation design (Claisse, 2018).

In explaining the stages and structure of the thesis, this chapter clarifies the contribution and value of HSI design practice. An explanation is provided for how and why the structure has been presented to reflect the cycles of both Action Research (Gray & Malins, 2004) and a typical design process (Brown & Katz, 2009) and why this has been an essential process as a designer in forming the development of the thesis.

In developing the structure and format of my PhD, I needed to find a methodology and approach that included practice as a significant element of the overall research. Further research and advice made it clear that the format, structure and examination of a practice based or practice led design PhD could include a reflective written element and a practical element, usually in the form of an exhibition as part of the Viva (Candy, 2006; Smith & Dean, 2014; Hawkins & Wilson, 2017). Due to the Covid-19 lockdown leading up to and including the Viva event, there would not be an opportunity to present an exhibition (see section 1.3.2 for further information regarding the intended exhibition). Instead, the practical element and development work has been included in my 'Reflection on Practice' website, with a link to the website submitted with the thesis. (More information regarding Practice-based and practice-led PhDs can be found in section 1.2.1.)

Reflection on design practice also led to an exploration of specific design models in use for heritage site interpretation design. As part of this process it was valuable to understand how cultural backgrounds and stakeholders/relationships and constraints impact upon the designed

interpretation outcome for the visitor experience (Black, 2005; Kocsis & Barnes, 2009; Falk & Dierking, 2013; Falk, 2010).

In developing the proposed new model, it was necessary to understand how HSI design and curatorial professionals worked towards producing an exhibit or interpretation. In-depth interviews were held with a selection of four professionals from the Beaulieu curatorial team, four designers involved in exhibition and interpretation design, and four professionals from the guest list for the Beaulieu Abbey kiosk interpretation launch. The interviews were designed to discover their experience in setting an interpretation brief and how it translated through their organisation's processes (Kitimbo & Dalkir, 2013; Fong & Wong, 2009; Roberts, 2014; Maye *et al.*, 2014).

## 1.1. RESEARCH QUESTION, AIM, OBJECTIVES & CONTRIBUTION TO KNOWLEDGE

---

### 1.1.1. RESEARCH QUESTION, RESEARCH AIM & OBJECTIVES:

---

From my experience and research in designing interpretation at heritage sites, there appeared to be a gap in communication between interpretation designers and visitors. From researching key literature (Taylor, 2006a; Hems, 2006; Roberts, 2014) regarding interpretation design at heritage sites this would appear to be overlooked, yet in evidence for interpretation design for museums (Kocsis & Barnes, 2009; Maye *et al.*, 2014; Claisse, 2018). Curators and Designers communicate ideas to fulfil interpretation for visitors, with the curators' knowledge of the site and visitors' feedback helping to inform designers of what may be expected, required or surprised with during the visit (Black, 2005; Ham, 2013; Petrelli *et al.*, 2016). Reflecting on my lack of contact with visitors in designing the Beaulieu Abbey Kiosk interpretation caused me to consider whether lack of contact was the case for other heritage interpretation design practices and whether this is important.

My relationship with the Beaulieu team was collaborative and supportive throughout the process, therefore, I also wanted to research whether this was the case for other designers working with curators and heritage site organisations.

The research question asks, therefore: 'What is the nature and scope of communication gaps in the interrelationships between designer, curator and visitors in the ideation, designing and crafting of interpretation at heritage sites?'

The aim of this thesis is:

- to evaluate the current models that exist in heritage interpretation design, and discover whether there is a model which explains the distinctive roles and interactions between curators, designers and visitors in crafting engaging heritage site visitor experiences.

In order to fulfil this aim, the thesis tackles specific objectives, to:

- explore, understand and portray the relationships between curator ~ designer, curator ~ visitor and designer ~ visitor within the design process of a heritage interpretation project.
- evaluate 'user centred design' models in use by heritage site interpretation designers that examine how internal and external influences affect heritage site interpretation design outcomes.

- explore the characteristics that enable curators and designers to envision ‘the visitor’ targeted by cultural heritage sites.
- portray the role of envisioning ‘the visitor’ to a heritage interpretation such as Beaulieu Abbey and how this translates through the design process and interpretation.
- evaluate methods used to measure and understand visitors’ experiences of interpretation design

The model in Figure 1 on page 20 presents the perceived gap in the relationships between Curator, Designer and Visitors, and the possible factors influencing those involved in designing heritage site interpretations. It has been argued that if you want people to use your design, you need to understand how they will use it and design it from their perspective (Chang, 2003; Dix *et al.*, 2003; Nielsen, 2000; Moggridge, 2006; Rogers, 1995; Rogers, Sharp & Preece, 2011; Brateman & Becker, 2008). As the Beaulieu Abbey kiosk interpretation designer, I considered that placing myself as the visitor would be sufficient to answer design issues and curatorial aspects involved in the Beaulieu Abbey interpretation.

It was as the interpretation progressed that I realised this was inadequate. I recognised a lack on my part as designer, of direct communication with visitors to the Abbey, which would have helped to understand more clearly, the type of content to include. For information regarding Beaulieu site’s visitors, I had researched data from the Association of Leading Visitor Attractions (ALVA)<sup>4</sup> and spoken with the Beaulieu Team about the type of visitors, how Beaulieu wanted to increase the footfall to the abbey and different projects they had previously considered. Being local to the Abbey, I had been a frequent visitor over a number of years, and had noted the age range of people visiting were approximately 40+ year age range. Local school groups also visited and young families who made use of the museum as a learning facility and quiet space.

By not involving visitors in my design and planning process, I did not know if my plans to create characters with their stories, 3D models of the abbey in different ages, puzzles, lifestyles and visuals of a time past, would be what visitors would like to see at the abbey. Feedback and suggestions from the Beaulieu team, combined with reactions and feedback provided from presenting similar work to other sites, highlighted the ideas as exciting and innovative, and as such, would perhaps attract additional visitors from across the site. It was hoped the visitors may

---

<sup>4</sup> Beaulieu’s Palace House has been involved with ALVA since 2004, and is currently listed under Heritage & Gardens/Treasure Houses of England.

also engage with the characters and 3D models for a more extended period of time, and therefore learn more about the abbey, the size of the building, its inhabitants and growing community. Speaking with the Beaulieu Archivist, who led the Living History project at Beaulieu, I was reassured that the plans would be an excellent addition for abbey visitors. We then worked together to provide characters she thought the abbey visitors would like to engage with, and were a real part of the abbey's past. Nonetheless, on reflection, I felt I should have involved visitors in my planning and design of the interpretation application for the intended kiosk in the abbey museum. I would have been able to find out more about what elements would engage different age ranges rather than relying on information provided and my own assumptions. Due to financial and time constraints, it was not possible to change the process already started to include measuring and understanding visitors' behaviour, values and expectations and therefore I had to continue with a personal form of empathic design (Postma *et al.*, 2012b). The recognition of a lack of outside opinion and input became the basis of researching interpretation design and how designers and curators incorporated visitors at each development stage (Gaffikin, 2012; Bella, 2014; Claisse, 2018). A realisation of the limitations of empathic design reinforced the notion that measuring and understanding visitors at a design level should be thoroughly evaluated (Tallon & Walker, 2008a; Kocsis & Barnes, 2009; Boiano, Bowen & Gaia, n.d.; Sparacino, 2008; Nack, 2003).

In May 2010, the kiosk interpretation launch for Beaulieu Abbey museum took place for local dignitaries, and the Beaulieu team. The project had taken four years from initial concept presentation to the launch. This journey involved many iterations of curation and design negotiations, funding application processes and in-depth research to reach the final interpretation design. The project enabled a case study that encapsulated the design process. It has also facilitated a means to articulate the nature and value of relationships between the designer, the curatorial team and visitors, and query existing models for HSI design.

The triangle represents my perception of the three main components that should be involved within the design of HSI: curatorial team, design team and visitors. A heritage site design and curatorial team may be comprised of multi-disciplined, multi-skilled professionals from various backgrounds, with varying interests. Internal influences i.e. resulting from an individual's cultural background, education and life experience, may shape how they perceive concepts, projects, and team members. External influences i.e. limitation of budget, stakeholder requests, time and available technology may also be significant in their impact on the interpretation design project. External and internal influences may also affect assumptions which may have been formed from



previous experiences in interpretation design, or previous working relationships. Visitors may also be multi-skilled professionals from various backgrounds, with varying interests, and include non-professionals, families, school groups, couples, and other demographics forming heritage site audiences.

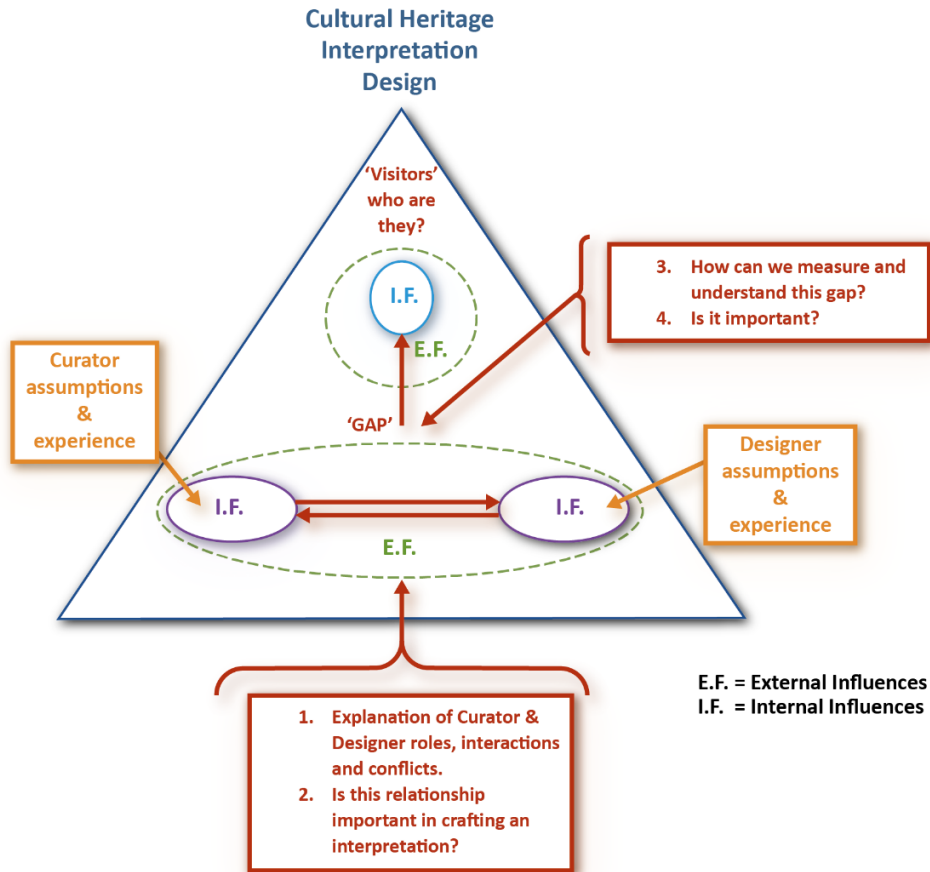


Figure 1: Research Aim Model (Wilson, 2013 ©)

Literature on the design of heritage site interpretation is limited; the focus is mostly on larger museums, in areas of collaborative design, participatory design (co-design) and interaction design with multi-skilled teams (Simon, 2010; Fuks, Moura & Cardador, 2012; Avram & Maye, 2016). Larger museums have also been able to make use of interactive technology for providing multimedia rich, and more engaging experiences, similar to the Beaulieu Abbey interpretation, for visitors more used to technology and multiple platform delivery (Heath & vom Lehn, 2009; Proctor, 2010; Roberts, 2014; Damala *et al.*, 2014; Ciolfi *et al.*, 2016). Having worked with small local heritage sites over a number of years, it is evident there is a lack of budget for technology in smaller local heritage sites which has created issues in being able to providing engaging interactive

visitor experiences (an area our Digital Media students have been able to assist with via their 'live' client projects). There has also been a frequent change of management, staff and volunteers; consequently, networks, collaboration and multi-discipline expertise would also be aspects to consider during design process research.

The Research Aim model (Fig.1) was initially perceived primarily from a designer and business owner perspective. The need to understand the questions raised would help in working with curators/curatorial teams and visitors to provide a consistent approach for each heritage site interpretation. This could be developed by devising a method which would become routine, include a known and trusted team of professionals, subject experts and visitors, and provide reflective/evaluative stages to ensure a measurable and successful interpretation outcome (Black, 2005; Veverka, 2011; Tilkin, 2016). A design model should, therefore, also fit with the smaller/private heritage site organisation where there is often a limited amount of staff working with a limited amount of volunteers.

To understand who the heritage site interpretation team might be, an explanation of the designer and curator roles, their interactions and possible conflicts that may arise in the interpretation design process was sought within the thesis. Also sought was an understanding in how curators and designers form and work as a team, working with each other's skills sets, experiences and possible bias in developing a concept through to completion. Understanding the collaborative and communicative nature of the 'team', and whether this was critical to the success of crafting the heritage site interpretation, may be influential in the development of a new heritage site interpretation design model, should a suitable heritage site interpretation model not exist.

The three main components in Figure 1 were expanded in Figure 2 on page 22 to illustrate many of the influences and questions curators and designers may face in the development of an exhibit. From the Beaulieu Abbey case, it became evident there were many gaps in encapsulating the Curator~Designer to Visitor relationship. The relationships between designers, curators and visitors have been highlighted as an unknown, a gap in understanding what these relationships may be, if they existed. The illustrative mind map details areas and aspects Curators and Designers may need to consider in their roles. For the Visitors, the areas listed are not what the Visitor is

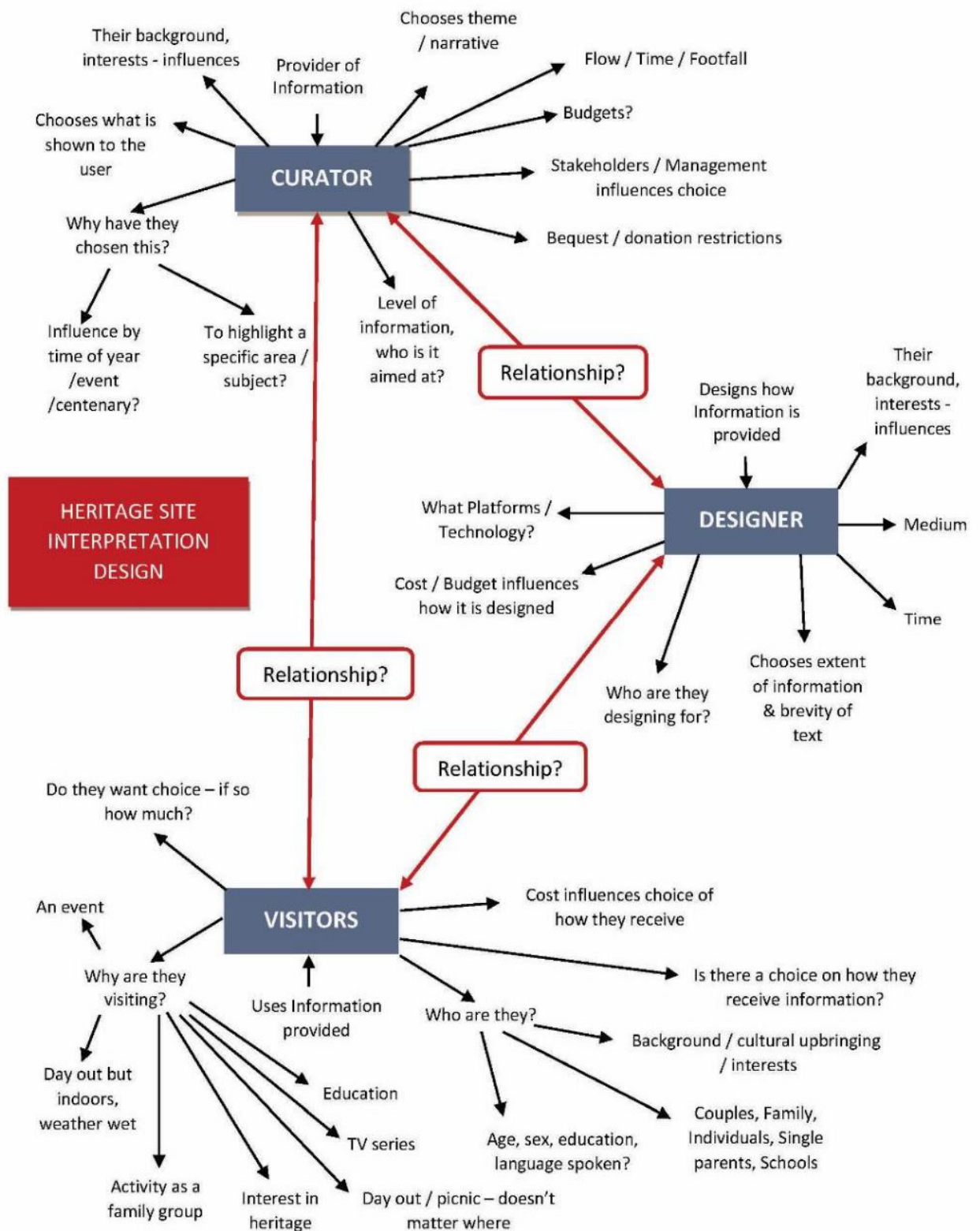
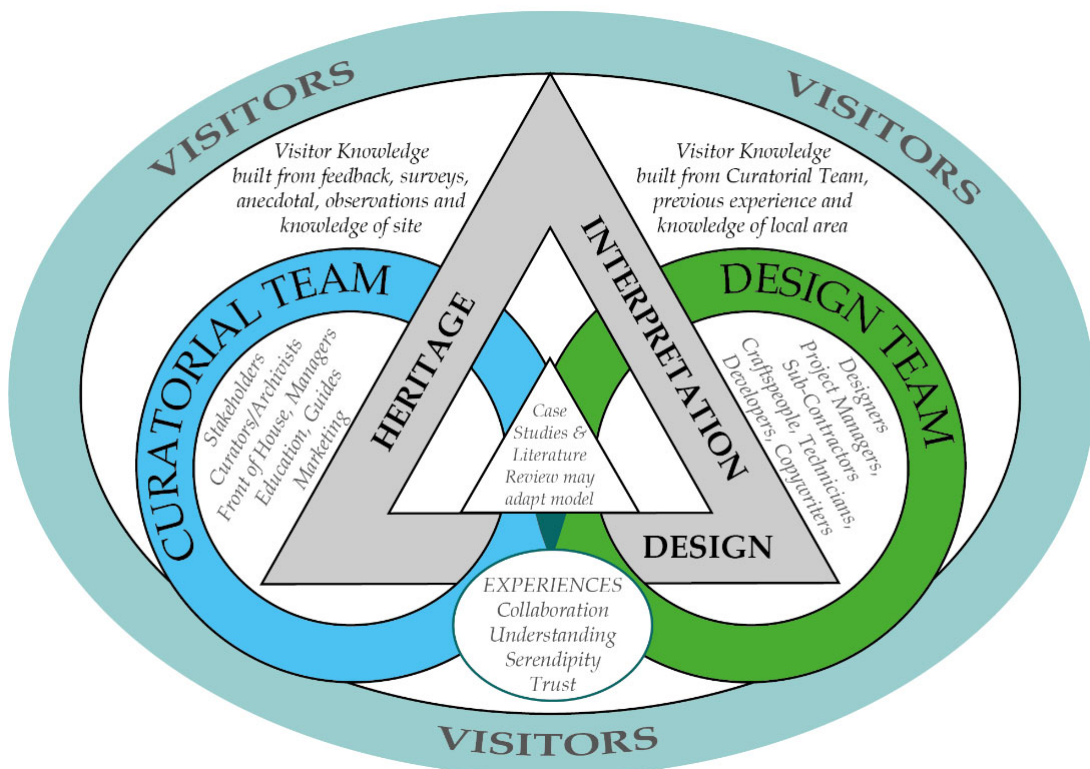


