THE CHANGING PLACE OF INFORMATION

An examination and evaluation of how the context in which an object is set affects the information which it conveys.

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ABSTRACT

This research examined how the context in which an object is placed affects the information that person viewing the object gleans from it. It used objects displayed in museums as they were easily accessible and were a ready source of a variety of types of display and information.

It used the concept of 'object as document', initially developed by Paul Otlet and Suzanne Briet and further developed by Michael Buckland and Kiersten Latham, who also specifically set out how a museum object can be a document.

It gathered data using observational techniques with an application developed using FileMaker database software which could be used on an iPad and which can easily be adapted to different situations. Museum curators were also interviewed about how they displayed objects and what information they believed it was important to make available in order to help visitors understand these objects. Similarly, they discussed what was important to leave out. This research backed up their ideas regarding the level of displayed information.

It found that context does make some difference, especially if that context is an unexpected or unusual context. However, it also found that the familiarity or relationship of the object to the person was equally as important.

The quantitative data collected regarding information directly displayed or intrinsically with the object supports the concept of object as document.

Chapter 1. INTRODUCTION

1) Rationale For This Research

The history of museums is well documented, as for example in Bruce Robertson's paper 'The South Kensington Museum in context: an alternative history' (2004) but the reasons for their existence, what their primary function is, or ought to be, and why people visit them are all questions to which the answers continue to be in a state of flux. At first it appears to be a very simple argument. Which is more important? The object or the visitor? (Jung, 2011)

That there is a degree of relationship between objects and people must be obvious to even the most casual of observer of human life. We buy things in shops, we find things in the street, we make things, we take things home, we carry things about with us, we compare our objects with those of other people and we carefully place a value on the different objects we possess.

This relationship between humankind and the objects it possesses has a long history. Whilst it must be acknowledged that some societies and some individuals have rejected the accumulation of objects, the desire for possessions and the desire to possess more possessions has been a trait of societies all around the world ever since the first tools were fashioned from a piece of stone or a stick of wood. Archaeologists have used the objects unearthed from their excavations to learn about the societies and cultures which possessed them ever since the beginning of the history of archaeology. They have looked at the object and investigated its story and its biography (Alberti, 2005). These objects were then put on display, initially to demonstrate the skills and prowess of the archaeologist and to clarify and to help explain new theories of a particular culture or society upon similarly educated academics. Later, they were gathered together in a place which came to be known as a museum, so that the enthusiastic amateur and then even the vaguely interested might be able to discern something about somebody else in another era or continent.

It is therefore no great leap of imagination to consider that there must also be some sort relationship between objects which are on display in a museum and the people who go to museums to look at these objects. This relationship can most easily be measured by the interest a visitor takes in an object and it is this interest which has been the priority of visitor behaviour studies (Melton, 1972). However, whilst curators design object displays with an intended narrative in mind (Schreiber et al, 2013) as well as a particular visitor group, visitors bring their own stories, preferences and knowledge to the object as well (Melton, 1972).

This means that whilst the object does make a convenient form of reference for studying this interest it may not give the most significant object the most attention (Nielsen, 1946). Factors of display other than the object itself need to be taken into consideration and the reactions of museum visitors need to be observed as well. (Melton, 1972).

The relationship between object and the person looking at an object can have an emotional, intellectual and even physical aspect. This research holds that there is an informational relationship as well.

2) Setting for this research

The starting point for this research is the concept initiated by Paul Otlet and Suzanne Briet, and then developed and transformed by many other documentational theorists following them, that an object and, according to whose theory one follows, any object can be a document. A simple definition of a document being that it is something which shows evidence of something. Briet's three rules for this something being a document – that it has physicality, that it has intentionality (that it is evidence of something and processed in such a way so as to be treated as evidence) and that there is a perception that the person viewing it regards it as a document (Latham, 2012).

The premise of this research is that the context of an object in some way affects the information received about that object by the person who is viewing it. This leads to the implication that the object itself must impart information and that objects may be regarded as some sort of document (that is, if a document can be defined as something which conveys information).

This research takes the viewpoint that following Briet's rules a museum object, both graphical and non-graphical objects, are documents (Latham, 2012).

3) Research Questions

This research is investigating the following five questions:

- Does the context within which an object is set affect the information that object conveys? If so, how?
- Do the curator's notes, in any format, which are placed with the object affect the information that the object conveys? If they do, what effect does this have?

- Is there a difference in the information conveyed by similar objects set in their original context and those in a more artificial context? (For example, objects in a local parish church and in more tourist-orientated place of worship such as a cathedral.)
- Does context have any bearing on what objects are displayed within that context? (For example, would an art gallery display a reproduction of a well-known work if displaying the original were economically unviable or impractical for other reasons?)
- Does context affect the information seeking and retrieval process? If so, how?

4) Who Is This For?

This research aimed to show that the way an object is displayed affects the information that is communicated to the person viewing it. It is envisaged that this research will benefit those who curate museum galleries or are responsible for considering how objects might best be displayed to convey appropriate information easily and accessibly as, for example, those who work in museum education departments.

It also relevant to those whose research involves the collection observational data because it provides a flexible, simple and relatively inexpensive way of doing so which can be adapted to local needs or specific requirements as necessary with minimum training. It also allows results to obtained very quickly. It would particularly benefit the smaller institution with greater budgetary constraints and lower staffing levels.

It also adds evidential weight to the arguments in favour of the concept of object as document developed by Otlet and Briet and taken further by Buckland. The analysis of the quantitative data gathered in this research, showing how visitors react to the various information attached to the observed objects, illustrates that these objects at least can be documents.

Chapter 2. PRIOR STUDY

There have been many studies made on a wide variety of differing aspects of museums. These have mainly tended to focus on the visitor's relationship with the object and how the visitors behave, from an informational point of view, when they are looking at individual displays or wandering around a gallery. There has also been a wide variety of research and discussion on what comprises a document and the definition of documentation, Michael Buckland's concept of 'information as thing', either agreeing and adding to it or disputing it in some way.

The research regarding 'information as thing' is more widely discussed in Section 6 but two studies are discussed here. Insley (2008) examined the dioramas in the Science Museum, London of which there are over one hundred either on display or in storage. Whilst originally intended as three-dimensional models to explain the various methods and processes of farming and other types of human activity, she maintains that, by their own history, they have now become powerful tools for adding understanding as to how museums themselves work. The models might be dated, and the last time the researcher saw them they were also a bit rickety, but at the same time they are very good documents for historical activity. The models communicate information very well providing visual evidence for the methods depict, and in some they without the need for textual information.

Other objects with little or no text which can be regarded as information objects are Christian icons, religious pictures painted on wooden panels, which rely on the image of the saint or depiction of a religious event to tell the story and convey information. Their meaning is derived through the traditions of the artist, religious beliefs and the standard ways in which specific figures are painted. This allows the worshipper to understand the icon without the need to be able to read Walsh (2011). In a similar vein, tattoos may also be considered as documents which indicate a person's identity, experiences, status and actions (Sundberg & Kjellman, 2017).

Sookhanaphibarn and Thawonmas (2009) investigated the way that visitors physically move around galleries to look at objects, developing an algorithm which enabled them to categorise visitors into four different types. The 'ant', who spends a long time observing all the exhibits by walking closer to them and avoiding empty spaces; the 'fish', who prefer to keep moving and stop in the empty spaces but avoiding the areas near the exhibits; the 'grasshopper', who spends a long time at a few selected exhibits but ignores those which hold no interest and the 'butterfly' who looks at most of the exhibits but spends differing amounts of time at each

one. Visitor behaviour can additionally be used to measure their preferences – that is whether they were an 'object person', an 'ideas person' or a 'people person' (Schreiber et al, 2013). Dim and Kuflik (2014) examined the social behaviour of visitors in a museum. They used a system of sensors placed in galleries to measure and analyse how visitor pairs interacted with each other, other visitors, the exhibits and the points of interest in the museum. Their results were then categorised into six different types of social behaviour based on this interaction.

These studies, whilst trying to set out various visitor types, suggest that different objects and different methods of display, although in a very general way, attract the interest of different people and that there is an informational aspect to this interest. This is more than hinted at by Brida et al (2013) who were examining the reasons people may return to revisit a museum. Their results showed that first time visitors are there because of a degree curiosity or in order to complete the tourist tick-box, whereas repeat visitors come because they have strong desire to be intellectually and culturally satisfied. Both types of visitor are looking for some type of informational need to be fulfilled but repeat visitors recognise that an object may hold more information when observed on more than one occasion.

Tzortzi (2014) studied the physical movement of visitors within a museum and how that related to both the architectural design of the museum itself and precisely how the exhibits were set out within that physical structure. The study used observational techniques to measure visitor data and how they travelled from object to object and gallery to gallery. These were followed by interviews with curators and architects and an examination of the museum archives to understand museum intent.