Figure 2-: Illustrative mind map of the roles of a curator and a designer, and the visitor forming the basis of this thesis. (Wilson, 2012)

in their visit. My perception is, that unless Visitors are part of the process, these can only be considerations and assumptions, rather than known entities. Hence the research via the case studies and literature review to discover if visitors are generally included in the HSI design process, and if so, whether the design process is affected or shaped by their inclusion.

**1.1.2. PROPOSED CONTRIBUTION TO KNOWLEDGE:**

The investigation and subsequent comparison of the interviews, heritage site case studies, literature review and analysis (Smith, Flowers & Larkin, 2012) were vital in understanding how curators and designers work together, what processes are used in providing positive experiences for their visitors and how visitor experiences are measured for understanding how to improve and enhance future interpretation. The new knowledge confirming a gap in communication and involvement of visitors in the design of heritage site interpretation, and the lack in evaluation of the interpretation by designers, helped to outline a new process for heritage site interpretation design that was more inclusive and collaborative. Recognising and understanding the difference in designing interpretation at museums and built heritage sites, the proposed new model and process would be a valuable resource for smaller heritage sites, small museums and designers/design agencies working with heritage interpretation.



**Figure 3: Beaulieu Abbey kiosk's HSI design existing model resulting from primary data (Wilson, 2018 ©)**

The model in Fig.3, was designed as a result of my further reflection on practice and the processes involved during the design of the Beaulieu Abbey kiosk interpretation, working closely with the Beaulieu team. The model takes the Research Aim model (Fig.1) further by visualising the lack of visitor representation experienced in the design and development process, and forms the foundation in the development a new model to include a 'visitors' team'.

In the existing model, the outside ring 'Visitors' Sphere' indicates the constant consideration of visitors and what they may wish to engage with, although not involved. This was further supported by comparing the results of the planning process and the feedback provided by the fieldwork with recommendations from Taylor (2013), Veverka (2010) and Black (2005) regarding who is typically involved. The perceived communication gap by the curatorial and design team in speaking to/involving visitors in the planning, design and development process, therefore, does exist. The model (Figure 3) also portrays the results of analysis concerning the collaboration activity between the different teams. For example, it was clear from my experience at Dunster Castle and Beaulieu Abbey that communication between the curatorial team and HSI design team is generally good. Communication between the curatorial team and visitors existed mostly via feedback from surveys/social media and/or front of house/volunteer guides. However, communication between the HSI design team and visitors was non-existent.

Visitors are varied in who they are, why and how they may visit, i.e. the same visitor may visit as part of a group, as part of a couple or alone. Each occasion would form a different type of visit, and experience (Falk & Dierking, 2000; Poria, Butler & Airey, 2004; Black, 2005; Falk, 2009a; Falk & Dierking, 2013; ATS Heritage, 2014b; Tilkin, 2016) (see Chapter 2, sections 2.2.3 and 2.3.3 for further detail regarding visitor types and motivations for visiting heritage sites). The heritage site interpretation team should be able to make use of these experiences, building a 'visitor story journey', highlighting the different touch points where experience(s) may be formed. Personas, user journeys/stories and empathic design form part of the user centred design (UCD) process, which is core to the Design Thinking methodology (Beckman & Barry, 2007; Lockwood, 2009; Dam & Siang, 2018) (see Chapter 2, sections 2.2.2 and 2.3.2 for further detail regarding UCD and Design Thinking processes). The two main differences that have emerged in the use of a UCD process are:

- the lack of consistent involvement of users/visitors (i.e. an active team) throughout the design process

- a lack of the HSI designers' evaluation and understanding of their users'/visitors' engagement and experience with the outcome (Mcintosh, 1999; Roppola, 2012; Roberts, 2014; Avram & Maye, 2016; Claisse, 2018)

Development of a new Heritage Site Interpretation Design model by incorporating a representative team of visitors through the design process, would negate the differences highlighted above. How and when such a team could be formed is discussed in more detail in Chapter 3, Section 3.1.3.

In developing an understanding of the different design processes used within HSI design, I realised there was a definite lack of a detailed step-by-step process for the various stages involved. There were a few examples for museum interpretation planning (Veverka, 1994; Boylan, 2004; Black, 2005; Maye *et al.*, 2014; George, 2016; Tilkin, 2016) which provide generic outlines, but I could not find a comprehensive detailed design process, which could be used as a flexible template for the majority of HSI design.

I would not have been awarded the funding for the Beaulieu Abbey kiosk interpretation had I not provided a detailed plan, schedule, timeline and costs within the funding plan. To map and provide this information, I needed to work out and clarify what was involved at each stage of the project i.e. a detailed step by step process. Having had to do similar as a business owner, I was able to achieve this reasonably well albeit with additional research and expert advice. The successful business plan became the project brief, which included the step-by-step process, making it clear for those involved what the tasks were and the deadlines involved.

I therefore considered that in providing a new model for designing HSI, an accompanying flexible stepped design process would be beneficial in taking the model forward in future HSI design (Roberts, 2014:p.194). Consequently, it would be necessary to re-visit my original Beaulieu design process (Fig.34, p.82) (see Chapter 2, section 2.1.1 for more detail regarding the process) to create a more detailed design process that would be suitable for future HSI design teams.

It was also evident that the creation of multimedia-rich 3D reconstruction mobile applications, with a choice of time slices and characters relating stories of the heritage site, was an engaging and immersive learning asset for interpretation at heritage sites. Where the technology, hardware platforms and software were once slow and unreliable, the advanced systems now available make the development of further multimedia-rich 3D applications easier to replicate.

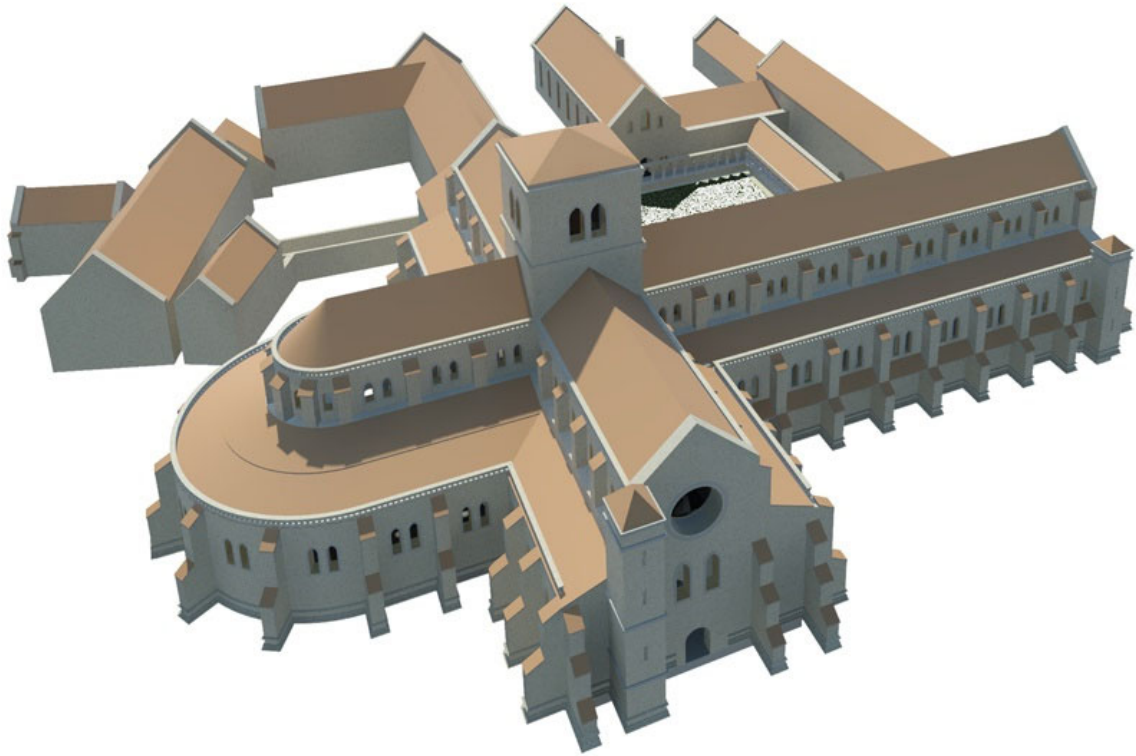


Figure 4: A 3D render from Autodesk Revit of Beaulieu Abbey. (Wilson, 2009 ©)

Together with my practice case, this is the second component of my contribution. It is novel because it enables visitors to have choice in architectural time slices or eras of the space they are in. They also have choice in which character will provide them with information of that space, and choice in whether that information is at child, adult or professional level via my 'KubeMatrix' template (see section 1.3.1 for more detailed information). According to the feedback provided verbally and via a questionnaire, the launch guests stated the Beaulieu Abbey application was unique in this respect; only one guest had seen something similar at another heritage site, but not with the depth and variety of choice. The need for the application to be available via mobile was clear, saving queueing/delays at kiosk points, and providing a more personal experience. With the current advanced mobile platforms and widespread use of personal devices, the application as a mobile application would enable visitors to roam a heritage site, guided by a chosen character, and visually explore the existing space through different centuries.



### 1.1.3. STRUCTURE OF THESIS

#### Action, Evaluation, Reflection

As a designer and design researcher, the structure of this thesis has been structured to follow the three cycles of Action Research (Reason & Bradbury, 2001; Gray & Malins, 2004; Horváth, 2007), which also loosely replicates a typical user centred design process (Abrás, Maloney-Krichmar & Preece, 2004; Brown & Katz, 2009; Hashim, 2013; Hornecker & Ciolfi, 2019).

The diagram below (Fig.5) has been designed to explain the use of Action Research (AR) in the construction of this thesis. The structure closely follows the practice, reflection and evaluation of the practical element, enabling evaluation and reflection for each of the 3 Stages.

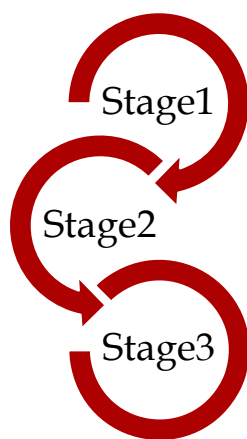


Figure 5: Thesis Structure showing the 3 Main Stages and Cycles

#### **Stage 1 – Context**

- Research Question, Research Aim, Objectives & Contribution to Knowledge
- Research Approach, Research Design & Methods
- Background (Professional & Academic) & Context

#### **Stage 2 – Practice**

- Design Challenges & Outcomes
- HSI in Practice: Case Study Comparisons
- Curator~Designer~Visitor – Shaping Heritage Site Interpretation Design

#### **Stage 3 – Evaluation & Reflection**

- Evaluation & Discussion
- Reflections as a Design Practitioner, Design Researcher & Academic

The animated visual summary<sup>5</sup> of the thesis structure was extremely helpful in mapping the flow of content and the significance of each stage. In conjunction with the visuals, a written summary (see below) for each chapter helped to consolidate the use of AR and curation of content. The initial objective in understanding how the practical and written elements knitted together as a unified structure using AR has subsequently helped in presenting the overall structure clearly, to the reader.

<sup>5</sup> The link for the animation: <https://youtu.be/TM-iv1i-p80>

## STAGE 1

### *Chapter 1. INTRODUCTION, METHOD & CONTEXT*

Chapter 1 includes three sections, the first of which provides reasons for my practice based design research, written thesis and contribution to knowledge. The structure of the thesis is presented with an explanation of why and how the structure has been designed to follow the cycles of Action Research, Practice-led Design Research and a typical design process. The Methods section explains the chosen methodology and factors shaping why this methodology was chosen and how the methods have been used over the three distinct stages. The difference between Practice-based (PB) and Practice-led (PL) design research is explained, how these compare with more traditional PhD formats and the subsequent use of PL design based format for my PhD thesis and practice element. Furthermore, an account of my professional and academic background is included, with an explanation of the Beaulieu Abbey kiosk interpretation practice element, reasons for the kiosk interpretation and the challenges involved. A definition of heritage interpretation as information to ‘provoke, reveal, relate’ sets the context for presenting information as heritage site interpretation at Beaulieu Abbey. This is followed by the intended plans for the Viva exhibition.

## STAGE 2

### *Chapter 2. HERITAGE SITE INTERPRETATION DESIGN IN PRACTICE*

The first section ‘Design Challenges and Outcomes’ details the practice element through the use of three stages and action cycles: Practice, Launch and Post Launch. The first cycle (practice) provides detail of the planning and build of the practical element, the developing relationship with the Beaulieu team and experience of ‘getting to know’ the abbey. This is followed by details of the launch event and the material collated (cycle 2). The third cycle (post launch) provides the interview plans with curators, designers and launch guests involved in the interpretation project at Beaulieu and professionals from other heritage organisations.

Section 2.2 consists of three sub-sections: the curation process (2.2.1 Curating Interpretation at Heritage Sites), the design processes used (2.2.2 Designing for Interpretation), followed by who is using and engaging with the interpretation and how this is measured (2.2.3 Using and Engaging with Interpretation). The sections are analysed through the use of three HSI case studies: English Heritage’s Bolsover Castle, Historic Royal Palaces’ Kensington Palace and the National Trust’s Lacock Abbey, chosen for similarities to the Beaulieu Abbey kiosk interpretation.

Section 2.3's purpose is to establish a theoretical lens to critically review and analyse existing theories and definitions pertaining to design practices in the formation and creation of interpretation at heritage sites. A cross-disciplinary systematic literature review was undertaken to ascertain key texts in three main themes to explain the process, nature and challenges associated with effective communication between curators, designers and visitors. A section of the literature review explores the importance of reflective practice within different design processes and how this may aid the development of initial interpretation concepts for forming a new model for designing interpretation.

### **STAGE 3**

#### *Chapter 3. EVALUATION & REFLECTION*

The purpose of the first section is to evaluate and discuss the interview findings and survey results from which the model for future collaborative HSI design applications has emerged. The chapter also provides a summary of the research question and aim through evaluation, discussion and reflection on the research results and findings for each of the three main stages: 1 – Practice Element and Thesis; 2 - Design Processes in Heritage Interpretation; 3 - Visitor Involvement in the Heritage Interpretation Design Process and How Successful Visitor Experiences are Determined.

The second section provides reflections on how the iterative AR reflective cycles and IPA have been used for developing the thesis structure, design practice and the new CHSID model and process. These are then summarized with conclusions concerning the impact a reflective design process has on design and research for HSI design. Reflection on the Beaulieu Abbey kiosk interpretation through the different Cycles and the practice of reflection as part of a design process is also included. In addition, this section provides reflection and insight regarding PB and PL design research, and how this will support future PB or PL design research PhDs within the University.

### **CONCLUSIONS**

#### *Chapter 4. CONCLUSIONS*

This chapter explains how I have answered the research question, aim and objectives, and in doing so, what I have contributed to knowledge in the field of heritage site interpretation design. The new Collaborative Heritage Site Interpretation Design (CHSID) model is presented with an explanation of the differences between the existing Beaulieu and UCD models that make the CHSID model unique. Also presented is a detailed design process structured to provide a step-by

step reference to accompany the new CHSID model and future considerations for encapsulating visitor experience via the CHSID model is discussed. The chapter includes an overview of how the CHSID model and process has been used on current heritage site projects, and how it can be used by heritage site organisations and heritage site interpretation designers for their own interpretation projects.

Recommendations for future research regarding a wider practice in HSI design such as comparisons with smaller heritage site organisations are also outlined. Design methodology recommendations are presented and demonstrate the value of the thesis in current thinking and practice in HSI design. Unexpected research areas emerging from the research and evaluation of data are also highlighted.

## 1.2. RESEARCH APPROACH, RESEARCH DESIGN AND METHODS

---

The aim of the thesis is to evaluate the current models that exist in heritage interpretation design, and discover whether there is a model which explains the distinctive roles and interactions between curators, designers and visitors in crafting engaging heritage site visitor experiences. Research was approached via three stages:

### Stage 1 – Visual and Historical Research Practice

Through the practice of HSI design in crafting a visitor experience, considerable fact-finding regarding the history of Beaulieu Abbey, current examples and methods of designing information for heritage interpretation was undertaken. The outcome consisted of an array of visual material including development sketchbooks, diagrams and matrix information, photography, illustrations, 3D models and sound files. Personal reflections include design challenges, changes and influences affecting the interpretation, the groundwork and investigation required to create the multimedia elements and relationships built through the process.

### Stage 2 – Guest Launch Research

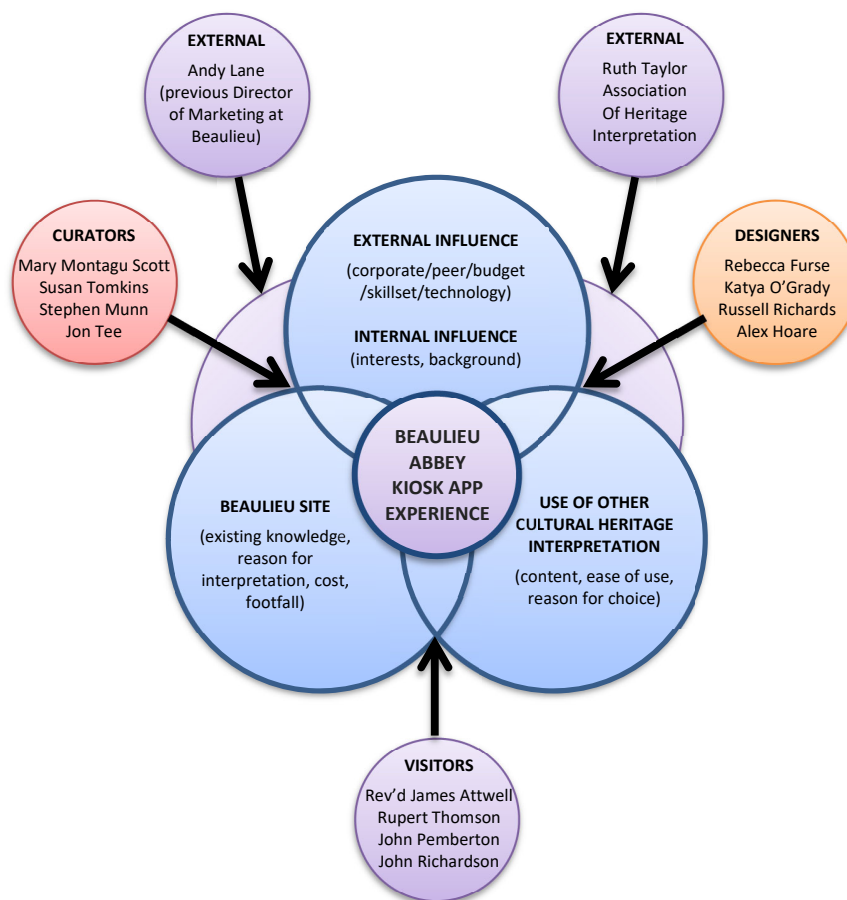
At the Beaulieu Abbey launch, research material was collected before, during and after the launch. For example, questionnaires completed at the launch, video clips, photographs, Google analytics data, feedback communicated via email and reflections on the event overall. The feedback and questionnaires from the launch provided valuable information regarding usability, navigation and content. Working with Beaulieu in organising the event and observing communication between the different relationships involved, provided a unique insight to how important this process was for a successful launch event.

### Stage 3 – Interview Study

Interviews (Smith & Osborn, 2007; Corbin & Strauss, 2008b; King & Horrocks, 2010) with key people involved in the production and engagement of the Beaulieu Abbey interpretation were conducted in person, to discover how working relationships between groups of individuals develop, and whether those relationships influence the interpretation. The participants selected were from three groups: Curators, Designers and Visitors (see Fig. 6 overleaf). The interviews were conducted in person at their chosen location, and were each between one to one and a half hours long. Analysis of the transcripts was via IPA and thematic analysis, using NVivo as a tool to aid in determining categories and subsequent themes (see section 1.2.3 for more detail). The interviews with the Curators provided valuable information regarding the individual relationships

with their visitors and processes used in planning and curating information for interpretation. They also highlighted the team’s working relationship and how restrictions were reduced by being a small yet broad-skilled team.

The ‘Designers’ interviews explored their preferred processes in working with interpretation briefs and whether their cultural upbringing influenced their interpretation. These interviews were significant in understanding the design methods used, whether user experience design is considered when designing for visitors and the Designer’s experience of the design process.



**Figure 6: Participants and indication of subject area for in-depth interviews in relation to their experience of the Beaulieu Abbey Kiosk interpretation (Wilson, 2013)**

The ‘Visitors’ group of interviews consisted of launch guests selected for their interest in the use of digital media to provide visuals of how the abbey was built, the Abbey and the life of its inhabitants (see section 1.2.3 for detail about the selection of the interview participants). The kiosk interpretation was demonstrated at the launch, and guests were encouraged to interact with characters that could be chosen to guide them through the abbey in the different eras. Their first

experience of the application, possible subsequent use and how this compared to other interpretation experiences were essential to capture via the interviews, bearing in mind their backgrounds, interests and professions.

Two further interviews were undertaken with cultural heritage professionals to gain an insight about methods and processes used in other cultural heritage sites to compare with those used by the Beaulieu team and individual designers. These interviews were critical in providing an external view of the design of HSI, particularly in larger organisations.

In summary, the interview process sought to discover how groups of individuals work with each other, how they came to be where they are and how this influences their working relationships. Reflection on their processes and comparing these with known models also follows a mode of discovery, based on interpretation and experience. The approach, therefore, encompasses the following three philosophical theories: Aristotle's endoxa, the term for 'what is believed to be true' (Shields, 2008; Haskins, 2004) which supports the research regarding opinions and reflection concerning visitors and assumptions about individuals. The second is epistemology, the term for 'what is known to be true' (Davison, 1998; King & Horrocks, 2010) and supports research in the knowledge being shared by 'experts' in the crafting and process of an interpretation. The third is ontology, the term for 'what is known to exist' (King & Horrocks, 2010; Lawson, 2004; Corbin & Strauss, 2008a) which supports research in the organisation structures and existing processes.

As a logical, creative thinker, I like to know how things work and how they are made. As a designer, my interests lie in understanding what makes people 'tick', how they will interact and engage with an interpretation or react to the way information is conveyed. As a design researcher, these interests extend to how relationships work in sharing and developing an idea, how individuals share their knowledge and how this is received and interpreted. Reflection and interpretation are organic and a constant background activity.

Therefore, the research philosophy 'Interpretivism' was already determined by the nature of the study described above, and my personal nature and interests. Interpretivists share the following qualitative beliefs: relativist ontology<sup>6</sup> and subjectivist epistemology<sup>7</sup>. Interpretivism's qualitative methodologies (phenomenology, ethnography, and hermeneutics) (Mills, Bonner & Francis, 2006;

---

<sup>6</sup> Relativist ontology - assumes that social reality only comes to light through individual interpretation and meanings and understandings developed socially and experientially

<sup>7</sup> Subjectivist epistemology - seeing knowledge as something interpreted by individuals

Corbin & Strauss, 2008b; Pallud, 2008; Regan, 2012; Piggot-Irvine & Zornes, 2016) incorporate methods such as action research, case studies, descriptive, interpretive and subjective, some of which have been used in this thesis to capture and understand individual descriptions and meanings of events, and generate new theoretical inferences (Burns, 2000). Through the qualitative interpretive approach, the use of a variety of data sources was supported, providing the opportunity to curate a rich collection of multi-media material alongside personal reflections on involvement with, and use of, the practical element – the Beaulieu Abbey kiosk interpretation.



### 1.2.1. PRACTICE-LED RESEARCH

---

At the start of my PhD, I was a practicing designer with two companies, one was a design and training company (Clear Thinking UK Ltd), the other consisted of simply myself as a heritage site interpretation designer and researcher (The Talking Walls UK Ltd). The latter developed from completing my Masters in Interaction Design and the resulting major project winning a commercial viability award (2004). Through The Talking Walls, I presented the designed KubeMatrix-based heritage application for Dunster Castle at various innovation events and conferences as a heritage site interpretation designer. I also presented the application to the National Trust, the British Museum and Beaulieu amongst others.

My experience as a multi-disciplined contractor/freelancer, business owner/manager, illustrator/craftworker and manager of a craft centre, built a set of skills that were valuable in being able to teach across different subjects, and in relating/communicating with others of varying ages and professions.

My research in further designing/developing the heritage site application and the KubeMatrix model for Beaulieu, took the form of a MPhil/PhD proposal. This was the first step of my extended 10 year PhD journey. At Winchester, due to organisation and academic constraints, the decision was to work with the business area of design, i.e. innovation, organisational frameworks, processes and user-centred design, tying in with marketing. This decision complemented my background and experience in business innovation, marketing and branding.

I had previously researched performance/creative practice based theses when initially starting at Winchester, and from the completed examples had understood the structure could be different – and therefore had designed my PhD thesis structure to suit Action Research cycles and design processes used as a designer (discussed in Chapter 2). Reflection is a core factor of my design work and, therefore, seemed completely logical to use throughout the thesis and practice element.

It was evident from further research (Vaughan, 2019; Candy & Edmonds, 2018; Claisse, 2018; Smith & Dean, 2014; Clarke, 2011; Borg, 2009; Rust, Mottram & Till, 2007) that there was, and still is, considerable discussion regarding design based PhDs and design research. A conclusion derived from the research was that my PhD was more in line with practice-led design PhDs, i.e. a reflection on practice rather than reflection through practice. The table in Fig.7 highlights examples of successful theses in Practice-based and Practice-led design PhDs, and their similarity to traditional

PhD formats and approximate weightings of practice and thesis. My PhD consists of a written thesis (60%) and a practice element (40%).

Thesis	Practice Based (PB) or Practice Led (PL)	Weighting re Practice/Thesis	Word Count (w/o refs & appendices)	Typical PhD Structure?
<b>The experience of writing a practice-based thesis in Fine Art and Design – Borg, 2009</b>	PB	2 Case studies of art practice students over 3 years. All Thesis, no physical practical element	96,824	No – Has Introduction, Methodology, 2 Case Studies, Conclusion.  Has 2 large sections each with overview and conclusion – the first regards Introduction, background, methodology through 4 chapters, the second are the 2 case studies ie encounters with artists and designers.
<b>Uncertain surrenders: The coexistence of beauty and menace in the maternal bond and photography – Wilkinson, 2012</b>	PL	Book of Photographs and written element	50,682	No – Has 5 chapters understanding maternal passion plus an Introduction
<b>What Feels True?: Sifting Through Belongings – Clarke, 2011</b>	PL	Poetry (Practice elements) and written element	20,000 approx not inc. poetry	Mostly No – Has a Prologue, Introduction, Background, Methodology, Chapter about work, Reflections on Practice, Conclusion and Poetry at the back.
<b>RePhrasing Voice: Art, Practice-led Research and the Limits and Sites of Articulacy – Mafe, 2009</b>	PL	60% practice component and 40% exegetical. Practice was an exhibition across 2 QUT venues, providing an overview of creative work	45,000 approx.	No – Has Introduction, Methodology, Contextual Review, Studio Practice, The Artist’s Voice and Conclusion
<b>Design Research &amp; Reflective Practice: the facility of design-oriented research to translate Practitioner insights into new understandings of design – Grocott, 2010</b>	PL/Design Orientated Research	Visualisation Case study, blogs and research website (on DVD) with written element (60 practice/40 written?)	75,600 approx	No – Has Summary (Intro?) and 4 Chapters: 1 The Context, 2 Case Study, 3 Discussion, 4 The Knowing followed by an Epilogue
<b>The Augmented House: Crafting tangible interaction in House Museums – Claisse, 2018</b>	PB	Written thesis, practice (interactive installations) and exhibition of practice (60 written/40 practice?)	60,000 approx	Partly – Has introduction, Research Context, Lit Review, Methodology, 4 Phases and Conclusions

Figure 7: Comparative formats of PB/PL completed theses (Wilson, 2020)

Research highlights that the field of design is becoming more acknowledged as a core discipline in practically every industry. Designers and graduate designers are able to apply for a growing range of design related roles. What has changed in my 35+ years as a designer, is the varied roles from what would have been simply been called a Graphic Designer. The table below (Fig.8) demonstrates a small portion of the range and variety already available under three broader disciplines of Graphic, Information and Spatial Design.

Graphic Design	Information Design	Spatial Design
User Experience (UX) Designer	Web Designer	Space Planner
User Centred (UC) Designer	Application Designer	Exhibition Designer
User Interface (UI) Designer	Game Designer	Computer Aided Designer
Human Computer Interaction (HCI/IxD) Designer	Interpretation Designer	3D Designer
Brand Designer	Infographic Designer	Set Designer
Advertising Designer	Experience Designer	Fashion Designer
Social Media Designer	Information Architect	Interior Designer
Motion Graphics Designer	User Experience (UX) Architect	Museum Designer
Packaging Designer	Virtual Reality (VR) Designer	Sustainability Designer
Visual Designer	Augmented Reality (AR) Designer	3D Environment Designer
Digital Media Designer	Artificial Intelligence (AI) Designer	Biophillic Designer
Typographic Designer	Front End Developer	Landscape designer

Figure 8: A Sample Range of Current Design Roles (Wilson, 2020)

There are future roles already being considered such as Invisible Designer, Biometrics Designer, Predictive Designer (Rühl, 2019) demonstrating how the growth and development of technology coming from design, further impacts the design disciplines and industry in providing additional design roles.

A major part of design growth is the area of design research, in Universities and in professional practice. Although there has been design research as a field of research since the 1960's (Bayazit, 2004:p.17), designers who are not engineers or architects, studying for a design based PhD is a relatively new phenomenon (Vaughan, 2019:p.9). The first doctoral conference which included industrial and graphic design was the 'Education in Design Conference', Ohio, in 1998 (Bayazit, 2004:p.27). Now, there are various conferences with design built into the core of the multiple industry specific papers and journals.

According to Ehl and Ullmark (2017) the process of building design skills could be ‘understood as pragmatic knowledge production in the tradition of philosopher John Dewey...where experience, as growing out of encounters with real-life situations, is fundamental to understanding’ (Ehl and Ullmark cited in Vaughan, 2019:p.78). They also remark on Schön’s reflection in action in that ‘knowing and doing are inseparable, and of how this is carried out as on the spot experiments, where the materials available to the situation (models, sketches, drawings etc.) talk back, often in a surprising way.’ (Ehl and Ullmark cited in Vaughan, 2019:p.78)

Having read the completed Practice-led (PL) and Practice-based (PB) theses in Fig.7, and from my understanding of the differences put forward by Candy (2018), Grocott (2010), Gray (2004) and Smith (2014), some of the PL theses could be classified as PB. PB includes iterative cycles of ‘doing and reflecting’ through practice, forming the main function of the study and contribution to knowledge. PL is about reflecting on practice work/projects already undertaken, leading to new insights of practice or process, possibly forming new frameworks/processes or models of practice.

Therefore, the researched outcomes for the differences between PB and PL design PhDs, have resulted in the following statements with additional clarification in squared brackets:

Candy states:

- ‘If a creative artefact is the basis of the contribution to knowledge, the research is practice-based. [PB]
- If the research leads primarily to new understandings about practice, it is practice-led.’ [PL] (Candy & Edmonds, 2018:p.64)

Mottram states:

- ‘Research into practice [PL] and research through practice’ [PB] (Mottram cited in Smith & Dean, 2014:p.238)

and quotes Frayling’s (1994) art and design model of:

- ‘research for [PL], through [PB] or into [PL] practice’, (Mottram cited in Smith & Dean, 2014:p.239), also quoted by Vaughan (2019:p.74) and Grocott ((2010:p.14)

In Grocott’s (2010) explanation of the struggles design practitioners face when taking their practice through to PhD level is supported and discussed by many academics and design researchers. Her experience echoes my experience as a design practitioner in an academic environment, and that of other theses researched. What I find difficult to understand is, that as

designers, our work/practice consistently involves critical analysis, research and problem solving, new insights and new knowledge often formed with each project undertaken (Horváth, 2007; Friedman, 2003). This process is comprehensively explained below by Grocott:

‘Designers tend to consider a ‘problem’ from the perspective that there is no single answer – only possible solutions. To this end, designers use their evaluations of a design proposition as a strategy for opening up the design situation... The designer’s capacity to iteratively search for the right way to frame a project is a valuable skill to bring to researching when the subject is as unquantifiable as design praxis. Design-based methods provide a critical platform by which to reflect upon the subject at hand, but it is the designer’s ability to exhaustively frame and reframe the design problem that allows for a comprehensive understanding of the design situation to emerge.’ (Grocott, 2010:p.178)

In the research regarding design PhDs, as one of the multi-skilled, multi-disciplined design practitioner/researchers, I empathise with Grocott and appreciate the difficulty faced in finding a ‘formula’ or PhD structure that would suit the many variants required to accommodate a design practitioner, design researcher or research designer.