The study by Brida et al (2013) may not suggest that differing methods of display may impart more information but there have also been studies which do suggest that objects may have a degree of intrinsic information which is either revealed or transformed by the way in which it is displayed. Chatterjee et al (2009) investigated the field of museopathy – bringing healing through direct physical contact with museum objects. They noted that some facts about objects such as weight, texture, temperature and spatial relationship to the body, could only be measured by touching them. They also noted that such interaction could provide the springboard for the patient talking about the emotional issues which were affecting them. Not all objects are displayed with the intention of the visitor being able to use touch as a means of gaining information, but those which do may reveal more about themselves.

Peart (1984) discusses an evaluation of exhibits in a gallery British Columbia Provincial

Museum which tried to determine which type of exhibit had the greatest effect on the museum visitor in terms of knowledge gain, attitudinal change, attracting power, holding power and interaction. After the pilot study, 616 first time visitors, chosen in order to avoid their responses being affected by previous experience. After they had had observed the exhibits they were given questionnaires. It was found that certain exhibit types do affect knowledge gain, especially those in the form of physical objects with clear and concise labels. Labels are vital, the research found, and will increase both the attraction of the visitor to the object and the object's holding power. There is also a correlation between this attracting and holding power and interaction which is enhanced by the presence of physical objects and liking an object, looking at an object and a degree of involvement with the object go hand in hand. Melton (1935) also investigated the use of labels and how where they were placed could affect the attention of the visitor. He used this to discuss the effectiveness of museums as educational institutions when the premise for this was based on a purely cause-and-effect hypothesis of the visitor taking notice of the object and information.

Rubino et al (2015) used a location-based mobile game, combined with storytelling, to analyse how a different approach to communicating information affected how teenage visitors to a museum explored the museum and acquired knowledge. However, whilst it was effective getting these teenagers to explore the museum it was not so effective in their learning about the objects.

Other studies have investigated the use of extrinsic information and the interaction between that information, the visitor and the object. Lazarinis (2011) evaluated the effectiveness of search engines on the websites of Greek museums; Best (2012) used a Workplace Analysis of museum tour guides to determine their effectiveness and Charitonos (2011) looked at the use of social media, specifically Twitter, to see if it could enhance the museum learning experience. Whilst Lazarinis' study showed that these search engines were not as good as they ought to be, both Best (2012) and Charitonos (2011) indicated that the use of tour guides and social media respectively added to the overall engagement of visitor with object and the shared construction of making meaning. These could all be used to enhance or modify the display method of an object and so be used to reveal more information about the displayed object.

The meanings an object has can change because of the relationships it has with the objects among which it is displayed and with the visitor who is viewing it and the curator who was responsible for displaying it. Whilst the curator may have their own agenda for displaying an

object in a particular way, the visitor brings their own feelings, knowledge and opinion about that object when they observe that object (Alberti, 2005). Charitonos (2011) states further that the key to learning (in a museum) is by constructing meaning through interaction with these objects.

This research is looking at the relationship between the visitor and object from the point of view of the object and using observed visitor behaviour as a measure of the information transmitted by the object. However, the methodologies used in the research mentioned above can be adapted for this purpose and the fundamental principles of relationship between information, object and visitor are still very much applicable.

Chapter 3. ETHICAL CONSIDERATIONS

This primary methodology of this research is observation of the museum visitor as they look at objects. This observation does not include any audio-visual recording of visitors in museums and does not include questioning these individuals. Whilst individual actions of individual visitors are being noted this does not include any personally identifiable information about individual visitors. Only very general demographic information for the purposes of comparison is being recorded and this is limited to noting whether they are a single adult, a group of adults or a family group. No observations based on anyone judged to be under 18 is being recorded unless that person is with an adult family. No galleries which are specifically aimed at under-18s are being included in this research.

The information is being stored on an iPad and being transferred to a laptop. No confidential information is being recorded or stored.

The study was conducted in accordance with City University's Research Ethics policy and received appropriate approval.

Chapter 4. CONTEXT

1) Definitions Of Key Concepts

In order to clarify this research, it is necessary to define the three basic concepts, namely:

- Object
- Museum
- Information

i. Object

In the most general of terms defining 'object' would appear to be straightforward and words such as 'physicality', 'tangibility' or 'visibility' spring immediately to mind. It soon becomes clear, however, that whatever definition is set down an exception to that definition can be found very quickly. For example, when do biological specimens become objects? Is it when they are still living and in place where they can be seen? Or is it when they are no longer living and have been preserved in such a way that they can be displayed? Are the constituent parts of objects themselves objects when they only exist as part of the overall object? Are, then, atoms objects? Or more theoretical things such as gravitons?

The Merriam Webster online dictionary (2020) gives a number of definitions which are pertinent to this research. Firstly, that an object is something material that may be perceived by the senses; secondly, that it is something mental or physical toward which thought, feeling, or action is directed; thirdly, that it is a thing that forms an element of or constitutes the subject matter of an investigation or science

This research is focussing on museum objects, very simply – things which are put on display in museums but even in the field of museum studies finding a definition of 'object' is awkward. In fact, just as awkward as finding a definition of 'information'. The range is wide and ambiguous with different academic disciplines having their own definitions. For example, archaeology and history both refer to 'material culture studies' as important subject matter but neither recognises the other's definition (Latham, 2012).

In terms of this research, perhaps the most relevant definition of 'object' is Michael Buckland's concept of an object as 'information-as-thing'. Put simply, objects have the potential to communicate information but, in addition, without having the physical object available some

information would not exist. He cites the example of fossils, in particular dinosaur bones, as being physical evidence of the past. They can be both collected, stored and retrieved, and examined as information or for the basis of becoming informed (Latham, 2012).

This process of interpreting a museum object in terms of information-as-thing may be done in a number of ways:

- The visitor relates what they see they displayed in front of them with a degree of already acquired knowledge or background experience
- The museum curator displays the object by combining a number of different perspectives so that an emotional response is provoked in addition to information being conveyed
- The museum displays the object not just with an educational intent but in order to provoke the visitor's interest in some other way
- The museum displays the object in such a way that the overall picture is made available rather than just as the parts which constitute it (Wood and Latham, 2009)

ii. Museum

Although museums such as the Musei Vaticani and the British Museum have been around for several hundred years, the '*modern museum*' really has its origins in the mid twentieth century (Hatton, 2012). The precise functions may not only vary from museum to museum but have also changed over time and are continuing to change. Welsh (2005) summarises this as:

- What museums have been: Repositories; Educational; Celebratory
- What museums are becoming: Stewards; Learning Centers; Collaborative
- What museums could become: Conceptual; Reflexive; Complicitous

In the period leading up to this, the debate on the purpose of museums was considerably polarised (Hatton, 2012). On one side was the grand Victorian gesture of the desire for the education of the general public, such as the founding in 1857 of the South Kensington Museum (now the Victoria and Albert Museum) out of the Great Exhibition of a few years earlier, and on the other the equally grand gesture of want to '*disseminate high culture as a civilising counter-balance to industrial society*' (Snape, 2010). At that time, museums could be one thing, but not the other (Hatton, 2012).

The function of the museum of the early twenty-first century, however, is even less easily defined. What museums do has changed and rather than be simply limited to a single purpose museum are more likely to define themselves as having a broad range of functions. Some of these are:

Having A Defined Location

Being a museum is not just about its function but also about whether or not the institution is referred to as a museum. The John Hunter museum, for example, was not called a 'museum' until the collection was moved from Jermyn Street to its Leicester Square location in 1783. Even though it had previously been placed in a distinct and separate room behind Hunter's house the concept of accessibility was becoming of increasing importance to the definition of a museum (Chaplin, 2008). The differences between private collector and public display were being widened as the general public became more interested in seeing what was on display.

Collector, Conservator And Displayer Of Objects

These are perhaps the more recognisable of the functions of a museum but nonetheless there is a change in the balance placed on the importance between the object and the viewer. The traditional viewpoint is expressed by David Wilson, a former director of the British Museum, who states that museums are all about the objects. The first duty of the curator is to look after these objects and the second is to make these objects available to whoever wants to see them (Chatterjee et al, 2009). However, over the last fifty years Kenneth Hudson (1998) notes that there has been a fundamental shift towards emphasising the role of the viewer of the objects (the museum visitor) over the objects themselves with an increasing belief that museums exist primarily to serve the public and that there is a continuing search to make museums relevant to contemporary society (Hatton, 2012).

There are still arguments on both sides: for the more traditional approach, which is regarded as a narrower way of looking at things, or an approach which is equally based between relevance and scholarship (Hatton, 2012). A museum which veers towards one extreme or the other either by losing all focus on its role as collector and preserver, or by the belief that such a function is all that is needed to justify itself '*does so at its own peril*' (Hatton, 2012).

Educational

In the broadest sense of 'education' all museums have a tendency to educate – that is to offer some piece of information either to the visitor or to the curator. However, the arguments which apply to the object-based or visitor-based museum also apply to the educationally based versus aesthetically based museum.

At one time, collectors, such as Sir Henry Wellcome, selected objects on their significance to the scientific development of mankind (Albano, 2007). Industrial collections, such as those originating from the Great Exhibition of 1851, were about creating the applied knowledge of technology (Snape, 2010) in order to educate the wider public.