Within the practice of design, there are many varying design process frameworks, mostly from a human centred design/design thinking perspective such as user-centred design (Hornecker & Ciolfi, 2019). Designers are now leading ‘Design Thinking’ workshops in their companies ‘because of its ability to generate ground-breaking solutions in a disruptive and innovative way’ (Friis Dam & Teo, 2020). Design is becoming more integrated as a valuable resource in critical thinking, critical inquiry, analysis and innovation, therefore demonstrating that designers/design practitioners are developing and ‘repurposing methods and languages of practice into the methods and language of research’ (Haseman & Mafe cited in Smith & Dean, 2014:p.32). This is occurring in most areas of industry, governmental and health organisations, and Universities.

There will be more designers wanting to take this level of critical inquiry, critical thinking, analysis and reflection on practice to a greater level of research, informing their practice to take onto an academic role, or to progress within their company. It is, therefore, going to be critical to ensure that the options to do so within academia, are clear and informed, with a flexible framework (and language) that bridges design practice with academic research.

<b>Design PhDs</b>	
<b>Practice-led</b>	<b>Practice-based</b>
Reflection on design practice/projects, building new or extending existing frameworks, processes or systems	Reflection through design practice/projects, the 'doing' of the practice forms the study
Able to submit documents and artefacts as evidence	Able to submit documents and artefacts as evidence
Viva exhibition & (closed) examination of thesis (or exegesis)	Viva exhibition & (closed) examination of thesis (or exegesis)
Word count: 40 to 100%	Word count: 40 to 60%
Practice element: 0 to 60%	Practice element: 40 to 60%
Reflective account therefore able to use personal pronouns	Reflective account therefore able to use personal pronouns
Not specifically site based, although it can be	Usually site based ie research and practice takes place in the same site
Qualitative, although can also include quantitative	Qualitative
<b>Design Research Approaches</b>	
Practice-led Research, Practice-based Research, Design Orientated Research, Methodological, Transformative, Interdisciplinary, Reflective Practice, [Design Thinking],	
<b>Appropriate Methods</b>	
Constructivist, Phenomenology, Action Research, Grounded Theory, Reflection on/in Practice Research through Design, Case Study, Interpretative Phenomenological Analysis, Participatory Observation, Expert Interviews, Focus Groups, Co-Design, Design Processes, Speculative, Sketching,	

Figure 9: Design PhDs - 'Formula' based on Vaughan (2019), Smith & Dean (2014), Grocott (2010) and Candy (2018)

### 1.2.2. AR & IPA – 3 STAGES

---

The thesis is situated using two research approaches: Action Research (AR) and Interpretative Phenomenological Analysis (IPA). The AR and IPA positions support reflection on process and iteration which should be crucial to all areas of academic study and design practice.

However, in researching the two different approaches, AR would appear more suitable to the practice-based element of the thesis (Stages 1 & 2), and IPA for the fieldwork element (Stage 3) as shown in the following:

#### Stage 1 & 2 – Action Research Overview

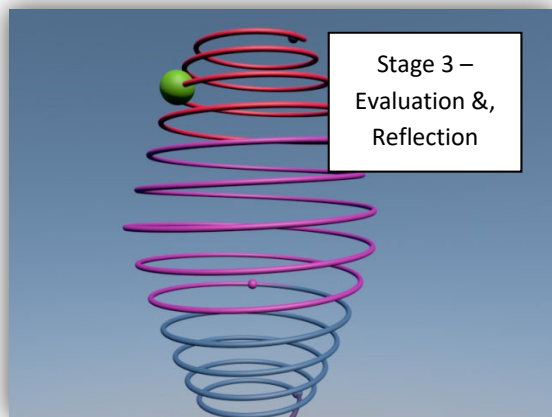
Marshall (2011) characterises AR as a series of cyclic steps: action/exploration, immersion in the chosen area, stepping back and reflecting, new or another cycle of engagement. These steps are typical in design production, and therefore eminently suitable for the creation and development of the Beaulieu Abbey Stage 1 and 2.

The AR position encompasses engagement with participants via co-operative enquiry (Heron, in Reason & Bradbury, 2001), thereby covering the working relationship with the Beaulieu team and design assistants in Stages 1 and 2, and seeks to explore and explain the process. Lewin (1951) considered AR to be a democratic-based approach and that ‘behaviour of participants vary across time and under [the] influence of different environmental forces’ (Passmore, in Reason & Bradbury, 2001 p.38). The relationship and engagement with the different members of the Beaulieu team changed over the length of the project, from that of uncertainty to a degree of trust and friendship. The AR reflection here concerns the processes involved in the development and discussion from concept to finished outcome and that of the curator/stakeholder and designer relationship forming.

Typical Action Research cycles (Gray & Malins, 2004) have been created as a 3D animation<sup>8</sup> to highlight the micro (overview) and macro (detail) stages and cycles as chapters for this thesis. The still images overleaf show the micro overview (Fig.10) and macro overview (Fig.11). In the macro view, each stage has been curated to highlight the main events, reflections and evaluation of the processes that are discussed in the chapters to follow.

---

<sup>8</sup> The link for the animation: <https://youtu.be/TM-iv1i-p80>



Overview of Thesis.  
Structure shown as  
AR Cycles:  
Stage 1 (Blue)  
Stage 2 (Purple)  
Stage 3 (Red)

Figure 10: Micro View showing the 3 cycles of Stage 3. (Wilson, 2013 ©)

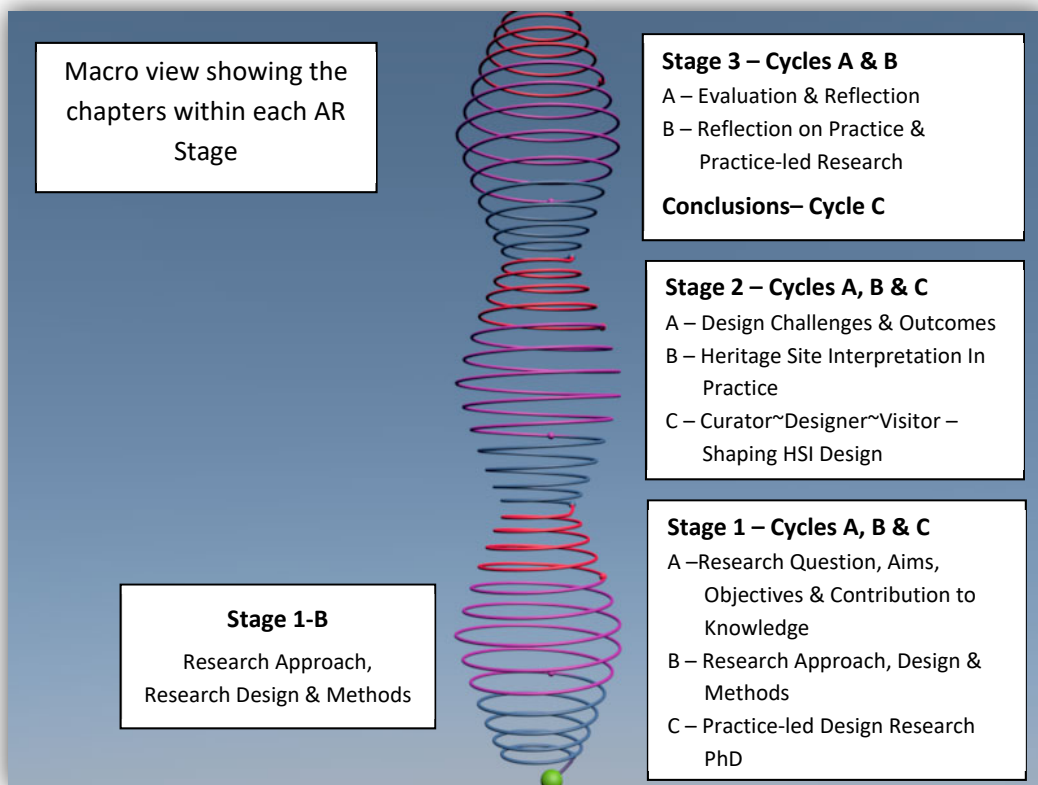


Figure 11: Diagram showing a 'Macro View' of the 3 cycles and chapters of each Stage. (Wilson, 2013 ©)

### Stage 3 - Interpretative Phenomenological Analysis Overview

Smith, Flower and Larkin (2012) characterise IPA as aiming to understand participants' perspectives, perceptions and views. It is concerned with a detailed examination of lived experience. The focus is on open questions, exploratory not explanatory, and on meaning, causes or consequences. An important part of building knowledge and skills is learning from experiences;



an important aspect of design and problem solving includes observations and research of daily processes, actions and behaviours. IPA, therefore, fits well with my stance as a designer/design researcher for analysing the interviews.

The IPA position for Stage 3 supports the in-depth interviews in understanding the participants' experience and 'connection' with the project and parties involved. The participants' cultural influences and external pressures were also explored through gaining an understanding of their perceptions of their role and project relationships. Through the use of NVivo, the interview data was analysed by reading and segmenting the data into an initial set of themes which were further analysed, and re-categorised (see Fig.12 below). The results of the IPA process can be seen in section 1.2.3.

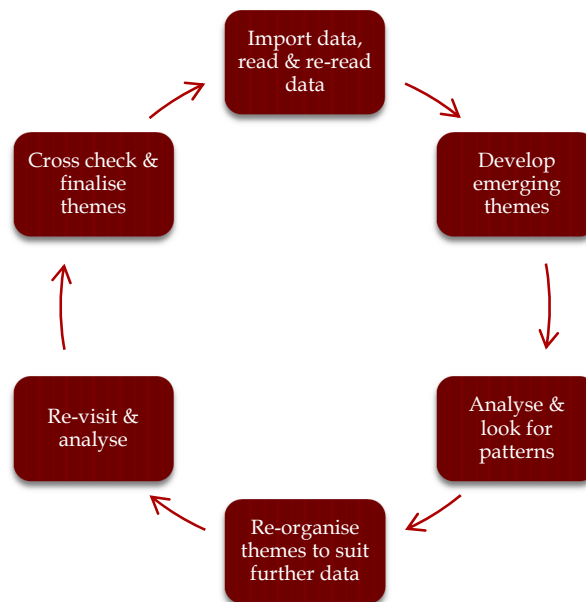


Figure 12: IPA & NVivo Cycle (Wilson, 2018)

Kuhn (1970) stated: '*what a man sees depends both upon what he looks at and also upon what his previous visual-conceptual experience has taught him to see*' (Kuhn, 1970 p.113). He highlighted the need to build a relationship and an in-depth understanding of each participant. Using the IPA research paradigm enables the interviewer to be responsive to each participant's voice self-consciously and systematically (Smith & Osborn, 2007).

The use of a variety of data sources is supported in both AR and IPA, which compensates for possible distorted interpretations inherent in each. A balance was sought between rigour and relevance; richness and applicability; discovery and verification (Guba, 1990:pp.21–23). Section 2.2 and 2.3 discuss in more detail how the three stages were viewed through the use of AR and IPA's reflective cycles and how the two research paradigms reflect the iterative cycles of a design process.

#### Action Research: 3 stages - Practice, Launch, Post Launch

Elliott (1991) believes Action Research is fundamentally about the transformation of practice; he does not see it as a reflection in action and on action put forward by Schön (Schon, 1984; McIntosh, 2010). Schön's (1984) epistemology was formed from observing the way in which practitioners reflect on their actions during and following their work.

Elliot and Schön's theories work well for designers as researchers, based on the belief that to transform practice you need to reflect and critique the methods you use, as a continuous cycle. This fits with my practice and experience as a designer. I view 'first-person action research' (Reason & McArdle, 2001) similarly to the 'action' areas of a typical design process, i.e. analysis, practice, reflection and evaluation. A designer's role is varied although generally remarked on as instrumental in solving problems and providing information in a method/format that others can understand; they analyse what the problem is and how they will provide an outcome (Lupton, 2017; Cross, 2011; Aspelund, 2015; Lawson, 2006). Through this, a variety of possible solutions are created, at the same time reflecting on how well each provides a solution (reflecting and evaluating). Each cycle of reflection and evaluation transforms the possible solution until one is found to be the best fit. The outcome may start another cycle once presented to the proposer of the problem.

Lawson (2006) suggests that the design process (Figure 13) is '*a negotiation between problem and solution through the three activities of analysis, synthesis and evaluation, with each seen as a reflection of the other*' (Lawson 2006, p48). Figures 14–16 (see page 48) have been designed to depict the importance of reflection in each of the main stages of the creation and launch of a cultural heritage interpretation, in this instance Beaulieu Abbey. Also shown is the consideration of including the three groups of participants at each main stage. For each cycle, there is considerable importance on data collection and its subsequent analysis and evaluation. Reflection

is shown as a separate stage at the end of each cycle; as the designer, this process has been a constant, at an unconscious and conscious level and here, has been designed as the sphere surrounding each stage. The separate reflection stage is to highlight considered reflection on the *'process of making sense of an action after it has occurred and possibly learning something from the experience which extends one's knowledge base'* (1994:146, cited in Ellmers 2006). Therefore enhancing the participants' knowledge which they would be able to take forward to new interpretations.

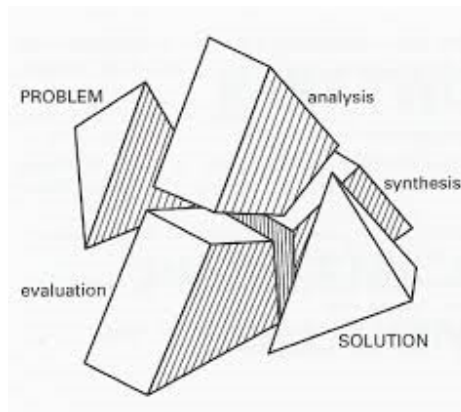


Figure 13: Lawson's suggested design process (Lawson 2006)

Figure 17 (see page 49) depicts the similarity of the reflective practice in a design process. The main difference is the middle cycle, Stage B, where the design is considered, reflected and considered in an ongoing cycle until all participants are in agreement. The designed artefact moves to the next stage, perhaps 'launched' and its impact studied, analysed and reflected upon as one process. Although not shown, the next stage might be a new brief to reflect the results of the previous stage – and the whole cycle is repeated changing the successive interpretation's outcome, or perhaps used for a completely different interpretation. Therefore, the reflection element in Stage C is included rather than a separate stage as in the AR and IPA approach shown in Figure 16.

By placing the practice of designing and creating the Beaulieu Abbey kiosk interpretation as Cycle 1, the Launch as Cycle 2 and Post Launch as Cycle 3, it has been easier to record, reflect and evaluate the experiential impact the project has had on my practice. The three cycles are very different to each other but cannot exist without the other, in themselves reflecting the process of Action Research and Design Processes. My role as a practitioner and educator would also not exist

without the experiences gained through this process, reflecting back to Kant's (1781) quote 'All our knowledge falls within the bounds of experience.'

An area of concern regarding the three cycles (Figures 14-16), is the ongoing cycle of consideration and reflection depicted in Figure 17 Stage B. Will using AR and IPA as the primary approaches in analysing and reflecting on the participants' experience be as thorough as a reflective design process, or should they be used in 'conjunction' with a reflective design process?

The following section will examine this question in more detail, and be explored via comparison with different design processes in Chapter 2, Section 2.2.

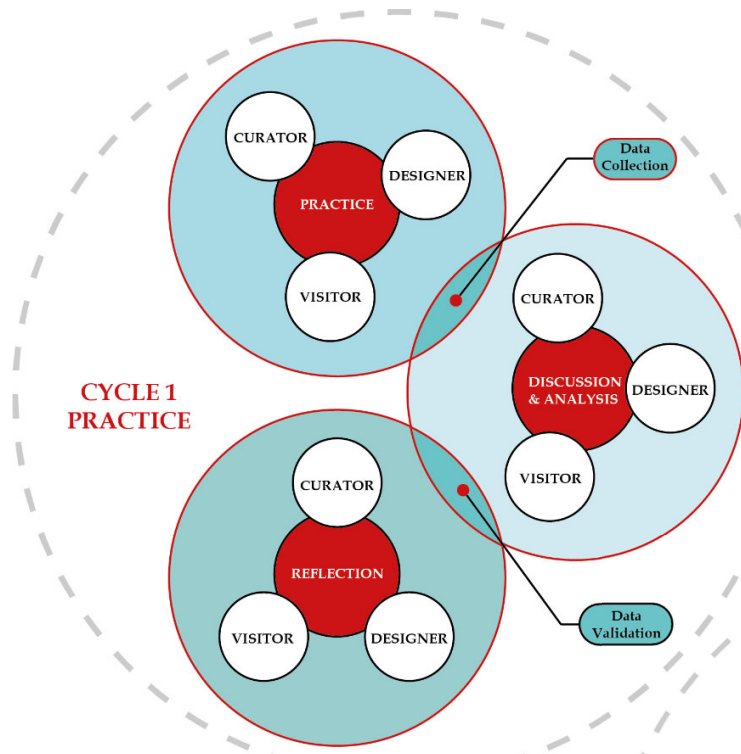


Figure 14: Beaulieu Abbey Practice – Cycle 1 (Wilson, 2013)

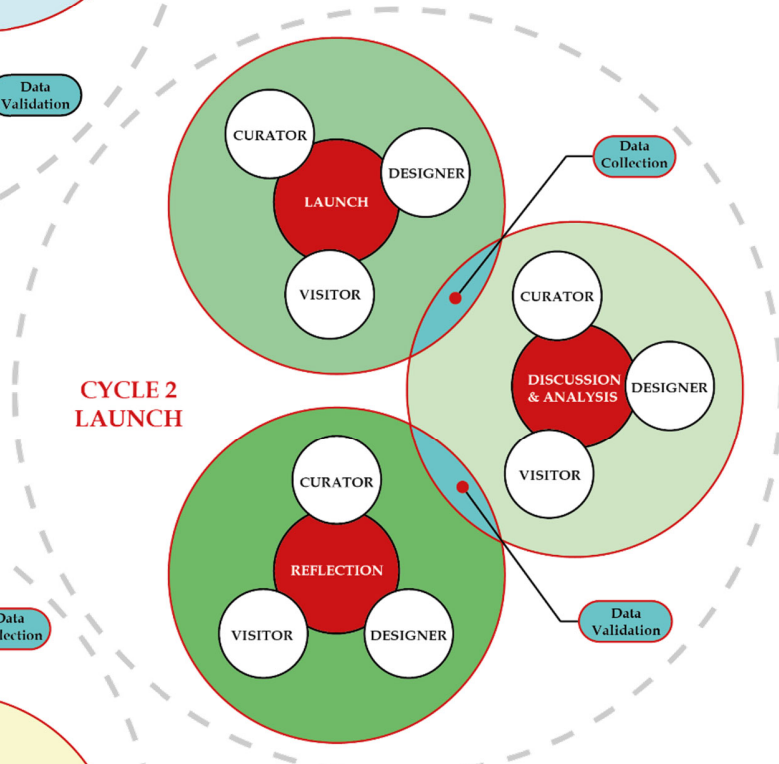


Figure 15: Beaulieu Abbey Launch – Cycle 2 (Wilson, 2013)

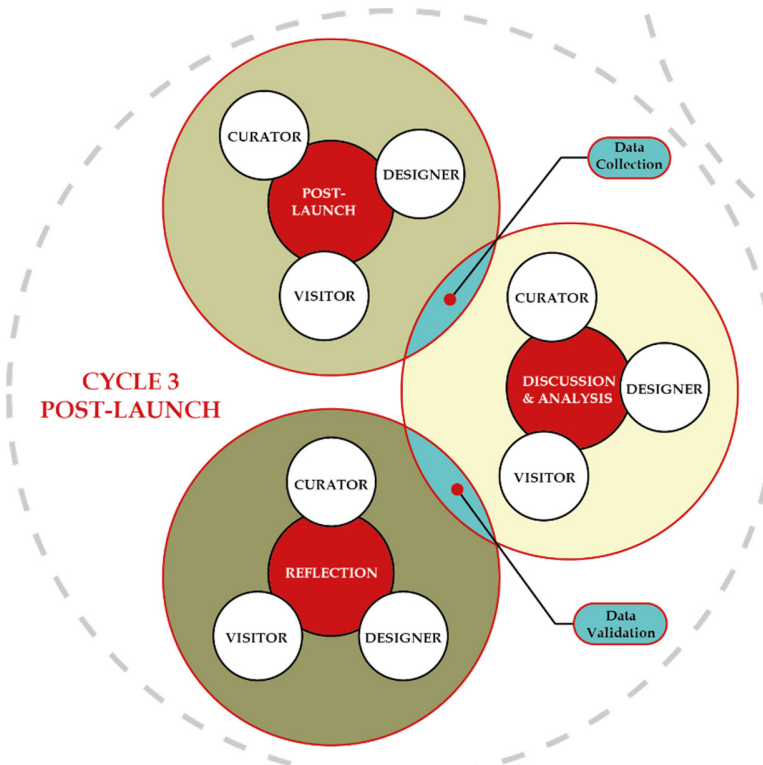


Figure 16: Beaulieu Abbey Post Launch – Cycle 3 (Wilson, 2013)

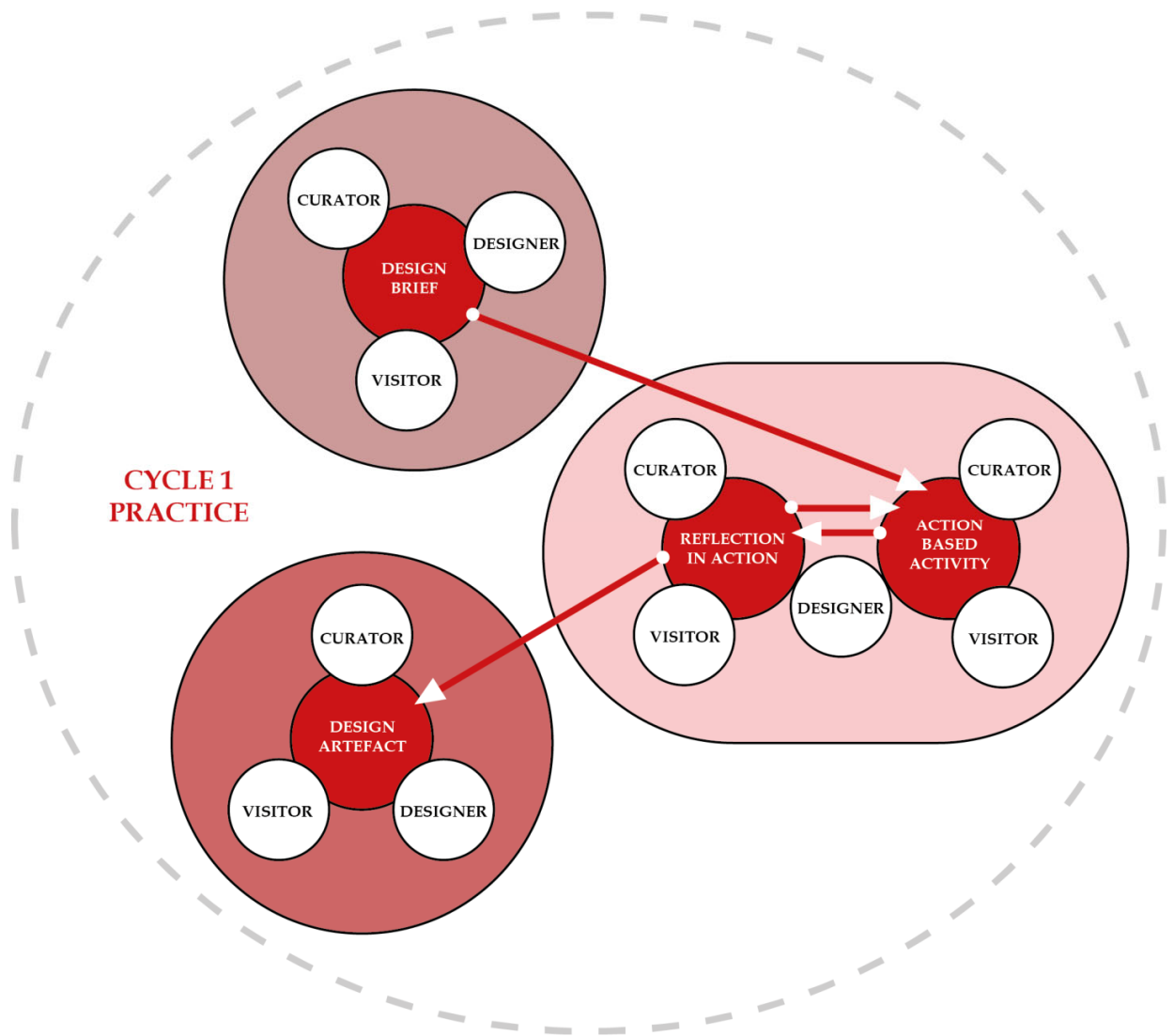


Figure 17: Beaulieu Abbey Practice – Cycle 1 using a Reflective Design Process (based on Ellmers' Reflective Framework (2006))

### 1.2.3. INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS: POST LAUNCH

---

IPA has been used with AR as the two main qualitative research methods. It is at this stage, Stage 3 - Post Launch that IPA is used as the dominant paradigm hence this separate section. Stage 3 explores the experiences of those involved in the journey, and those taking part in the launch via semi-structured interviews. IPA is the most suitable for understanding, interpreting and analysing participants' experiences in their involvement of the Beaulieu Abbey kiosk interpretation and heritage interpretation design.

Therefore Ellmers' Reflective Design Process model (Fig.17) mentioned in the previous section, is only suitable in conjunction with AR and IPA, for the Stage 1 Practice, although the iterative cycles of reflection and action of this model may be relevant in verification of the interpretation and analysis of the interview data. However, IPA also allows the participants to reflect and make sense of their experiences (Smith & Osborn, 2007), which is questionable in the design process model. Sense-making and interpreting their sense-making is a core value of IPA and this thesis.

Reid (1764) stated:

*'If the original perceptions and notions of the mind made their appearance single and unmixed, as we first received them from the hand of nature, someone who was accustomed to reflection would have less difficulty in tracking them; but before we are capable of reflection our perceptions and notions are so mixed, combined and recombined by habits, associations and abstractions, that it is hard to know what they were originally'* (Reid, 1764:p.3).

Using IPA, the researcher can help the participant make sense of their experience by the simple act of allowing them to voice their thoughts on the specific experience; the sense-making for the researcher is interpreting what they have heard and recorded, i.e. double hermeneutic (Smith & Osborn, 2007). It is vital, therefore, and key to an IPA approach, to ensure the interpreted data has undergone an iterative cycle of analysis to reconcile possible perceived or biased differences in the interpretation (Smith & Osborn, 2007).

The primary method was in the form of semi-structured interviews. Another method involved post launch kiosk observations and feedback, from the front of house (FoH) staff and volunteer guides, of their observations of visitors engaging with the kiosk, and from my observations during the year following the launch.

The reason for using IPA for analysing the post-launch data was to explore and understand experiences the participants have within their professions and background, and how their experiences affect new experiences, specifically their experience with the Beaulieu Abbey kiosk interpretation and launch event (Storey, 2007; Smith, Flowers & Larkin, 2012).

To understand other professionals' perspectives and opinions concerning the processes used in the development of the Beaulieu Abbey kiosk interpretation, it was necessary to speak with those involved in the development of the application. Selection of the participants was determined by who was primarily involved. Maintaining the three aspects of the thesis title and the three stages of the action research/design process structure, I made the decision to have three teams: the Beaulieu Team, Designers and 'Visitors,' i.e. launch guests (see list below). Based on the four members of the Beaulieu team I primarily worked with, the decision was to then use four designers and four launch guests as the fieldwork sample. The design team working with me on the Beaulieu kiosk project consisted of one design assistant and a freelance designer. Unfortunately, the freelance designer was not available for an interview. Therefore three designers working with, or who had experience of, HSI design were chosen from my professional network connections. The launch guests were chosen from their interest shown in the design of the application at the launch event.

The interview questions needed to reflect the areas raised from the literature review (DiCicco-Bloom & Crabtree, 2006), for example: background and experience, processes used in curation, interpretation planning and design, involvement of visitors and how visitor experiences and feedback were measured and understood. This data was augmented with FoH staff feedback, personal observation of visitors using the kiosk interpretation, MA Marketing students' survey data and feedback correspondence.

There are, therefore, two areas of archival information for this section:

1. Interview recordings and transcripts – which includes:
  - a. Interviews with the Beaulieu team:
    - Mary Montagu-Scott (*Owner, designer/curator*),
    - Stephen Munn (*Commercial Director*),
    - Susan Tomkins (*Archivist*)
    - Jon Tee (*Visitor Services Manager*)
  - b. Interviews with Designers:



- Rebecca Furse (*Design Assistant, Beaulieu Kiosk interpretation & Architectural Technician/Interior Designer*),
  - Russell Richards (*Designer & Senior Lecturer, MAiP, Southampton Solent University*),
  - Katya O’Grady (*Fine Artist / Designer, Cathedral Chronicles of Light project*)
  - Alex Hoare (*Glass Designer for Museum Installations*)
- c. Interviews with invited Launch guests:
- The Very Revd James Attwell (*Winchester Cathedral & Launch Guest*)
  - Rupert Thomson (*Publisher, Set Squared Mentor & Launch Guest*)
  - John Pemberton (*Software Consultant & Launch Guest*)
  - John Richardson (*Business Enterprise & Launch Guest*)
- d. Interviews with external heritage professionals:
- Ruth Taylor (*Freelance learning, interpretation and community engagement consultant (National Trust in 2006)*)
  - Andy Lane (*INTECH, Marketing Manager (previously at Beaulieu)*)
2. Kiosk Observations– which includes:
- a. Front of House staff and volunteer student guide feedback
  - b. Personal observations of visitors using the kiosk

Semi-structured interviews are one of the most typical forms of qualitative research data collection; a form of which is the ‘life-history’ interview and focuses on ‘*understanding another’s life story*’ (DiCicco-Bloom & Crabtree, 2006). Understanding the participant’s background and how they arrived at their current position was necessary for knowing more about the participant, and their experience in HSI. Therefore, the interviews were planned to be semi-structured with a mixture of closed and open questions. The interview questions were anticipated from experience of relationships built within the interpretation project process, the launch event and use of content, application and technology in the interpretation project for Beaulieu Abbey (the 14 individual participants’ question/interview sheets can be found in Appendix G and on this [link](#)<sup>9</sup>).

The question prompts for each of the participants related to their role and involvement with the design or use of the kiosk interpretation and the launch event. Although the question prompts

---

<sup>9</sup> <http://thetalkingwalls.co.uk/wordpress/?p=1596>

were different according to their specialism/profession, there were areas of commonality such as finding out about their backgrounds and how they came to be in their current role. The participants were also encouraged to expand on their responses and share their thoughts regarding their background experiences, processes used and their experience of the Beaulieu Abbey application. The majority of the participants expanded on their individual backgrounds forming their career and career decisions, and positive feedback in their use of the kiosk interpretation. Nonetheless, the specialism/profession based questions meant that the interviews were more difficult to analyse, and possibly provided limited outcomes.

The interviews were recorded (with permission gained in accordance with ethical procedures) and transcribed through the use of an external transcript company. Contact was made with each of the participants to arrange to meet and discuss participation in the research. For those that were unavailable to meet, the information sheet, request and consent forms were posted and signed before the start of the interview. Interview dates and times were arranged with each of the participants to suit their availability and choice of location and spanned between March 2013 and May 2014. (see Fig. 18) below for the schedule for dates, times and locations for each participant<sup>10</sup>). The length of time for each interview was approximately between one to one and a half hours and held primarily at their place of work.

The reason for the delay in being able to interview the participants three years after the launch was primarily due to the transferal of my MPhil/PhD from Winchester School of Art, University of Southampton to the University of Winchester in 2012. An earlier delay (2011) was a six-month sabbatical to focus on developing new programmes in my new lecturing role at Winchester. The interviews were designed to open discussion on issues relating to their practice, in relation to heritage site interpretation design, and not primarily about the launch. Additional participants helped to provide a rounded perspective.