At the beginning of the twentieth century there was a feeling that two distinct categories of museum should exist – one concerned the aesthetic and the other with the utilitarian. However, there were some curators who believed that industrial collections could not be defined as museums as the main purpose of museums was to preserve high culture by the display of fine art. Even the Museums Association felt that instruction was unnecessary because the achievements of art could be appreciated by anyone (Snape, 2010).

Carol Duncan (1995) distinguishes these two types of museum by stating that the educational museum caters to the masses with displays that are specifically intended to teach, and the aesthetic museum which targets a more educated public looking for '*sophisticated knowledge and undisturbed contemplation*'.

There is also a subtle difference in the definition of museum which focusses on learning rather than education. That is, what a museum does is changing from being something functional, which dictates to its visitors what they should be getting out of their visit, to recognising that learning is something is part of a wider social purpose (Barbosa & Brito, 2012). Jung (2011) further suggests that museums should be regarded as '*ecosystems embedded in a larger society interacting, transforming, and influencing people in the community*'.

Repository For National Culture

Slightly overlapping the ideas of education and social purpose, the origins of the museum can be traced to the political developments of the eighteenth century. These allowed society to be easily moulded with the values and norms by which that society wished to present to the world (Wilson, 2010). In the eighteenth and nineteenth centuries museums demonstrated the superiority of their national culture with the objects which it put on display and the manner in which these objects were displayed. For example, King Ludwig of Bavaria

constructed a building known as the Walhalla (the Temple of the Gods) in which he displayed busts of the most important German national figures in the fields of science and arts (Albano, 2007).

The importance of highlighting national culture is also important if the institution is competing for funds by setting itself up as cultural institution and the consequent need to meet targets and other various performance indicators (Simpson, 2017).

Academic Institution

Many university collections started out as a way of augmenting teaching and they could be used both for research purposes and to showcase the research that institution is currently undertaking (Simpson, 2017).

Forming Community Identity

In the same way that museums can be used to demonstrate national identity, local museums can be used to illustrate community identity and even shape it. They can reinvent a community by choosing what objects they choose to display and assist with urban renewal and in reinventing the community's image. (Rowland & Rojas, 2006)

Meeting Of Objects And People

There is also some thinking that in an age when the physical so often takes second place to its virtual counterpart that museums can be places where the interaction between objects and people should be encouraged (McCarthy, C., 2007).

Social Inclusion And Outreach

Museums may also have a function in making themselves relevant to all sectors of society and deliberately trying to persuade those who would not normally visit museums to come through their doors. Museums, Corinna Gardner notes, are intended for everyone and it is important to be able to communicate information about the objects and exhibits. She also spoke about the need to attract visitors and the challenges faced in trying to be popular and less sophisticated. However, she still believes that museums offer complex encounters with each visitor bringing their own level of complexity to that encounter with the object. If one is direct and has straightforward information it is not necessarily catering to the popular but may actually enrich the experience of the museum visit. In the same interview Johanna Agersson also mentioned that some smaller museums in Sweden are charging a nominal fee where people can go for a casual visit and have started to be a place for a special occasion. She further mentioned that the busiest days in the V&A are when it is raining (Gardner & Agerman Ross, 2018).

The staging of events and exhibitions in museums can also '*strengthen community ties*' and reinforce '*a sense of belonging*' Barbosa and Brito (2012).

At Compton Verney Stately home in Warwickshire, director Steve Parissien indicated that they need to work hard at breaking down the barriers to participation and get rid of the perception that it is not for everyone. Feedback showed that the gallery should concentrate on people and not be too object focussed; people wanted to be entertained rather than be lectured about art and not be told 'here is what you ought to know. (Stephens, 2014)

Reflection Of Economic Society

Social inclusion works up as well as down and for the Sydney Technological Museum in the mid-1930s this meant trying to attract more than the 'working-man' which had been its original target audience. Its purpose was

> '*to investigate the economics of the natural products of Australia, illustrate the industrial advance of civilization, and promote craftsmanship and artistic taste*' (Hicks, 2005)

Cultural Inclusion

Any institution which is trying to be more socially inclusive in these times must by necessity be relevant to more than just the dominant culture which prevailed at its founding by offering a number of different cultural viewpoints (Chandler, 2009). There need to be other cultural viewpoints from different strata of society.

Johanna Agersson (Gardner & Agerman Ross, 2018) spoke about the David Bowie exhibition at the V&A which had opened up a lot of recent history to a large number of people. It had made them think again about objects intended to be for the moment (David Bowie's stage costumes) which have the potential to be kept and appreciated for ever.

Socio-Political Purpose

Museums can also have socio-political purpose which is to widen the understanding of historic events by allowing human experience to have an equal part in telling the story. Instead of only incorporating scholarship into the displays they can let the objects speak for themselves. The National World War I Museum in Kansas, for example, has kept history and experience together with the aim to remind people of the fragility of peace and the cost of war itself (Conn:2010, p.44).

Stewardship
With greater consideration being given to post-colonialism feelings and the repatriation of culturally sensitive objects museum have been exploring the possibilities of building relationships who have a connection with the displayed objects rather than regarding the objects as museum property (Welsh, 2005).

Celebration Of Objects
Museums are highlighting their role as holders of 'precious things' by advertising exhibitions using the words 'masterpiece', 'treasure', 'peoples' or 'lost' (Welsh, 2005).

Library
The increased use of digital resources and digital versions of their collections has led to museums taking on some of the functions of libraries because these have blurred the boundaries between museums, archives and libraries (Marty & Twidale, 2011).

Ritual Space
As society becomes more educated and more socially inclusive, the museum can take on a role which Carol Duncan describes as '*ritual spaces whose setting is a kind of script or scenario which visitors perform'* (Duncan, 1995). This is perhaps best visualised with the tourists who visit a museum, or other cultural institution, take a photograph and perform the 'done that' script.

iii. Information

The term 'information' may be interpreted very differently depending on which 'ism' is defining it. Computer Science may see information as binary data, comprising various groupings of ones and zeros; history may see information as a set of proven facts which define the past and philosophers may see information a very fluid concept. These definitions may be so dissimilar that any comparison is rendered useless but must '*somehow embrace information as a material object, as an individual cognitive effect, and as a social institution*' (Raber & Budd, 2003).

However, it cannot be properly defined in terms which encompass a purely abstract concept. Information does not exist in isolation but interacts with the physical world around it just as the various elements of nature and society interact within the context in which they are situated. In the natural world this interaction is a mental process, the 'mind', which is dependent upon the various aspects of human neural biology through which bits of information are compared and transformed. A bit of information, defined by Bateson as '*a difference which makes a difference*' (Jung, 2011) therefore starts to assume a degree of

physicality. Walsh (2011), perhaps more understandably, further suggests that digital information has similar physical and interactive qualities.

This concept of information as something physical and tangible, perhaps the most relevant definition in terms of objects in museums, develops Buckland's ideas of '*information as thing*'. That is, there are objects which by themselves communicate information in some way or whose communication of information is expressed in a physical way. Insley's dioramas are a good example. Information-as-thing may include data, objects, events or text and documents (Latham, 2012).

In addition to information-as-thing, Buckland sets out two more ways in which information may be defined. The first is information-as-process, the process by which information is conveyed or communicated from one entity to another, and information-as-knowledge, what is perceived by this process, the '*difference*' (Latham, 2012).

These three uses can be equated to Peirce's concept of the semiotic triangle, the process by which information is created by a person (process) who make some connection between the object and the information which results in the sign (Latham, 2012). For Peirce the object can only be understood within the context of the interaction between it and the information used to describe it.

However, 'information' cannot be defined without taking into consideration a definition of 'communication', the process by which information is transferred from one entity to another. For Buckland, communication refers only to information which is intentionally communicated and names three types:

- Direct, by which the message is communicated directly from the source to the recipient
- Indirect/store-and-forward, by which a stored signal is forwarded to the recipient
- Indirect/store-and-retrieve, by which a stored signal can be retrieved at will by the recipient (Latham, 2012)

Alongside 'information' and 'communication' lies the concept of 'retrieval'. If communication is about intentionality then this assumes that the receiver somehow needs to extract this information in order to make use of it and so has a number of options:

- sensing information
- asking for information
- searching for and retrieving information

- preparation for retrieval through collecting and arranging
- creating, recreating, and transforming information. (Latham, 2012)

Such retrieval systems are of interest, Buckland notes, because what actually happens to the message cannot be determined. The provider of the information system controls which messages are stored and which are made available whilst the users control which messages they wish retrieve and use (Latham, 2012).

The museum and museum visitor demonstrate this information retrieval system very well. The informative material are the objects which are selected, collected, arranged, described, retrieved, displayed and interpreted; researchers use museum collections to make new discoveries and visitors learn things that they did not know (Latham, 2012).

2) Scope Of Key Concepts Within The Context Of This Research

In order to put some boundaries on this research, it was decided, that in terms of this research, to limit the definitions of 'object', 'museum' and 'information.' In addition, limitations were placed on the definition of 'demographics' and 'context'.

i. Object

Anything with physicality which is also visible without recourse to additional technology unless that technology is overtly provided as an intrinsic part of the display. This therefore excludes digital objects and digital representations of objects which are intended as displayed objects in themselves or as part of another object. It can, however, include reproductions of objects if it meets the above criteria for physicality. This research is not examining objects which exist only in online museums.

ii. Museum

An institution which calls itself a museum, whether or not the name of institution includes the word 'museum'. It should be open to the public, whether or not they pay to gain entry, and should have objects on display for the purpose of being viewed. Its functions may include one or more of those listed in the previous section but may include others not listed.