---

<sup>10</sup> Also available on this link: <http://thetalkingwalls.co.uk/wordpress/?p=845>

## Schedule of Interviews

ID	Date/Place	Name & Profession	Interview Purpose	Category
BT1	11am Fri 1 <sup>st</sup> March 2013 @ John Montagu Building, Beaulieu	Mary Montagu-Scott ( <i>Site Owner/Director/Designer/ Curator</i> )	The interview with Mary aimed to understand Beaulieu's vision for the Abbey and how they see cultural heritage interpretation as part of this vision. Questions concerned Beaulieu's perception and knowledge of visitor interaction with cultural heritage and their engagement with heritage artefacts. A discussion of the relationship between the stakeholders and the curator was planned to ascertain the extent of external influences that may exist in the origination of an interpretation project.	Beaulieu team
BT2	11.30am Thur 18 <sup>th</sup> July 2013 @ John Montagu Building, Beaulieu	Stephen Munn ( <i>Commercial Director, Beaulieu Enterprises Limited</i> )	The interview with Stephen Munn aimed to understand the decision making process in the commercial / marketing aspect of the Abbey. Questions concerned the processes involved in how a project is decided upon as a commercial attraction / visitor attractor. Discussion regarding what is seen as a successful visitor interpretation at Beaulieu was planned, including discussion on how they capture this information.	Beaulieu team
BT3	10am Wed 10 <sup>th</sup> July 2013 @ John Montagu Building, Beaulieu	Susan Tomkins ( <i>Archivist &amp; Learning Interpretation Advisor/ Curator</i> )	The interview with Susan aimed to understand Beaulieu's choice of content and how this was relevant to the initial conceptualisation of an interpretation project. Questions concerned the interaction of the relationship with the designer(s) and how this affected the interpretation project. Discussion regarding the curator's interaction with visitors, the methods used to measure the success of interpretation at the Abbey and how important this is for future interpretation projects was planned.	Beaulieu team
BT4	2pm Wed 3 <sup>rd</sup> July 2013 @ John Montagu Building, Beaulieu	Jon Tee ( <i>Visitor Services Manager, Beaulieu Enterprises Limited</i> )	The interview with Jon aimed to understand how Beaulieu manages to capture data on their visitors' experiences. Questions concerned the methods and processes used in capturing their visitor data and feedback, how they analyse and feed this back into the Beaulieu interpretations, and how they communicate with their visitors. Discussion regarding feedback and communication with Beaulieu Abbey's interpretations including the kiosk was planned.	Beaulieu team
BD5	11am Fri 6 <sup>th</sup> Sept 2013 @ Lowden Avenue, Chippenham	Rebecca Furse ( <i>Design Assistant, Beaulieu Application &amp; Architectural Technician / Interior Designer</i> )	The interview with Rebecca aimed to understand her experience in the development / build of the Beaulieu Abbey application and the depth of content available through the application. Questions related to the design of the interpretation and how it answered the Beaulieu Abbey brief, how it might have been designed differently if designed by Rebecca, what changes would have been made and why. Discussion regarding the effects of cultural influences and external interests affecting interpretation and design of cultural heritage applications was planned.	Designer

BD6	10.30am Wed 3 <sup>rd</sup> July 2013 @ James Matthew Building, Southampton Solent University	Russell Richards (Senior Lecturer and Designer, Southampton Solent University)	The interview with Russell aimed to understand his experience of the Beaulieu Abbey application, the choice of content available through the application and if having choice enhanced his experience. Questions related to the design and clarity of the application – i.e. was the navigation intuitive although unique, was the content too rich, not rich enough, and was there too much choice. Discussion regarding the educational aspect of cultural heritage applications such as the Beaulieu Abbey kiosk app, how much is too much information, and how educators as well as cultural heritage site visitors may use interpretation to enhance experience to cultural heritage sites was planned.	Designer
BD7	11am Tue 8 <sup>th</sup> Oct 2013 @ the University of Winchester	Katya O’Grady (Fine artist/designer)	The interview with Katya aimed to understand her experience in the development/build of the Riddle Route QR application for Winchester Cathedral and her involvement with the Chronicles of Light. Questions related to the design of her interpretation of the original brief and how it then answered the brief, how it might have been designed differently if more time and budget had been available, what changes would have been made and why. Discussion regarding the effects of cultural influences and external interests affecting Katya’s work was planned including how the visitor/ audience is placed with regards to her art work.	Designer
BD8	8.30am Thurs 18 <sup>th</sup> July @ The Light Factory, Worthy Lane, Winchester	Alex Hoare (Glass Designer for Museum Installations)	The interview with Alex related to her experience of designing for museum installations, her involvement with curators and stakeholders / funding organisations. Questions relating to the influence in her designs by external and internal sources were asked. Discussion regarding where the visitor sits in the process of designing museum installations was planned.	Designer
BL9	2.30pm Wed 13 <sup>th</sup> Nov 2013 @ Winchester Cathedral Close	Very Revd James Atwell (Dean of Winchester Cathedral)	The interview with the Dean aimed to understand his experience of the Beaulieu Abbey application, the choice of content available through the application and if having choice enhanced his experience. Questions concerned the mix of visitors to religious heritage sites such as Beaulieu Abbey and whether an interpretation should provide different types of experiences for the different groups that visit. Discussion regarding cultural heritage software’s ability to engage and enhance a visitor’s experience at a religious cultural heritage site was planned.	Launch Guest
BL10	11.30am Fri 25 <sup>th</sup> Oct 2013 @ Hogs Back Brewery Ltd, Guildford	Rupert Thomson (Publisher & Set Squared Mentor)	The interview with Rupert aimed to understand his experience of the Beaulieu Abbey application, the choice of content available through the application and if having choice enhanced his experience. Questions related to the clarity of the application – i.e. was it made clearer via demonstration at the museum, and was the event useful in understanding the way it could develop were asked. Discussion regarding the transposition of guide books to digital media, i.e. will digital replace or enhance traditional media was planned.	Launch Guest

BL11	10am Tues 1 <sup>st</sup> Oct 2013 @ Ipley Manor, New Forest	John Pemberton ( <i>Software Consultant &amp; SEEDA Mentor</i> )	The interview with John aimed to understand his experience of the Beaulieu Abbey application, the choice of content available through the application and if having choice enhanced his experience. Questions related to the clarity of the application – i.e. was it made clearer via demonstration at the museum, and was the event useful in understanding the way it could develop were asked. Discussion regarding the commercialisation of cultural heritage software to enhance a visitor's experience at a cultural heritage site was planned.	Launch Guest
BL12	Wed 14 <sup>th</sup> May 2014 @ Holiday Inn, INTECH, Winchester	Dr John Richardson Blue Planet Innovation, Senior Lecturer Innovation Management, University of Winchester and iNet Project Manager (previously Business Link)	The interview with John aimed to understand his experience of the Beaulieu Abbey application, the choice of content available through the application and if having choice enhanced his experience. Questions related to the clarity of the application – i.e. was it made clearer via demonstration at the museum, and was the event useful in understanding way it could develop. Discussion related to John's experience working with innovation and small business and how this has helped him to create his own business ideas (i.e. business KIT). It was also valuable to discuss similar applications John may have experienced and how the Beaulieu application compared.	Launch Guest
BH13	2pm Mon 22 <sup>nd</sup> July 2013 @ Costa Coffee, 3 Station Road, West Byfleet	Ruth Taylor ( <i>Freelance learning, interpretation and community engagement consultant (previously at National Trust HQ, as Learning &amp; Engagement Manager, 2006)</i> )	The interview with Ruth aimed to understand her experience of working within an organisation such as the National Trust. Questions related to how the process for curating/ designing and installing interpretations within a large organisation may be different to smaller private cultural heritage sites. Discussion regarding the importance of visitor learning via interpretation was planned.	External Heritage Professional
BH14	2pm Mon 8 <sup>th</sup> July 2013 @ INTECH Science Centre and Planetarium	Andy Lane ( <i>Marketing Manager, INTECH, (previously Marketing Manager at Beaulieu Enterprises Ltd)</i> )	The interview with Andy aimed to understand his experience of working at Beaulieu Abbey and how the interpretations were planned and the processes they went through before installation. Questions related to the involvement of the visitor in the interpretation process. Discussion regarding the marketing methods used to attract visitors was planned.	External Heritage Professional

Figure 18: Purpose and Schedule of Fieldwork Interviews (Wilson, 2014)

## Kiosk Observations

Kiosk observations included email and verbal feedback from the Front of House staff and Beaulieu's student volunteer guides as they checked the museum and the kiosk throughout the day. Personal visits to the museum between June 2010 and May 2011 meant that I was also able to observe visitors of differing ages using the kiosk interpretation, and ask about their experience in using the content available. The verbal feedback has been recorded through the use of anonymised notes in the form of bullet points (please use this [link](#)<sup>11</sup> to access the feedback

<sup>11</sup> <http://thetalkingwalls.co.uk/wordpress/?p=1620>

documents). The few photographs taken were, unfortunately, not granted permission for use within the thesis.

Data analysis for the fourteen in-depth interviews and kiosk observations and feedback is via a cyclical approach to determine emerging themes (Smith, Flowers & Larkin, 2012).

The interview responses were analysed using IPA analysis, drawing out key themes and identifying commonalities from the data. The IPA theme analysis provided an opportunity to draw on the experiences provided by the participants' interviews (Wilks & Kelly, 2008). The initial themes were initially categorised using the key word boolean search terms used for the systematic literature review process (please see Fig.19 below) after importing the interview scripts to NVivo<sup>12</sup>. The resulting themes were grouped related to the different subsets in Fig.19 and then cross-referenced with the three 'team' areas of Curators, Designers and Visitors.

Sub Section Content Overview for each Main Section in the Literature Review			
Experience	Assumption	Measurement	Reflection
<p>Experiences of other curatorial / design teams - with visitors at centre of decision making for interpretation design at heritage sites (as opposed to museums)</p> <p>What were the successes / pitfalls i.e. in relationships?</p> <p>comparison with larger heritage organisations</p>	<p>Assumptions of each other (curators, designers, visitors)</p> <p>Look at possible assumptions, how they have formed and whether they are founded - are they changing with the use of more user centred design?</p> <p>(cultural backgrounds / experience)</p>	<p>Measurement of visitor engagement define 'engagement'</p> <p>Define measurement - who, how and why?</p> <p>Has engagement been more successful for interpretation using visitors centred in the design process?</p>	<p>Reflective Practice in design - design models (and action research) exploring the importance of reflective practice.</p>

Figure 19: Sub section content overview for each main section (Dissemination of Knowledge and Experience, Assumptions in the Design of Heritage Interpretation, The Importance of Visitors' Experiences in Shaping Heritage Interpretation) of the literature

After importing the data sources to NVivo, I was curious to see the frequency of the words initially set out as key areas (see Fig.19) therefore ran a query on all data sources and all words above three letters.<sup>13</sup> The list of individual words was then grouped to form hierarchical themed sections, as Nodes, under the keywords: Design, Experience, Heritage, Visitor and Knowledge. The results of this hierarchical grouping with their reference frequency are depicted in Appendix O. The hierarchy of words within each 'theme' was decided based on my experience and practice with

<sup>12</sup> NVivo (qualitative research software by QSR) has been used for its ability to explore and find themes and patterns across a range of material.

<sup>13</sup> Certain additional words were added to NVivo's 'Stop' word list, mostly names of people and places other than Beaulieu

heritage interpretation design. Therefore, there is perhaps an element of bias in the placement of words.

Having created the five main themes and their subsets, I analysed the different sources and separated the data into relevant paragraphs/segments, saving each as a node, and placing into a relevant subsection of one of the five main themes. It became apparent in the analysing process that the five main themes and subsections required re-thinking and expansion to fit the content, resulting in a constant iterative process to match content with subsections and create new subsections once more than one node of similar content had been created. The second iteration's set of themes, and the total of nodes per theme can be seen in Appendix P, although this does not show the header themes and subsections.

Returning to the thesis chapter structure, and reviewing the case studies' and literature, I decided the most logical categorisation was to relate each of the current themed nodes to a set of new hierarchical groupings with the same titles as the chapter titles. The reasoning behind this decision and further categorisation was that the new 'chapter/section-titled' grouped themes would enable direct comparison and analysis of the data with each of the chapter outcomes. Accordingly, the new themed groups were created and can be seen in Appendix Q. The process required an element of 'finessing', and in doing so, it became apparent there were subgroups which were part of a particular practice, discipline, consideration or process. The outer ring has subsequently been created to name and highlight the different subgroups.

By separating the data nodes to different instances made the data easier to analyse. Through the previous process of theming, it was difficult to rationalise some of the data to just one node as there were different meanings conveyed. The final diagram has enabled such instances to be much clearer in purpose. The process of naming, re-shaping, re-theming and re-grouping helped to reflect on the interconnections between the themes and the primary messages of the thesis chapters highlighted (Waring & Wainwright, 2008; Brooks et al., 2015). The concluding template was valuable in determining pivotal design processes and interaction between the curators, designers and visitors, experience required for HSI design and planning, and how success is evaluated and understood.

### Qualitative versus Quantitative

Qualitative research typically starts from specific observations and fieldwork. Questions arise from the data resulting in more fieldwork with the possibility of the research questions changing. Patterns may emerge from the fieldwork forming possible hypotheses that can be explored further. Conclusions could be new theories or models. This process is inductive, working to provide theory and is a spiral (or cyclic) and subjective process (Lab4, 2003; Gray & Malins, 2004; Malhotra & Birks, 2006; Corbin & Strauss, 2008a; King & Horrocks, 2010).

The research method initially considered was a mixed approach of quantitative and qualitative methods. The quantitative method enabling statistical analysis would be an excellent basis if the research planned was going to concentrate on measured 'facts'. It would provide clear and objective data of, for example, visitor attendance and engagement with heritage interpretation or the number of designers and curators working together, and the regularity of communication between them. The chosen qualitative approach enabled a rich, varied, more in-depth look at the relationships between the participants involved in developing visitor experiences (Corbin and Strauss 2008).

Reflecting on how to gain an understanding of the participants' experiences, the use of a quantitative survey with yes and no answers would be quicker and easier to analyse but not provide the richness or depth required to form a holistic understanding. Guiding the participant with qualitative semi-structured questions would provide a valuable consensus of the participant's experience and perception of the interpretation, allowing them to reflect and express their views (Malhotra & Birks, 2006). The results would help form a deeper understanding of the phenomenon, albeit more time consuming and difficult to analyse.

Quantitative research methods would not be sufficiently flexible to provide the depth of meaning necessary for understanding the participants' experience in crafting visitor experiences. Explaining the distinctive roles and interactions between curators, designers and visitors requires the use of methods that allow participants to speak freely, voicing their opinions and reflections (in-depth interviews). Reflection and observation of the practical element are only possible via qualitative methods, for example, AR and IPA discussed in previous sections of this chapter. Qualitative research is, therefore, the most appropriate to answer the research question for this thesis.



RESEARCH METHODS - CURATOR, DESIGNER, VISITOR INTERACTION IN CULTURAL HERITAGE INTERACTION DESIGN

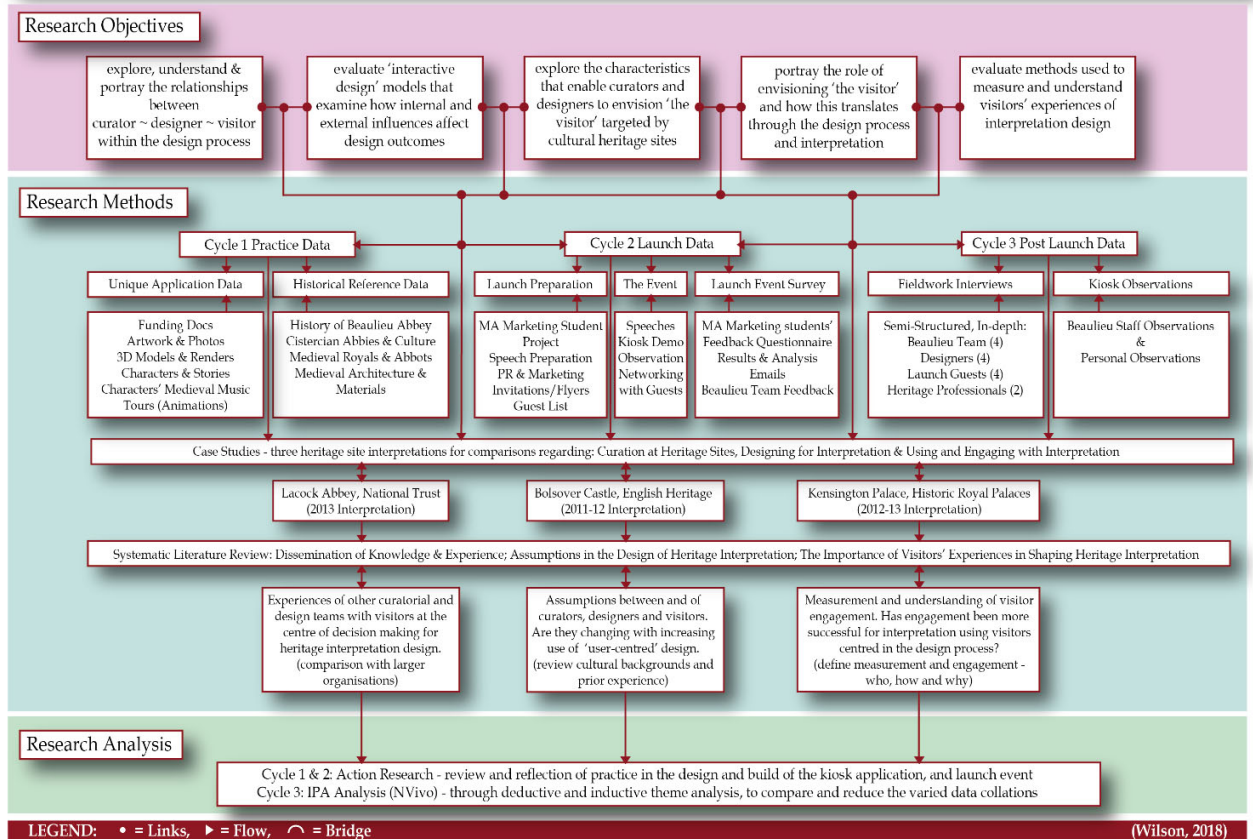
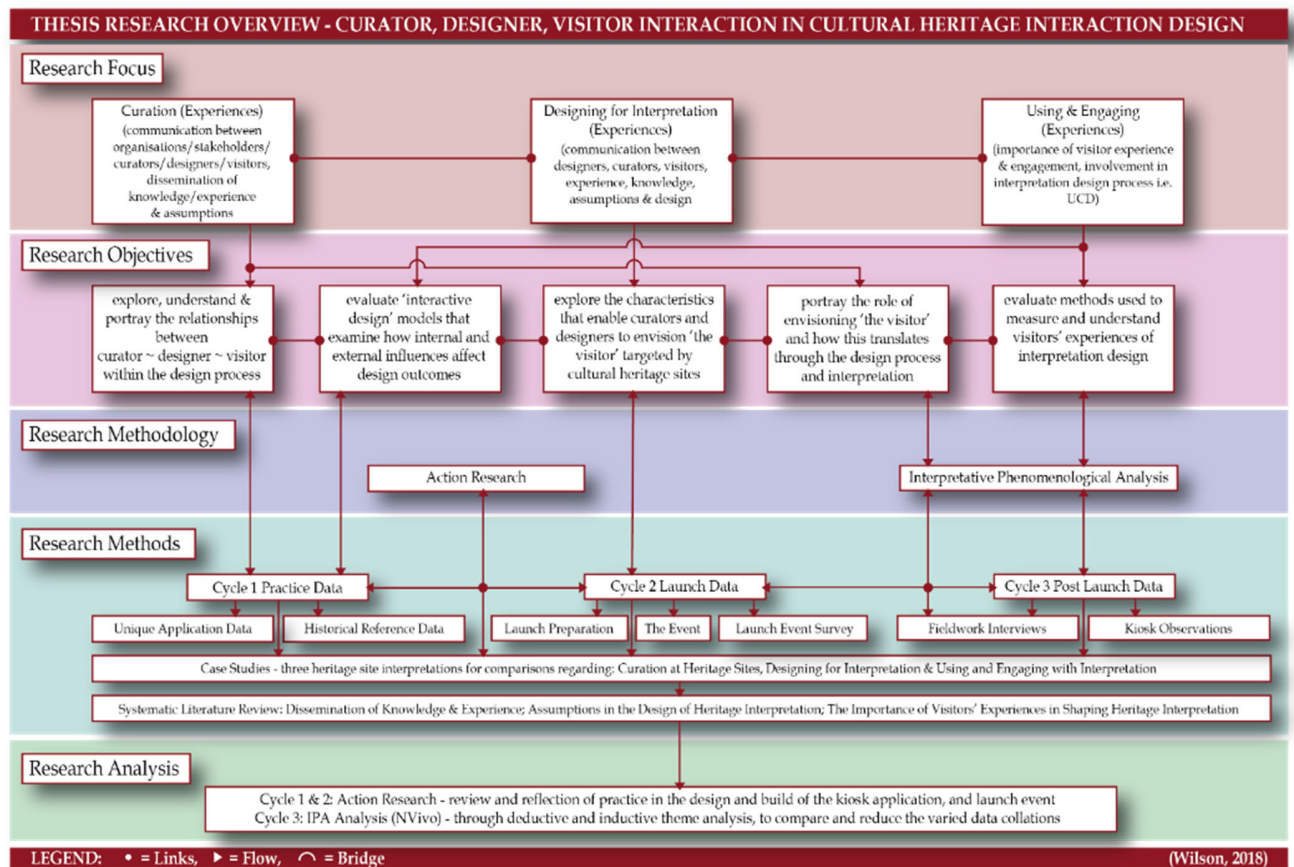


Figure 20: Research Methods Summary (Wilson, 2018)

**SUMMARY**

This section has explained the choice of methodology for this thesis and why it was based on personal interest in understanding more about working relationships for crafting cultural heritage interpretations and the role of visitor measurements. Understanding these processes helped in the development of a model to encompass continuous evaluation and reflection for future use within heritage site interpretation. The decision to use interviews and a case study of the practice element has been outlined, both supported and informed by a review of research methods' literature. Cyclical AR and IPA iterative approaches helped to validate against possible bias in the interpretation of the qualitative data described. The diagram below provides a summary overview of the research focus, objectives and how the research methodology, research design and analysis are linked to each other:



**Figure 21: Research Overview providing the links and connections between the research focus and objectives with the research methodology, methods and analysis. (Wilson, 2018)**

The use of AR and IPA was seen as essential research approaches for the thesis, and in the construction of the three stages: practice element (Stage 1), the launch event (Stage 2) and post-launch (Stage 3). The chapter has compared the process of AR to that of a typical design process, and highlighted the difference in the way experiences are reflected upon. In the design process model, reflection occurs mostly in the middle of the process and rarely after the outcome. Practitioners usually move on to the next problem taking with them feedback on what may have worked (or not) through the process. There does not appear to be the same time for personal reflection on individual processes and experiences gained through the project as in the AR model. Therefore, the interviews with the design team were valuable in understanding this further.

In the penultimate section, the core objectives of using IPA were discussed based on 'describing and portraying' relationships, with each other (curator, designer, visitors) and heritage interpretation. Primary research was through the use of semi-structured, interviews, kiosk observations and feedback. Exploring these personal perspectives from their particular contexts (Smith, Flowers & Larkin, 2012) provided a unique set of experiences and insights forming a knowledge base for future reference, and for understanding how to design future interpretations.

### 1.3. BACKGROUND (PROFESSIONAL & ACADEMIC) & CONTEXT

#### 1.3.1. RESEARCH CONTEXT

##### Personal Background leading to the Beaulieu Kiosk interpretation

My practice and experience in interpretation design evolved from a project initiated in 1995 for Dunster Castle. The Dunster Castle project was informed through contact with a National Trust volunteer guide at Dunster, and a prototype was developed by studying a Masters in Interactive Production (2001-2003). The prototype developed won the Innoventions 2004 award 'Highly Commended for Commercial Viability' which encouraged the formation of The Talking Walls (UK) Ltd, a research and development micro company primarily for HSI design. The company was eligible for mentoring support by the South East Development Agency (SEEDA), and through their mentor network, it was possible to approach Beaulieu. The diagram (see Fig.22) below highlights

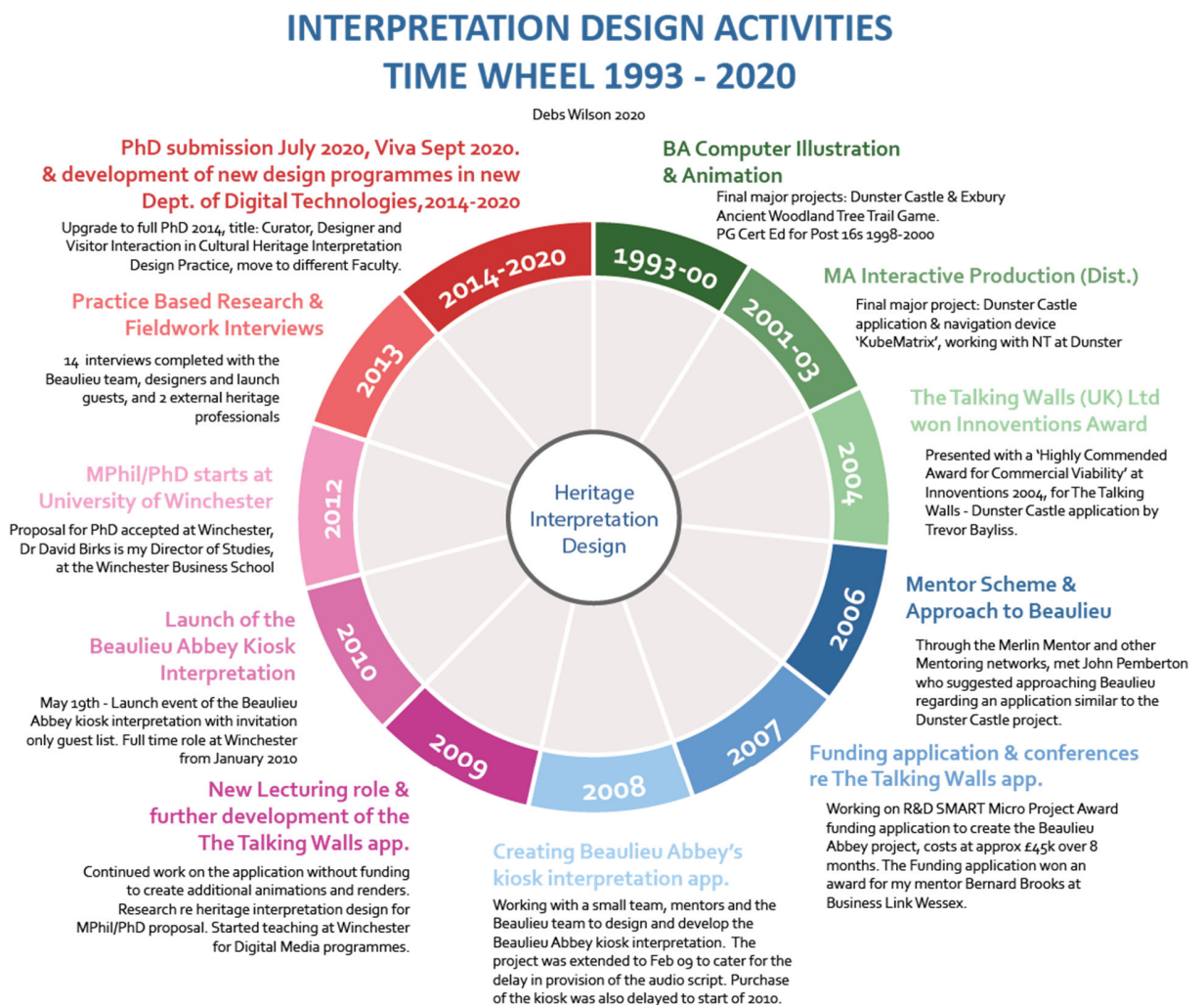


Figure 22: Time line of personal development and practice in interpretation design. (Wilson, 2020)

the time line involved, and the development of my practice which also made the approach possible, and led to the study of this thesis.

The Innoventions 2004 award led to many other opportunities including discussion with interpretation departments at the British Museum, the National Trust, Pitkin Guides, and conferences such as Power to the Pixel, Electronic Visual Arts (EVA) and Digital Horizons.

The principal aspect of the Dunster Castle application considered unique was the KubeMatrix, the interpretation's interface and navigation device, which enabled navigating physical space, time and content. The KubeMatrix's 'cubes' (see Fig.24) represented rooms and the 'links' represented 'doorways' leading from/to another room when navigating the heritage site. On choosing a room, the visitor was presented with a choice of seeing the same room in a previous or later era by clicking on the up or down arrows visible (see Fig.23). The cubes and links were also able to represent content. The 'layers' represented time-slices of architectural change at Dunster Castle, and 'levels' of information: bottom level - content suitable for children, middle level – content for general public at adult level, and top level – a deeper level of content for enthusiasts, academics and professionals. The initial concept was that the KubeMatrix would allow visitors to choose child, adult or professional at the start of the application, then choose one of the nine characters (cube content), then choose what period of the abbey they wanted to explore by choosing a time period 'layer'.

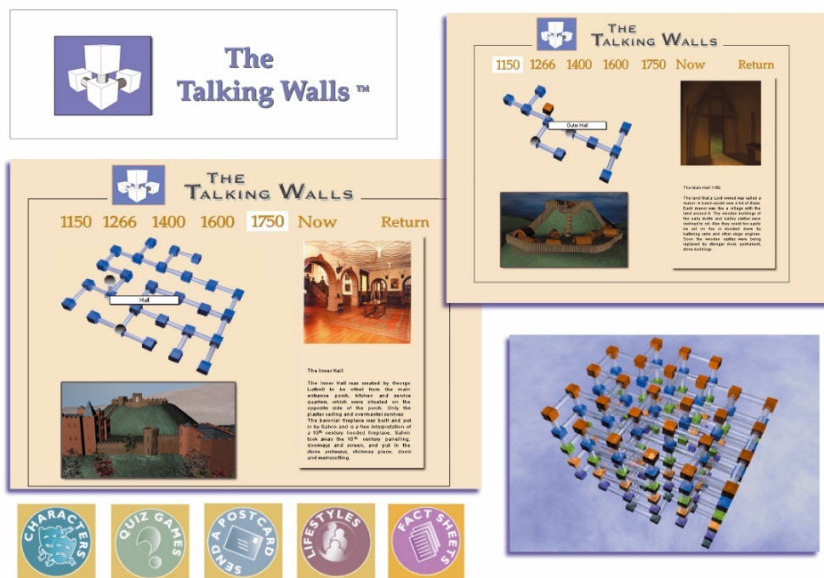


Figure 24: The KubeMatrix navigation device, Dunster Castle project (Wilson, 2004 ©)

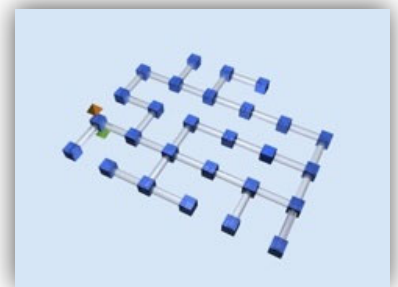


Figure 23: The KubeMatrix navigation device, one 'level' showing up and down 'jumps' to a previous or later time-slice of architectural change (Wilson, 2004 ©)

For the Beaulieu Abbey kiosk, I re-designed the KubeMatrix device to just three architectural changes from the six that had been available for Dunster Castle, and simplified the design to make the most of a small mobile touch screen (see Fig.25 & Fig.26). Considerable time was spent on exploring different technologies available such as Swift 3D<sup>14</sup> and Papervision3D<sup>15</sup> to enable visitors to rotate the KubeMatrix on a mobile device. The outcome was that the ability to achieve this was not feasible with the coding skills available in the team. There was also an issue with running the application on 2008 mobile technology, primarily due to insufficient onboard storage and RAM to store and play the content.



Figure 25: Kiosk Page for Beaulieu Abbey's Abbot Sulbury. (Wilson, 2010 ©)



Figure 26: Kiosk page for Tours of Beaulieu Abbey. (Wilson, 2010 ©)

<sup>14</sup> Electric Rain's Swift 3D was software available in 2006 that enabled the creation and conversion of 3D models to vector files and therefore able to be used within Adobe Flash based applications. The software was last updated in 2012 and is no longer available on [www.erain.com](http://www.erain.com).

<sup>15</sup> Papervision3D was an open source real-time 3D engine for use with Adobe Flash. Adobe Flash was a 2D software enabling animations for the web, therefore by using Papervision3D, it was possible to create the rotating KubeMatrix, and use within Adobe Flash based content. The software was popular in the creation of animated 3D content for Adobe Flash based web applications in mid 2000s to 2012.

The impact on the Beaulieu Abbey kiosk interpretation meant re-thinking the KubeMatrix design to enable visitors to access all parts of the KubeMatrix without rotation. A more critical impact was the inability to provide a working mobile version of the kiosk interpretation for the launch guests to use and explore content. A further impact, due to the reduced time, meant only one 'level' of information was made available. The level was mostly adult, with a few games and puzzles for children and content such as 'Send a Postcard' shown below in Fig. 27.



Figure 27: Simplified KubeMatrix design for use on the PDAs available for the Launch in 2010 (Wilson, 2010 ©)

The simplified design of the KubeMatrix device, therefore, consisted of three layers of a set of nine cubes which was considerably different to the Dunster Castle KubeMatrix concept of rooms and doorways. Instead, the cubes became buildings and annexes for the Beaulieu Abbey site and the three layers represented the build, heyday and dissolution of the abbey when viewing 'Ages of the Abbey' and 'Abbey Tours'. For the remaining content, the layers represented the three levels of information: child, adult and professional, with the cubes as categories of content. The process involved significant research in user interface design (UI) and user experience design (UX) to ensure the KubeMatrix device would be intuitive to use on small screen devices, with additional forms of navigation for larger screens, providing multiple opportunities for how users interacted with the content.

The design of the KubeMatrix as a navigational and content interface template for the Beaulieu Abbey interpretation forced me to re-appraise the original template design and how it would work on mobile platforms/smaller screens. Through an iterative design process, testing with members of the teaching team who had expertise in user interface design, and using the design of the KubeMatrix for accessing content as a live usability project<sup>16</sup> with student volunteers, resulted in an improved prototype 'template'.

My doctoral study also underpins my consultancy work and teaching in using augmented reality/3D and other emerging digital media technologies with traditional methods for heritage interpretation. The research has provided a deeper understanding of emerging market areas for new courses/programmes and pathways for Digital Design and Technology based programmes.

#### Beaulieu – Practice element

The Beaulieu Abbey interpretation was the result of specific goals pre-determined by the stakeholders and curator that involved increasing visitor footfall to the Beaulieu Abbey site from the main site attraction – the National Motor Museum.

The ruins of Beaulieu Abbey suffer a lack of footfall in comparison to the main attractions of the Motor Museum and Palace house. After an initial meeting with owner/director Hon. Mary Montague Scott and the commercial director, Stephen Munn, it was agreed that a rich multimedia application would be a 'good attractor' to encourage increased footfall. The application needed to be designed to engage and encourage learning using rich media and storytelling. The 3D virtual abbey would be an engaging way of imparting visual knowledge, comparative size of the building and history of the site. At this point, a suggested mobile application was not acceptable due to Beaulieu's perceived security complications, therefore the application needed to be built for a kiosk that Beaulieu would install in the abbey's museum - the Domus, specifically for the application.

---

<sup>16</sup> My doctoral study also underpins my consultancy work and teaching in using augmented reality/3D and other emerging digital media technologies with traditional methods for heritage interpretation. The research has provided a deeper understanding of emerging market areas for new courses/programmes and pathways for Digital Design and Technology based programmes.





**Figure 28: Beaulieu Abbey Cloister Ruins (Wilson, 2010)**

A design challenge was to ensure the content covered a range of visitor types, was mostly visual and captured visitor attention. Navigation through the content needed to be simple and consistent. Information needed to be easy to read and provided in a way that was impressionable and memorable. The design ultimately would need to work across multiple platforms. A mobile application would have been more engaging to use than a kiosk, as the user would be able to roam the site and view, in situ, how the building used to look and gauge size more easily. I considered this to be an important aspect of the application, therefore, although it was not required for Beaulieu, I decided that it would be short sighted not to plan for the smaller screen of a mobile / handheld device in the design.