It can include art galleries but not if the primary purpose of that gallery is to sell the objects it displays.

For logistical reasons this research was limited to examining the following:

- The Victoria and Albert Museum
- The Science Museum (South Kensington)
- The Natural History Museum (South Kensington)
- The British Museum
- Museum of Childhood
- The New Parthenon Museum, Athens

iii. Information

This is data, either physical or digital, communicated directly to the observer of the object either intrinsically as part of object itself or extrinsically via curated information. Extrinsic information may include overtly referenced online information, or information from other sources, such as museum guide or website which is able to be easily accessed whilst in the direct presence of object. It is not included if no reference is made to it as part of the object display.

This information may include, but is not limited to, text, video, audio, audio-visual, taste, smell or touch.

iv. Context

This refers only to the method of display of the object within the museum. This may be in a glass case, freestanding, a Single Object, grouped or themed, or displayed in such a way that the visitor can walk within the object, as for example, a room. These contexts are set out in description of the database table 'Object Description' in Appendix 1.

v. Visitor

A visitor is defined as a person who comes into a museum, who is not in paid or voluntary employment by the museum, or on any other type of museum business. The visitor may or may not have come into the museum to look at the objects as their primary purpose.

vi. Demographics

Whilst this research is about objects, it inevitably means that people are being observed in order to get a measure of the object's information from their reaction. However, in order to meet the ethical guidelines, the observations of children unaccompanied by adults are not

being measured. The different demographic groups are set out in the description of the data base table 'Object Observation' in Appendix 1.

3) Methods Of Display

i. Glass Case Object

A Glass Case Object is defined as an object completely enclosed in a glass case so that the user from having direct physical contact with the object. There may be intended interaction in other ways, such as the ability to press a button which initiates some function of the object. A Glass Case Object may be a Single Object or Multiple Objects which may reflect a general theme or the context of the object.

ii. Freestanding Object

A Freestanding Object is one in which the object is either completely unenclosed by any sort of barrier or is symbolically enclosed by a rope barrier or other means, such as a 'do not touch' sign designed to prevent damage by the visitor. It is theoretically possible for the visitor to have direct physical interaction with the object whether this intended or not. It may be a Single Object or Multiple Objects which may reflect a general theme or the context of the object.

iii. Inhabited Object

An Inhabited Object is one in which it is the environment that is intended as the display and in which it is possible for the visitor to physically inhabit, such as room. In this case every individual within the defined display space comprises one object.

iv. Themed and Non-Themed Objects

A themed object is one which is displayed with one or more other objects which illustrate a consistent theme. For example, a series of vases. These may be displayed either in a glass case or be freestanding. Objects which are not themed are deemed to be non-themed.

v. Objects Set In Context and Not Set In Context

An object set in context is one which is displayed with one or more objects which illustrate to some degree the original setting or background of the object. For example, a vase might be displayed alongside the tools and materials used to make it or next to items from the same geographical location or period in time. These may be displayed either in a glass case or be freestanding.

vi. Unrelated Objects

An unrelated object is one which is displayed with objects that are not connected with it at all or the most very tenuously. These may be displayed either in a glass case or be freestanding although no distinction between these two categories is made in any observational data.

Chapter 5. BACKGROUND

A literature analysis was undertaken to examine the relationship between information and documents, gallery design and the museum visitor. In particular, in the case of documents, it was examined how an object might be regarded as a document, how the context of an object from its more usual setting might change its status, how museum objects might be regarded as documents and how objects can tell a story, whether that story is either immediately apparent or requires some supplied basic information. For gallery design, methods of design from the past and present were examined with an analysis of Montagu House, the former site of the British Museum, and the Parthenon Gallery at the present-day British Museum. For the museum visitor the ways in which they can extract and derive information both in a general way and from museum objects.

1) The Relationship Between Information and Documents

i. The Object As A Document

Documents, and what they represent, how they are defined and represented and what information they can convey, have a long history. The oldest documents of all are those which comprise speech or even gestural movements of the body, those which are perhaps the defining parts of a culture or religion. One thinks of examples such as raising one's hand to signify assent or placing one's hands together in Christianity to signify prayer. These documents, however, could only be stored or preserved through the memory of individuals who passed them down to the next generation. This meant that there was always the danger that these oral or gestural documents could become altered in some way as the memories of each generation were slightly at fault (Lund, 2010).

From the time the word 'document' came into general usage, until the seventeenth century, document primarily meant something which instructed or educated. Whilst it referred to something tangible or something written down it could also include a spoken lecture or instruction (Lund, 2010).

By the time of the Enlightenment the definition of a document had become a little more rigidly defined. First and foremost, it was something written down to state and prove transactions, agreements or decisions. These documents became the way of proving that something was true. This included both whether what was written down in the document was true but also whether the actual written documents were themselves authentic. By

drawing on the existing educational concept of the document, these documents were ways of delivering information – that is a piece of writing which was able to convey something. These ideas about documents came together and merged into the concept of written and true knowledge. In the eighteenth century being able to prove the rights and claims set out in these documents was an essential part of the development of society (Lund, 2010).

By the later part of the nineteenth century Paul Otlet was developing the definition of the document and broadening its meaning. He saw documents as statements of facts which represented various details about the world. If these documents were all assembled and classified, which he started doing together with Henri La Fontaine to create the Universal Bibliographic Repertory and Universal Decimal Classification, these would be able to reflect the entire world (Buckland, 2018). Unlike the Cabinets of Curiosities of the sixteenth century which were assembled to show the social-intellectual aspirations of the person displaying them (Berryman, 2018), Otlet's collection was purely about information.

In his *Traité de Documentation* of 1934 Otlet described sculptures as three-dimensional documents. Whilst written records represent ideas and objects, the objects themselves can also be regarded as documents if you can be informed by examining them. As further examples, he used natural objects, artefacts and other objects which bore traces of human activity. Archaeological finds from a flint knife to jewellery all have their own story to tell about their relationship with the people who owned them and about the people who owned them (Lund & Buckland, 2008).

Buckland (2018) thinks that this definition is somewhat broad and, that if it is the evidential part of a document which is important, then defining a document in such a way with all material things being documents is rather unsatisfactory. He states that Otlet's definition in *Traité de Documentation,* which starts with a definition that includes photographs, films and statistics, then continues to include natural objects and later on microscopic slides and museum objects is too all-encompassing. At the same time, Otlet is using the term 'document' in place of other more precise terms such as 'manuscript' or 'specimen'.

Suzanne Briet developed Otlet's concepts of document and also of bibliography. In her understanding of object as document she used the word 'indice', which can be defined either as 'indication', 'sign' or 'indexical sign'. Rather than being a document itself, an object directs the viewer to information about itself (Latham, 2012). Bibliography and documentation were about access to evidence and Briet cited the definition of a document by the French Union of Documentation Organizations:

> *All bases of materially fixed knowledge that are capable of being used of consultation, study, and proof*

before proposing her own more refined version:

> *Any concrete or symbolic indexical sign (indice), preserved for the purposes of representing, reconstituting, or proving a physical or intellectual phenomenon.*

For Briet, the important factor in deciding whether or not an object was a document was whether it had been catalogued to provide evidence about the object's existence. A document, she stated, is evidence in support of a fact and can be any physical or symbolic sign, preserved or recorded, intended to represent, to reconstruct, or to demonstrate a physical or conceptual phenomenon (Buckland, 2018).

Her most famous example is that of the antelope. When it is running wild in its natural state, Briet believed it could not be a document. When it is captured and then taken to a zoo, or even killed and stuffed, it then becomes an object for the purposes of studying its biology and environment or placing in a taxonomy. When this happens, that is, when it can be properly catalogued, the antelope can be defined as a primary document (Buckland, 2018). As the location and audience of the antelope changed so did its meaning (Alberti, 2005). Disregarding any Western socio-political arguments, this idea for when an object is a document seems to loosely echo the philosophical adage regarding the noise a tree does or does not make if it is not seen to be felled. It is the place in which the object is displayed, then, which makes it into a document and the logical step in thought when we consider museums where we can begin to make connections between one document and another (Frohmann, 2009).

David Judd (2018), made an interesting comment about his time at the Horniman Museum when school children would come in and see the stuffed and preserved animals. After getting over the initial surprise that he had not personally killed and stuffed them all, the second thing that caused amazement was the size of the animal. Having seen the animal on television or in some graphical representation they knew what it looked like but were unable to judge the scale. These were examples of natural objects being documents when seen in a curated environment because, at the very least, they informed the viewer about their size.

Frohmann (2009) similarly questions Briet's notion of when an antelope can be seen as document and when it cannot. Like Buckland, he looks at the definition of document from a semantic and philosophical point of view. Buckland raised the issue of the status of stuffed

birds in a cabinet in Berkeley's Museum of Vertebrate Zoology. If they were there to support the education of students should they not have the same status as books on a library shelf? A fully inclusive view of information systems should include museum objects as well as printed and electronic material. At the time, though, (the late 1980s), the field of information studies was not ready to include dead birds as information (Lund & Buckland, 2008).

The concept of object as document as set out by Otlet and Briet has three strands. The first ties in the evidence of the object to the existing definition of document which allows this definition to include physical objects as well; the second strand, based on this link between evidence and document, allows the definition to include physical objects as well; the third strand is that documents invite us to make statements about that which the document-as-object provides evidence.

Briet herself proposed three rules for suggesting when an object may be a document which does not encompass all objects. Firstly, that the object has physicality; secondly, that there is an intentionality that the object is evidence and that the object is processed in such a way so as to be treated as evidence; thirdly, that there is a perception that the object is a document (Latham, 2012).

However, the field of document theory and the debate on the nature of documents have expanded considerably since the time of Briet and it is important to set out a number of other definitions and opinions.

Document theory, according to Buckland (2018), is the field which examines the concept of a document and how it relates to the areas of communication, documentation, information, and knowledge.

Related to document theory is the term 'document society', a term coined by Buckland (2017) to replace the term 'information society' which he believes is incorrect as all societies are, and have been, dependent on the sharing of information. The significant societal change has been the increasing prevalence of documents and its increasing dependence on recorded statements (Wilson, P., 1983).

'Information Science', which in light of Buckland's rejection of the term 'information society' might be better renamed as 'document science', is concerned with the generation, collection, organisation, interpretation, storage, retrieval, dissemination, transformation and use of information, with an emphasis on the application of technology. In 1968, though, the American Documentation Institute changed its name to the American Society for Information Science and a few years later set out its own definition of information science:

> *As a discipline, it seeks to create and structure a body of scientific, technological, and systems knowledge related to the transfer of information. It has both pure science (theoretical) components, which inquire into the subject without regard to application, and applied science (practical) components, which develop services and products* (Hjørland, 2000)

This abundance of documents requires a degree of organisation and Buckland (2018) sets out a definition of 'knowledge organisation' which he states is concerned with the description, representation, organisation, discovery, selection and retrieval of concepts and knowledge. Since, in practical terms, it does this through representations of these concepts through documents, an understanding of the nature of documents is important in knowledge organisation.

Looking at 'knowledge' as a word, it can have a several meanings which can be used both in an abstract way and in a material way (Buckland, 2018). So, what we know is not a document, but knowledge that has been recorded in some way, is a document. Nevertheless, he makes the point there is a teaching role implied by the root of 'docere', from which we derive our word 'document', which is important.

He explains this by stating that if he is reading a document for the first time he is not remembering a document and recalling its knowledge, nor is he just the recipient of some piece of transmitted knowledge. The document's creator presumably had the intention of communicating of whatever knowledge was set out in the document even if it is not immediately clear to him (Buckland). His intent could therefore be regarded as learning because he is becoming familiar with what is already known by others and, through that existing knowledge and his own intellectual purposes, is discovering new things from the evidence already set out.

Buckland (1991) addressed the wide variety of uses of the word 'information' by suggesting that most of them could be sorted into three categories:

- Information-as-knowledge, meaning the knowledge imparted through communication
- Information-as-process, the process of becoming informed
- Information-as-thing, denoting bits, bytes, books, and other physical media.

The third category, the most frequent use of the word 'information', includes any material thing or presentation (such as a radio announcement or television documentary) perceived to be instructive. In this third sense, 'information' becomes a synonym for a broad view of 'document' (Buckland, 2014).

Buckland (2014, 2018) also identified three origins of documents and the viewpoints from which they arise. The first of these is the conventional, material viewpoint: a graphical record is specifically created as a document, in general by making some form of inscription, which may be written, drawn or in another way, on a flat surface. Whilst this could include items from legal documents to clay tablets there are wide opinions on where precisely the boundary for inclusion in this category lies and some people have included terrestrial globes and sculptures.

The second of these is the instrumental or functional view: an object is made into a document or presented as document with the aim of providing some sort of evidence for something. This could include objects such as architectural models and natural history collections.

The third of these is the semiotic viewpoint which includes any object, whether included in the first two viewpoints or not. It is regarded as a document by those who are looking at it, even if its original intent was not to be a document or to provide evidence of something.

He emphasised the importance of this perception of an object as a document as the person who is perceiving the document may hold the object to be evidence of a held belief, even if that belief is held by others to be incorrect, out-of-date or a misrepresentation. The perceiver with this belief can, in essence, be regarded as the creator of the document even if they have not created the object providing the evidence (Buckland, 2018).

Buckland (2018) expanded this role of documents as providers of factual and truthful evidence. Some knowledge is factual and some is truthful, but he suggests there are examples of fictional narratives whose intent is teach lessons of morality and there are other examples of documents such as recordings of musical performances which use a more rhetorical sense of the meaning of 'docere', that is 'show', 'tell' or 'demonstrate'.

He uses the example of Aesop's fables, stories about animals who behave as human beings which conclude with a piece of moral advice ('the moral of the fable is…'). It is this statement of teaching which makes these fables into documents in the rhetorical meaning of 'docere'. Medieval Europe had a four-level classification for such texts used in teaching. The first was its literal meaning; the second was an allegorical and symbolic interpretation; the third was how the reader of the fable understood where their moral duty lay from the advice given in the fable; the fourth was a religious meaning for the reader intended to inspire them to some degree of spiritual meditation.

Not all books and stories, though, can be regarded in this way. There are some books, and other forms of light entertainment, whose primary purpose is amusement rather than as

something intended for teaching or learning. He states that there are two possible choices. The first is that just because something is made in the form of a document but lacks any claims to evidence or factual truths it should not be considered a document; the second is that even if there is no such evidence or factual truths contained within the item being considered a document then it is possible to accept that its narrative and consequent emotional effects are implied by the rhetorical senses of 'docere'.

It is this process of making meaning from an object which allows the museum visitor to become informed. This change in their knowledge, their 'becoming informed' indicates the object has provided evidence of something and can be described as a document (Latham, 2012).

Gorichanaz (2019) concurs and states that a document is formed when a person and an object encounter each other and the experiences of this person and this object come together. He describes four types of encounter when this can happen. The person provides abtrinsic or adtrinsic information, that is information regarding their psychological and physiological state or their past and social life; the object provides intrinsic information or extrinsic information, that is information regarding its physical properties or attributed properties. When these four types of information are processed by the person they come together to make documental meaning.

He also notes (2017, 2019) that just because someone physically encounters a piece of information it does not mean they become informed and he quotes Norbert Wiener (1954, p.18):

> *communication and control [of information] belong to the essence of man's inner life, even as they belong to his life in society*

Just because the object adheres to Briet's rule of the intent to be evidence, and its placement in such a way so it can be treated as evidence, does not make it a document if the visitor is not in receipt of that evidence whether that is based on a lack of understanding or lack of interest.

Buckland's question 'What is a document?' poses rather a more fundamental question for Frohmann (2009) regarding the very nature of what definitions are and if is it actually possible to consider the nature of documents without having defined what they actually are. He argues that the idea that things can be documents if they are set in places where they can provide evidence for particular propositions and ideas is very broad and that Buckland's arguments on 'information as thing' (Buckland, 1991) demonstrates that anything can be a document.

The role of an object set in a specific place is not just to provide evidence. Frohmann (2009) believes that definitions can be applied, and even enforced, for specific purposes but if they are not necessarily already in existence there is no compulsion to provide them. This applies even when there is a level of ambiguity in the language used to describe these things. He suggests that instead of starting with the definition, we start with an object which is agreed to be a document and then add new instances by their similarity and resemblance to that object or by analogy.

Buckland (2014) argues against Frohmann's statement by noting that the definition of what may comprise a document has to evolve, particularly with the development in technology which is transforming the nature of documents. He uses the example of a passport which at first glance appears to be a relatively straightforward example of a document. When examined more closely it can be seen that it contains a mixture of media which provide the evidential information. It contains text, images of the passport holder, state seals, various pieces electronic information to help further validate the passport and information designed to be read by computer. The passport is evidence of person's identity.

An object, he later wrote, can considered to be a document if it reveals or signifies something, or it has the potential to reveal or signify something, but a document is expected to be actually or potentially meaningful (Buckland, 2018). Taking an even seemingly broader viewpoint than Buckland, Lund also states that a document does not have to be a matter of proof as it long as it shows something (Lund, 2010).

S.M Kashtanov (2005) also disagrees with such a broad definition of the term 'document' stating that its meaning has become very vague. This is true, he believes, not just in the field of museology but of other disciplines as well. There has been a tendency to use the term 'source' in place of 'document' but this, he writes, erases the distinction between the different categories of 'source'. The term 'document', he suggests, should be used for those things which are generally perceived to be documents and specifically notes that copies of objects made for exhibiting cannot be 'sources'. A document is the information set out on some form of material carrier, with words or images in some format, that serve as evidence of facts, events or phenomena. Like Buckland he believes this information may have actual or potential value. When the document is being created and has a function assigned to it by its author it is in an active state; once the document has been created it only has potential value.