Consideration of new devices and their screen sizes, how visitors would interact with different devices, the navigational difference in those devices (touch screens/mouse clicks/ thumbs) and the level/type of content the visitor may choose to view on these devices were equally important. As were the implications of designing a 'template', i.e. what would be 'generic' and what would be unique to each application, creating a design that could be used for different heritage sites so that visitors would be comfortable and familiar with using the heritage site interpretation application where it was available.

The Beaulieu Abbey project had to be designed, created and built in seven months as part of the funding agreement with Finance South East<sup>17</sup>, it was therefore agreed that the content for the two remaining categories would be a Phase 2 build dependent on the success of the pilot.

The decision on the amount of different types of content within the application was based on the design of the KubeMatrix navigation. The three levels of the main structure became three categories of content – children, adults, professionals. The KubeMatrix design provided nine cubes per category (level), so the application would need nine areas of content. These were:

1. Characters
2. Tours (virtual)
3. Ages of Abbey
4. Quiz'd
5. Send a Postcard
6. Write a Story
7. Fact Sheets
8. Lifestyles
9. Beaulieu Links

To enable this to work as a template for other properties, there needed to be a library of elements that could be re-used. The characters for 'daily life' would form part of this library for other abbeys. The digital video clips of mock battles and life scenes were also edited to create a generic set of clips. Sound clips, 3D modelled items such as plants, trees and everyday objects also became library items.

Within this template, there are areas designed to both entertain children while visiting the place of interest and to inform adults and children alike either while visiting the heritage site or at home. These were designed with a level of empathy and experience from observing what excites, primarily children, in the use of kiosks and computer games. They appear to be fascinated and intrigued by gruesome and gossipy facts, such as those found in the Horrible Histories series (Deary & Brown, 2017). In observing children, it is noticeable how they explore the screen. They appear to mine sweep (Nielsen & Loranger, 2006:p.184) moving around the screen to see if there are any hidden snippets of information or links, as they would in a game. They do not seem to

---

<sup>17</sup> Finance South East - <http://www.financesoutheast.com/>

have the reluctance that adults may have in this type of exploration (Sutcliffe & Kim, 2014; Ham, 2013).

Creating the characters was a major element of the formation of the content. Knowing who the characters were going to be and ensuring that they covered a range of lifestyles in and around the abbey complex became a key part of the design for the other areas of content. Nine characters were designed with advice and validation from Beaulieu's archivist Susan Tomkins. The nine characters (see Fig.29) consisted of people who lived at or stayed in the Abbey, five of them are actual people (Abbot Sulbury, King John, Queen Eleanor, Durandus and Perkins Warbeck). The remaining characters are fictional but represent typical inhabitants with a story relevant to their role. Each character has their own voiceover, music and illustrated story of their involvement with the abbey. It is their stories and the 3D abbey that are the main 'learning' and engaging elements of Beaulieu Abbey kiosk interpretation application.

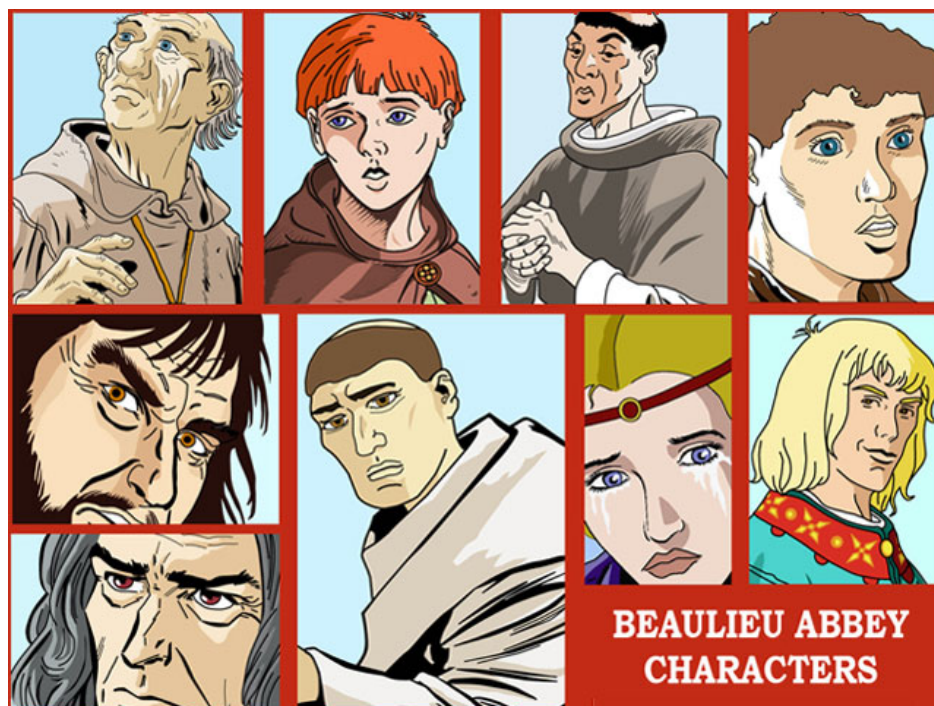


Figure 29: Pilot kiosk/Web/DVD Characters Postcard (Wilson, 2008 ©)

The original concept of 3D replication of important time slices of the heritage site translated to two different areas, one of which was the tours (animated walk-throughs of the building), the other was 'Ages of the Abbey'. In Ages of the Abbey, visitors are able to choose areas of the abbey and virtually 'walk' through the 3D space, using software such as Papervision 3D or Turntool.

Unfortunately, the complex model of the abbey meant the polygon count was too high for either of these tools; only parts of the abbey would render, providing a fragmented unusable image. To be effective, the 3D model would need to be rebuilt in a much simpler box method with images mapped onto the sides.

This would have taken too long for the seven-month deadline and although it would provide visitors with the ability to interactively navigate around the box model, it would not make use of the full structure that was architecturally built based on extensive research. The Ages of Abbey was, therefore, adapted to show the three main ages of the abbey, the build, its 'heyday' and the dissolution via rendered stills and animated walk-throughs (Fig. 30).



Figure 30: Rendered still of Beaulieu Abbey Apse with scaffolding in the Nave (Wilson, 2008 ©)

With the two abbey options, there were also categories provided as 'sticky' factors, to encourage the children to stay longer, return and possibly use at home for homework/fun such as: Quiz'd, Write a Story, Postcards, Fact Sheets and Lifestyles. The remaining ninth cube provided links to the main Beaulieu site. Each category had another nine cubed matrix for further areas to explore.

The design through to build process brought challenges, pushing concepts for certain areas, such as Ages of the Abbey, to reconsider for future updates or redesigns. The realisation of designs into practice highlighted a lack of skills in certain new technology areas such as Papervision3D, for myself and my design/developer contacts. The technology that would excite and engage visitors to interact with the history of the abbey was too new in 2009. A few specialists were able to programme the interactivity on a simpler scale for websites, but with the time and finance available, it was out of reach for the Beaulieu Abbey kiosk interpretation. Nonetheless, the kiosk interpretation provided visually rich 3D interpretation enabling visitors to experience the real scale of the Abbey, and convey stories of the lives of the monks, their craft and culture.

Working with the Beaulieu team involved privileged access to the curatorial team, the front of house staff and stakeholders. This access was mostly due to Beaulieu being a privately owned heritage site and a small team. Understanding the personal interests, abilities and skills of the small team helped to understand expectations, and who would be able to help at what point within the design and development process. Having completed the kiosk interpretation, reflection on design practice and processes in working with Beaulieu, raised several questions, one of which was whether the majority of curator/designer relationships have similar access to curators and decision makers for forming and understanding the interpretation's requirements.

### Interpreting Heritage information

Freeman Tilden, an interpretation writer and consultant for the American National Parks, considered the 'Father of Heritage Interpretation' (Veverka, n.d.) defined interpretation as:

*'an educational activity which aims to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information'* (Tilden, 1977).

Tilden started his career as a journalist (Tilden, 2007:p.xii), and, in his spare time, writing fiction novels and plays. He did not start writing non-fiction until his late 50's which was mostly regarding interpretation as a consultant for the National Park Service (Tilden, 2007:p.xv); his experience in writing about interpretation for parks initially only as a visitor. His perception and interpretation of heritage interpretation must, therefore, be based on his experiences visiting the parks, thus building his knowledge base.

One of the six basic principles of heritage interpretation listed by Tilden (1970) suggests information provided, such as the plaque mentioned earlier, is not interpretation, it is merely 'information'. Interpretation is the meaning the recipient invokes from blending the information being received with their own experiences. Veverka (2005) and Uzzell & Ballantyne (1998) describe heritage interpretation similarly. Veverka talks about interpretation as a method of 'Provoke, Relate, and Reveal' by using various types of media to convey a message, therefore a communication process; Uzzell speaks of 'hot interpretation', a term he uses to describe a necessity to provoke an emotional response via heritage interpretation.

Designing heritage interpretation is, therefore, seen as a communicative process; a means of providing a variety of media, possibly via a variety of methods, to convey information that will

spark an emotion or experience by those who view it. The information chosen, and the way it is presented should be a primary role of the curator and the interpretation designer. To be able to perform this role, the curator/designer would need to be an expert in communication, possibly with a passion for conveying information that awakens or provokes new or past experiences.

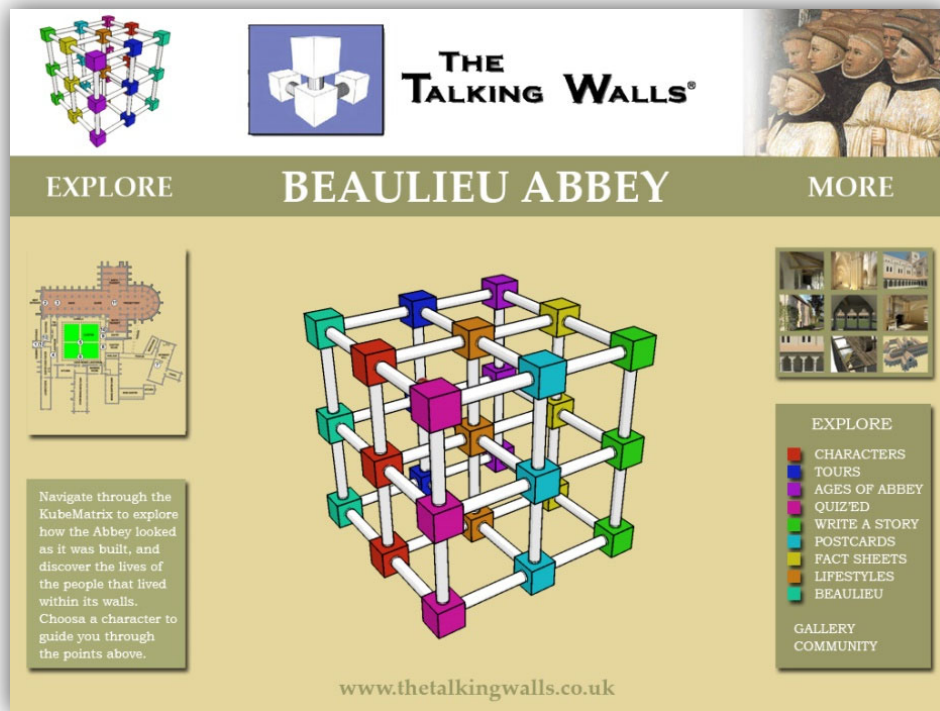


Figure 31: Kiosk Home Page for Beaulieu Abbey. (Wilson, 2010 ©)

Information provided at heritage sites also requires considerable thought on who the recipient might be for it to provide the 'right' experience. The experts, most often curators, have the task of sharing knowledge in ways that will engage a wide range of individuals, each with their own set of expectations and knowledge base. A single plaque of information, therefore, can mean much to a few, but little for many others. The Beaulieu Abbey kiosk interpretation was curated and designed to provide information to different 'levels' of the audience: children, adults and experts/enthusiasts via a matrix (see Fig.31 above). The visitor chooses which 'level' they wanted to 'experience', enabling adults to interact with information designed for children to understand, or in an in-depth academic format. The same stories of medieval monastery life and culture, stories of Royals, monks and sanctuary seekers are provided via different methods: fact sheets, illustrated stories, audio, animations, 3D environments and technical drawings.

Who the audience might be and how they might choose to engage with information was a prime consideration, as was the type of content that would keep them using it, exploring more about the site and the people that lived at Beaulieu. Different platforms for accessing the information was also a significant consideration; web, print, information panels, DVDs, kiosks and handheld PDAs<sup>18</sup> were the existing platforms available; the smart-phone was too new a platform both in graphic and data capability<sup>19</sup>.

The individual interpretations at the three case study heritage sites have been chosen and analysed to understand whether similar considerations are in place by the curators and designers at larger heritage sites and organisations.

---

<sup>18</sup> Handheld devices were being used at a few of the more innovative museums such as the Tate Modern but were not generally used at heritage sites

<sup>19</sup> Smartphones were available from 1992 in the form of IBM's Simon, personal digital assistants (PDAs) combined with mobile, arrived in 2000 with Ericsson's R380 'Smartphone'. Many versions of PDAs were available, primarily for the professional on the go. The full size touchscreen, single button devices 'Smartphones' that are commonplace now were not available until the release of the iPhone in 2007 (Martin, 2014), therefore a new innovation with the associated risks. Although the kiosk interpretation was designed for mobile as well as kiosk, it was considered too big a risk for use at Beaulieu. There were concerns visitors would walk away with the devices instead of returning them after use. There were also issues with file size for the multimedia content, both in storage and playback.

### 1.3.2. VIVA EXHIBITION

---

As a practice-led design PhD consisting of 60% thesis and 40% practice element, I considered it necessary to present the practice element via an exhibition. An outline of what would be included in the exhibition was planned, with the intention of the Viva examiners, Chair and Supervisory team being able to interact with the 3D models, 'walk-through' 3D scenes and explore the kiosk interpretation. The development material, assets and heritage site interpretations designed and worked on throughout the doctoral study would also be available to view and experience, on different mobile platforms and via VR headsets.

Unfortunately, these plans had to change due to the pandemic of Covid-19 and Lockdown. The content would, instead, need to be added to my 'Talking Walls-Reflection of Practice website, a blog site for my work and study over the last 30 years (links are shown in italics and underlined): [http://thetalkingwalls.co.uk/wordpress/?page\\_id=2](http://thetalkingwalls.co.uk/wordpress/?page_id=2).

A section has been added to reflect the thesis and the Beaulieu Abbey interpretation practice and development to form the 'exhibition' content that would have been displayed at the exhibition, minus VR content. The website will also have sections/posts and galleries to reflect the chapter sections of the thesis and additional supporting material such as information regarding the case study sites and outcomes from the case studies.

Content will, therefore, include the following in addition to the existing site material (not listed here):

#### **Research:**

##### *Case Study Overview Infographics*

- *National Trust's Lacock Abbey (2013 interpretation)*
- *English Heritage's Bolsover Castle (2011-12 interpretation)*
- *Historic Royal Palace's Kensington Palace (2012-13 interpretation)*
- *Heritage Organisations - Overview*

#### **Practice:**

##### *The Talking Walls – Beaulieu Abbey Kiosk Interpretation*

Beaulieu Abbey - Material, Design and Research

- Practice - Historical and Visual References: [*Fowler's Sketches*, *Beaulieu Abbey*, *Medieval*, *Cistercian Monks*], *Models*, *Characters Music*, *Storybook of Characters*,



Characters' Stories, King John's Tour, Animations for how parts of the abbey were built, 2006 Walkthrough, 2008 Updated Walkthrough, development sketches & notes

- Launch: welcome speech, demonstration speech, questionnaires, photos of the event
- Post Launch: Feedback, Organisation of Interviews, Interview Sheets & Interview Transcripts

#### Beaulieu Abbey Progression

- Kiosk Application – updates from Flash application to HTML based application
- Mobile & Tablet Application – now available on mobile devices via the current Adobe Flash based website: The Talking Walls – Beaulieu Abbey Kiosk Interpretation
- New Unreal scene – updated Beaulieu Abbey model brought into Unreal to create a platform for multiple outputs, this is still work in progress and can be viewed on this gallery link: [http://thetalkingwalls.co.uk/wordpress/?page\\_id=3643](http://thetalkingwalls.co.uk/wordpress/?page_id=3643)

#### Further projects applying practice and knowledge:

- Hyde Abbey: video tours, Abbot Aston Tour storyboards, Contemporary Tour storyboards, 3D views/models, visual research, Contemporary tour, Abbot Aston tour, Abbot Aston Life Anecdotes and History Anecdotes
- Virtual Malmesbury: Malmesbury 3D Views [Unreal Game Engine], Malmesbury Videos
- Virtual Winchester: Draft proposal, initial reference images

Reflection on Practice - Blog Site highlighting stages of development of the original and subsequent models, scenes and platforms

#### Contribution to Knowledge

Outcomes, models, frameworks, practice led research, new applications, international use of the 3D Beaulieu Abbey model for other academics' research within the thesis chapters will be added to the website after Viva examination.

- Proposed new CHSID model diagram, CHSID process diagram and sheet for printing as laminated cards.