Lund (2010) also recognises the change in definition of a document that has been brought about by developing technology. He quotes a dictionary definition of a document from 1964:

Thing, esp. deed writing, or inscription, that furnishes evidence

(Fowler and Fowler:1964, p. 360)

He notes that this definition provides three characteristics of a document. It is a physical object; it is writing, particularly in the legal sense and it provides evidence of something. This definition is still held today, at least by the wider society, but there are challenges to this when a document is no longer something physical that can be held in one's hand but exists only in digital form visible on a computer screen. This brings into question the relevancy of the term 'document' in this era as digital documents may only have a temporary existence. They can be deleted, and the technology required to view these documents may become obsolete or fail altogether. The argument is similar to that of Briet's antelope when it is in the wild or in a zoo or place of containment. The antelope in a zoo can be compared to the hard copy of the digital document.

Creating a document, documentation, is a four-fold process. Firstly, it requires a human to set about creating the document; secondly, it needs some sort of tools whether that is a pencil and paper or a computer to be able to produce the document; thirdly, it needs an understanding of the way these tools work; fourthly, the document is produced. However, this process is constrained by a number of factors from socio-economic pressures to the whim of the individual and what is available at the particular historical period the document is produced (Gorichanaz, 2019).

Lund (2010) also suggests that the general definition of a document: "any results of human efforts to tell, instruct, demonstrate, teach or produce a play, in short to document, by using some means in some ways" is focussed too much on the practices involved in making a document. If there are no documents result which from this effort then no human communication will succeed. All kinds of communication require that at least physical person be involved in the documentation process even if that is limited to the manufacture of technological hardware or initiating the computer software to produce the document.

A.V. Sokolov (1994, cited in Pleshkevich, 2009) continues this theme of communication in his definition of a document stating that it must have an ability to be used to communicate in some way. The object must also be a 'stable material object' which seems to imply that the instability of digital documents means that, as Lund suggests, they are not documents. On the other hand, he also states that objects which not intended to have been used for communication purposes may also be regarded as documents. Historical, cultural,

ethnographic and archaeological objects may be regarded as documents as their meaning can be read or decoded in a way similar to text.

Shillingsburg (1997) agrees with these ideas of the stable, and non-digital, nature of documents by stating that they are physical, material objects which can be held in the hand. Zacklad (2004, p.2) states that a digital document must last an infinitely long time in order to be regarded as a document describing two ways of holding this document. The first, which he calls an ephemeral vehicle, have only a temporary effect on the person who is looking at the document; the second, which he calls a perennial vehicle, have a long lasting effect with the person looking at the document able to look at that document whenever required. Creating a document therefore consists of transferring the contents of what is required to be a document onto one of these perennial vehicles.

Lund (2010) disagrees with this, citing the use of word processing documents. The document is created by the person typing but Shillingsburg (1997) would say that unless that document is printed out, so that it can be held in one's hands, it is not a document. Yet it fulfils all the rules of being a document by the creator, and presumably the person looking at it as well, Gorichanaz's (2019) rules for creating a document – a human to create it, however limited that input, a set of tools to be able to create the document and an understanding of the way these tools work to create the document. The digital document, though, cannot be isolated from its environment and remains a document whether what it is intended to convey is true or not. Lund (2010) therefore defines a digital document as '*a discrete unit of bits necessary in order to convey something meaningful in a digital environment*'. The problem, of course, is that there can be a vast number of bits to choose from which must be selected in a meaningful and constructive way so that they can be described as a document.

Jean Meyriat, a contemporary of Suzanne Briet, stated that there were two kinds of document: those which were intended to be documents and those which are regarded as a document. Buckland (2014) further divided those documents which are regarded as documents into two categories: those documents which are regarded as documents by the person who created them and those which are regarded as documents by those who are looking at them (Buckland, 2018).

Buckland (2018) also states that whilst the meaning, or perceived meaning, of a document is important, equally as important is its relationships with other documents and people. These relationships show what the object signifies and any interaction between document and

document or document and person can indicate such a relationship. For example, a movie and its advertising poster or bibliographical and citation links.

If any object can be a document then this has the implication that some documents may be non-textual. Buckland (2018) returns to the idea of knowledge organisation and the definition of the term 'work' which can be used to denote both the physical object, such as a printed book, and in a more abstract sense to denote an intellectual product, in the way that the writings of an author are described as their 'works'. Although related, these must be two different things as one is material and the other is not although the 'work' in its abstract sense can be expressed physically in the form of a document. For example, 'The Complete Works of William Shakespeare' can mean either a bound, printed edition or refer to idea of the collection of his plays and poetry.

Whilst some documents are non-textual, Buckland (2018) points out, documents are generally of interest because of the text which is inscribed on them, but text and documents should not be treated as interchangeable. Philology, the study of the text and languages, distinguishes between studying a piece of text in isolation and studying it in terms of its social and historical context. Because it has an evidential requirement, document theory is more concerned with this contextual study.

If documentation is to take a unified approach to document management then one has to ask how far the definition of documents extends and what is or could be a document. If printed works are documents then this must include manuscripts and so, by inference, maps and images, globes, diagrams and models (Lund & Buckland, 2008).
The National Archives in Kew also believe that objects can be archives. In a tweet they questioned whether an object can be an archive and gave the example of a patchwork quilt (National Archives, 2013).

Sundberg and Kjellman (2018) investigated how the tattoos of Russian and Soviet prisoners might be regarded as documents which depict evidence of an individual's identity, experiences, status and actions. They found that they not only held evidential value but could also represent that individual's memories. These memories are not necessarily conveyed outwardly but are inferred within the particular tattoo. For example, the representation of the number of prison sentences an individual has had, which is shown by the number of church's cupolas they suggest that individual experience of imprisonment is also present.

They function as an archive of actions and events as well as of the memories of those actions and events and because they are innately bound to an individual person, that person's body can be regarded as a personal archive or document.
In the Rapid Response Gallery of the V&A a pair of £10 Primark trousers is on display. They were acquired in the immediate aftermath of the Rana Plaza factory in Bangladesh and show two very different pieces of information – a pair of cheap trousers and the working conditions of those who made them (Gardner & Agerman Ross, 2018). Like the tattoos they demonstrate a more public evidence of something and evidence which is there, and bound to those trousers, but less immediately obvious.

Buckland (2018) sets out Robert Pagès argument against the inclusion of non-graphic objects as documents. A textual or graphic document is always about another concept and is secondary to it; a non-graphic object, such as a gorilla in a cage, is not about anything else and becomes meaningful only in conjunction with other symbols or other secondary documents. The Primark trousers have their own meaning yet when they are displayed in a museum case or put in a museum catalogue these secondary documents give them the greater meaning not immediately apparent. Even the tattoos studied by Sundberg and Kjellman (2018) were contained in the Russian Criminal Tattoo Archive.

Just as it is with Russian tattoos, art history has seen information in terms of the subject matter of art, which they interpreted to give meaning, rather than its visual elements of style and colour (Berryman, 2018).

Seth Siegelaub, a pioneer of the New York conceptual art movement, developed his own theory of information which, like Briet's was based on primary and secondary categories of information, that is art and documents about art.

He believed modern art was taking information out of art and he particularly criticised such secondary sources such as art magazines and art criticism. He devised ways which would subvert the subordinate relationship of the catalogue to the work of art – the catalogue would become the source of primary information (Berryman, 2018).

> *When art concerns itself with things not germane to physical presence, he wrote, its intrinsic communicative value is not altered by its presentation in printed media*
>
> (Harrison and Siegelaub, 1970/1999, p. 199 cited by Berryman, 2018)

For him all aspects of art, the subject matter and the visual elements, were sources of information and catalogues were containers of information. He produced exhibitions where the catalogue was of the exhibition was all that was on display. Although the catalogues were intentional designed to be document-like and adhere to the conventional definition of documentation. They then acted as the primary informational category for conceptual exhibitions and these exhibitions were exhibitions in printed forms. The catalogues were not metaphors for the works of art that were not physically displayed instead they were both document and work of art. This is particularly true in the case of artist Robert Barry whose works tested the limits of materiality. His 'Inert Gases' (1969) series for example existed only as a poster for an exhibition where the neither the date not location of the exhibition were displayed. It was Siegelaub's cataloguing of this work which provided the documentary proof for its existence (Berryman, 2018).

Gorichanaz (2019) considered art and information from the opposite perspective noting that it was rare for art to taken in account in information science research. There have, though, been some recent studies in which art and artmaking can be understood as a form of documentation. Cobbledick (1996) was the first to explore art as information and artmaking as human information behaviour. William Hemmig (2008, cited in Gorichanaz, 2019) summarised her work and that of a number of other contributors to this research:

- Artists seem to require information for five distinct purposes: inspiration, specific visual reference, technique, marketing and art world trends.
- Artists frequently need information on subjects unrelated to art, so art libraries rarely serve them well.
- Like information behavior in general, creative information behavior is idiosyncratic.
- Artists have a strong preference for visual information

Cowan (2004) notes that the artist does not look at the process of making art as satisfying any information seeking needs, instead they see it as a *'joyful process of dialogue and perception*' which relies on creative understanding rather than finding pre-existing information.

Gorichanaz (2019) researched a number of artists who were creating a self-portrait asking them to document the creative process and take part in interviews. He makes the point that

it was not the document containing the information about the creative process but the creation of the self-portrait which was the documentation being studied.

Like tattoos, memories were a theme common to all the artists in the study, both of method and of subject and they arose during both conscious self-reflection and spontaneously. The adtrinsic and extrinsic information combine to make documental meaning (Gorichanaz, 2019).

ii. Change in contextual status

When he was director of the National Gallery Neil MacGregor believed that its purpose was to provide the authentic conditions for looking, that is to provide an environment in which the art was able to encourage self-revitalisation in the visitor. In other words, the layout of the gallery had to establish a means by which it could clearly express human identity; to be the point where 'self' and 'culture' met (Trodd, 2003).

The question is, then: Would it be possible to place an identical object in two different settings in a museum gallery and measure people's reactions in both those settings? For example, choosing some ordinary domestic object, such as a chair, and putting it in a number of different contexts and demonstrate a change in status:

1. A setting which shows the chair in its original domestic setting - a room in a house - in amongst other contemporaneous items. The displayed and available information is about the entire setting, that is the room, rather than one individual chair.

2. A setting which shows the chair deliberately set out of its original context. This could be:

    i) The chair is displayed as part of an exhibit illustrating the history of chairs. Information about individual chairs is displayed, showing how their design and manufacture has changed. The context is still 'chair' but it is has been removed from out of normal expectations.

    ii) The chair is displayed on its own as an example of something. This context could be furniture, history, culture, art or even a combination of different contexts and dependent on what information was displayed.

    iii) The chair could be displayed in a domestic setting as in 1, but this setting is of a deliberately different time period or culture.

iv) The chair is displayed on its own with no stated context or information simply to illustrate its intrinsic aesthetic and function.

This change in status when an object is removed from its natural environment or location to the necessarily contrived environment of the museum hints at the possibility that, even within the museum itself, the way in which an object is displayed might affect the way in which it is perceived and so the information which it communicates.

When an object is put in a museum it has an immediate impact on the meaning and value of the object. One can look at this change from two sides. On the one hand it is simply an object taken out of its original setting and given a status it may not have had that cannot now be taken away; on the other hand it may have originally had aa high status and is now placed in amongst other similarly high status objects. The status that this object was given when it was placed in a museum is subject to change being affected by factors such as its preservation, archiving, destruction and provenance (Alberti 2005).

Corinna Gardner (Gardner and Agerman Ross, 2018), in respect to the Rapid Response Gallery, states that even the placing of an ordinary, everyday object behind glass asks the visitor to look at it differently and so the context immediately changes its status.

It was not just the simple fact of an object being placed in a museum which affected its status but the way it was displayed and the location in the museum in which it was displayed.

At the turn of the previous century objects tended to be classified and arranged to meet intellectual meanings rather than a physical one. So, for example, fossils and boomerangs could be displayed side by side in order to contribute to the telling of the same story. In the same vein, similar objects might be displayed in very different ways. Specimens in the comparative anatomy exhibits of Richard Owen in the British Museum were displayed very differently from those in William Boyd Dawkins's evolutionary displays at the Manchester Museum (Alberti, 2005).

Alberti (2005) mentions three studies which show how particular ways of displaying objects can drastically alter the meaning of an object. These are Donna Haraway's account of male power and domination through Carl Akeley's big game displays, Kohlstedt's investigation of museum exhibitions in America and their gendered nature and Karen Wonders' history of

the development of the habitat diorama as a setting for the display of stuffed birds. Kohlstedt shows that by tracking one particular object through time and examining the different ways it was displays can open up a rich history of the cultures of display in that museum or city or nation.

However, the meaning of an object can change not just over time and by the way in which it is displayed but also through the person viewing that object. The object not only has a relationship with other objects and those who collected and curated that object but with the museum visitor as well who brought their own feelings and experiences to that object. Anatomical specimens perhaps best demonstrate this change in status.

Human anatomy museums, and in particular those connected with teaching hospitals, collected their specimens from patients who had died. Not only did the specimen have a radically different meaning when displayed as an object, changing from being a constituent part of a living and breathing human being to a medical training aid, it also, by default, became the property of the curator. The doctor who had been treating the patient would have a very different perspective from the general visitor or even from the anatomy student (Alberti, 2005).

There are also political and intellectual factors which affect the object's status in a museum and can construct a cultural meaning. Art historian Svetlana Alpers suggests objects are placed in a museum primarily for their visual interest and by removing the object from all their other associations a cultural object is turned into an art object. If objects are selected purely on the basis of their display value there is a danger that the museum becomes one in which techniques of display are given priority in order to engage visitors' interest (Casey, 2003).

In research examining post-Revolutionary Soviet museums, Teryukova (2014) noted that when religious objects were left intact in a museum display, to show how the Orthodox Church altar as it might have looked, there were Christians who stopped to bless themselves and pray to the icons. Even though the objects had been taken out of their original context of sacred spaces into the non-sacred museum space their original intent, as sacred objects, was still perceived by some visitors. The display was altered to be more in keeping the political situation and the objects were displayed in the context of their ideology and mission to show how the church had been part of a system that had been overthrown by the Revolution.

Berns (2015) noted the same effect in an exhibition of medieval Christian relics at the British Museum. An Anglican bishop told that the glass cases were preventing his interaction with the relics and turning a close and personal experience into something distant. The inability to touch the relic turned them into exhibits.

Walsh (2011) also noted that the meaning of religious icons changes depending on where and how they were displayed with the implication that a different group of people with different objectives, values and understanding of these objects. They are generally found three places – churches, homes and museums. In churches and homes they function as public or private liturgical documents with a spiritual language whereas in a museum it is mainly as an aesthetic object which may or may not have documentary meaning relating to historical or aesthetic matters.

iii. The Museum Object As A Document

Whether or not the visitor has the ability to make meaning from an object is also a question that has been debated for a long time. Back in 1825 Lord Farnborough, the first Chairman of the Trustees of the National Gallery, claimed that 'those in inferior stations' lacked the necessary abilities to make an aesthetic judgement on the works of art on display (Trodd, 2003). There is still a prevailing view that the definition of the uneducated visitor, or in a more politically correct way 'not-educated', is one who does not know how to behave in museums or galleries. That is, they do not reflect on either what they see or on their relationship to the objects on display (Illeris, 2006). In the context of the art gallery, in particular the white cube gallery, there is an inability to distinguish between real space and art space (Hetherington, 2010). There is also an opinion that the best art works need to be absorbed in their own world and only allow the viewer to see them from the outside (Illeris, 2009) which would certainly seem to create a sense of educated and uneducated viewers.

The meaning of an object is something which evolves over time "*through a constant process of remembering and connecting*". As the visitor interacts with the museum object, personal experience, knowledge and understanding is applied and a meaning can be constructed (Charitonos, 2011). Learning, then, needs to have a much broader definition than museum staff may have originally expected as the visitor will bring something very personal in with them (Lindauer, 2005). Whilst objects may have their own intrinsic meaning and be classified or labelled according to the understanding of the curator, the meaning associated by the visitor to the object may differ from both of these (Snape, 2010).

Buckland notes that information held by these objects is passive information rather than active information, that is, it is not intended to be communicated. However, the change in context releases this information although how this information is interpreted and understood is very personal to the visitor (Latham, 2012).

This research holds that museum objects do fit in with Briet's rules for being documents. They have physicality, simply by the fact they are material things, and most especially they have both intentionality and perception. Objects placed in museums have been deliberately selected by staff to become part of a collection and are then perceived by the museum visitor as being part of that collection.

By being part of that collection, these objects indicate that they have some degree of information to impart and are thus evidence for something. Even the most everyday objects can become a document when placed in a museum because of this intentionality and its resulting perception. The fact that these objects have been collected, stored and can be retrieved in some way makes them easily understood in terms of 'object as document' and so the museum can even be regarded as a kind of information system.

There are varying opinions. Pleshkevich (2009) writes that in the same way that 'document' is understood on both an informational and historical level that the definition of a museum object should also encompass this dual aspect. In 'The Short Dictionary of Museum Terms' the definition of a museum object was that it was 'document-based evidence of certain facts, events, or phenomena; real, first primary sources of knowledge on the historical process that become part of the social memory of society'. Some twenty years previously Khan-Pira (1991, cited by Pleshkevich, 2009) suggested using the term 'museum document' would be more appropriate because a document is understood in terms of both its information and its materiality which allows a museum object to have the status of document.

Pleshkevich (2009) also notes that because museums have a scientific and educational role, whose purpose is collecting objects, then if these objects are being 'documented', by either being catalogued or used in way that will provide evidence of something, then they should be regarded as documents.

Dukel'ski (1986, cited by Pleshkevich, 2009) defined documenting as 'to collect and fix all possible information on an object and its interrelations with the environment' and so it is an

informational process which converts an item of significance into a museum item. For this process to be implemented the object must be found, documented, delivered, preserved, studied and included in the museum collection. The actual documenting takes place when the object is labelled and the museum object comprises both the object itself and the accompanying scientific documentation (Pleshkevich, 2009).

Yurenava (2003) believes that the description 'museum item' is more satisfactory than that of 'document' for objects in a museum collection because there are a number of features which distinguish the two. A document is always created by a person whereas a museum item can be a natural, or non-manmade, object; a document is created as a document, whereas most museum items are created with purposes other than informational ones. This argument, though, ignores Briet's rule that the perception of an object as document transfers that status to it.

iv. How An Object Tells A Story

This concept of objects, and in particular museum objects, as documents and therefore as things which can impart information, leads to the theory of object biography; that is, objects as things in which the individual bits of evidence they impart tell a more complete story about that object and its relationships with other objects and with people. It has been suggested that the same questions that are asked of people when writing a biography can equally be raised with objects:

- *What are the key moments in the career of this thing?*
- *How has its status changed over the course of its life - what have been its significant "ages"?*
- *What makes it different from other, similar, objects?*
- *How has the political and social climate impacted on its trajectory?*

(Alberti, 2005)

The lives, and so biographies, of objects do not stop once they are displayed in a museum. It is just a particularly significant event in the life of the object and a time in which documentation about the object is at its greatest and most fulfilling. It is also a time when the biography of the object, and other related objects, is most subject to change. What is perceived as having special meaning to a particular collector may become lost as it is set

amongst a vast collection; an object removed from a collection may have its meaning irrevocably altered and new stories may be discovered about objects which have displayed for long periods of time or moved to different part of the collection; a rare object may alter the biographies of other related objects as it uncovers new stories; the visitors who see and interact with the displayed object continue to add their own stories and meanings to that of the object. (Alberti, 2005).

The biography of an object may include a number of contexts which Wehner and Sear (2010, p.146) set out as:

- The physical form of the object and its status as an example of style – that is setting the object in relation to older examples of this object and examining the differences and similarities of various characteristics
- The materials from which the object is made, and the techniques used to make it and analysis of how these demonstrate the ambitions, practices, skills, materials and social conditions of the society from the object has originated
- The history of the object with an account includes its production, its circulation, its use and, if appropriate, its destruction and the various social contexts in which the object may have 'lived'
- The values associated with the object and the meanings attached to it by people as they produce, use, engage with it - this may include significances, memories, identities and concepts of personhood and might range from personal associations to broad cultural frameworks

Whilst there are some objects whose biographies exist without the need for human intervention, such as geological objects, the biography of an object has, by necessity, been intertwined with the lives of the people who made, used, possessed and disposed of that object. Some of these objects had great significance to the person with whom they had a relationship, others less so. The relationship of an object to the person who manufactured it in a factory, whilst significant, is not the same as the relationship to the person who bought in a shop on the high street.

All objects offer a degree of biography about themselves, but some writers specifically describe some objects 'biographical objects'. These are objects which mark a person's life and in some distinct way provide evidence of the person's past, as well as the present, by the

way in which they evoke feeling and imagery. The sociologist Violette Morin suggests that biographical objects are those have some sort of relationship between subject and object and bear traces of use or belonging (Albano, 2007). Biographical objects are more likely to be found in exhibitions and galleries dedicated to a specific person or event.

The museum is therefore the overriding authority in providing meaning to the object. When a visitor encounters an object the size, shape, proximity, colour, texture, how it feels, weighs and tastes can all be observed and compared to what the visitor already knows by (Wehner & Sear, 2010:151-2). In addition to this factual knowledge the visitor can also add a degree of personal knowledge which make the meaning of the object more complete (Wood & Latham, 2009). This is the '*I remember my Father telling me about that*' type knowledge unique to each visitor.

Objects can be the repository of memories and ways of connecting with the past (Wehner & Sear, 2010:148) and object biographies allow meaning to be deduced from even the most mundane of objects (Alberti, 2005).

The V&A Museum has many different objects with many different stories and the V&A Research Institute tries to discover more about these objects so that these stories can be told. It is not just about how it has been made or what material has been used to make it but about how it came to be with the person who donated the object to the museum. In the Rapid Response gallery, the objects have their own very particular story which is stated with the object because the story is currently relevant. The information is not provided in order to tell the visitor what to think, instead to help put their '*imaginations into flight*' (Gardner & Agerman Ross, 2018).

Johanna Agersson (Gardner & Agerman Ross, 2018), on the other hand, stated that at least some degree of information is required to be displayed otherwise it can create a barrier for the visitor. In a recent visit to the National Museum of Stockholm she noted that in some galleries there were not any labels on any objects. Despite her museum background and level of expertise she still found it challenging when these very basic pieces of information were absent. She also spoke about Peter Zumthor, the director of the Los Angeles County Museum of Art, and his ideas about displaying all art without labels in order to open the displays up to the visitor so they can make their own journey and interpretation which she feels is not very democratic.

Corinna Gardner (Gardner & Agerman Ross, 2018) spoke about the Tipoo Tiger on display at the V&A and doubted that it would be able to tell its own story unless there were some information displayed about it. There are obvious parts of the story, the tiger and the unfortunate person being mauled. There are also parts of the story which are not immediately apparent such as the fact that it is also a musical instrument and the history of the place in which it was made. She also pointed out that there was an assumption amongst work colleagues that everyone knows what it is about.

Gorichanaz (Latham et al, 2018) describes how he went to an exhibition at the Philadelphia Museum of Art, Mexican Modernism, 1910-1950, without knowing what to expect. When he walked in, he saw a large oil painting. Without looking the label, he felt drawn in by its material, technique and colour rather than its narrative and inspiration automatically stirred up connections. Hicks (2005) writes about a similar reaction for visitors in the Sydney Technological museum. One visitor, Annette, spoke about the 'great sense of discovery' likening the visit to a museum in Holland which she described as a 'complete clutter of Victoriana…where you discovered the gems for yourself'. She preferred this type of museum to those with 'too many boards to read and not enough stuff'.

Objects do not have to be in a museum to tell their story. One story is recounted of Chilean refugees who fled Pinochet's dictatorship and arrived in Sweden (BBC News, 2013b). They brought a number of objects to remind them of Chile. These were a Bible, a book about communism in a Latin American context and a small Chilean flag. These objects both define who they are and what is important to them in times of need. The story is a very personal one, but it is a story that speaks to her parents and so to her.

Charitonos (2011) writes about meaning being made from one's own experience by continually remembering and connecting. Meaning cannot be properly made without one's own story being interwoven into it. Museum learning is about making meaning by interacting with the objects.

2) The Relationship Between Gallery Design And Information

i. Looking To The Past

Whilst even the very earliest of museums as museums were recognisable as such, institutions

such as the Musei Vaticani and the Royal Armouries were designed to house quite specific collections. It was not really until the British Museum came into being that such a wide range of objects came to be found under one roof and made available for the public to visit. By the time that the South Kensington museum (later to become the V&A) was founded as a place to house objects from the Great Exhibition of 1851(Robertson, 2004) there was considerable debate regarding the allocation of objects to museums.

Although the South Kensington museum had a fairly eclectic collection to represent both the canonical example as well as the extraordinary, there was one plan at least to rationalise this. In 1858, museum curator J. C. Robinson wrote to the Athenaeum proposing that the South Kensington museum house '*all scientific, purely educational, industrial and technological collections; the British Museum's ethnography; modern art; medieval; ornamental or industrial art; oriental art*' whilst the British Museum have '*the Library, antiquities, vases, gems and coins; Egyptian material, with everything else removed*' (Robertson, 2004).

The argument largely stemmed around the distinctions being made between design and art. The Royal Academy had even refused to admit engravers until 1855 in order to preserve what they called the 'relative dignity of art'. William Dyce, the first superintendent of the School of Design, stressed method and practical design rather than art and so he excluded the painting of portraits, landscapes, historical themes and the nude from the curriculum (Snape, 2010).

The opposite argument maintained that in essence no distinction could be made between fine art and industrial art. William Cooke Taylor believed that artists and manufacturers shared mutual interests and the painter Benjamin Haydon, who also lectured in design, insisted that industrial design became more accomplished if those working in the trade also received training in high art and the study of the figure (Snape, 2010).

These arguments also played out at local museums. The Birmingham Museum and Art Gallery, for example, displayed fine art objects separately from industrial ones emphasising their local relevance but without distinguishing between their different cultural relevancies (Snape, 2010).

In Preston, at the Harris Museum and Art Gallery, it was a different story. Its architect, James Hibbert, was also responsible for the selection and acquisition of objects. He believed in the superiority of Hellenistic values and in the '*spiritual value of culture and art to resist the evils of*

industrialisation' (Snape, 2010). Consequently, the display of industrial objects was largely, and quite deliberately, ignored.

Thomas Greenwood, who was an ardent campaigner for free public museums and libraries took the display of industry in museums one step further. Writing in 1888 he suggested that such local town museums not only display industrial art, but the raw materials, models of the machinery used to make the goods, the industrial processes used and a sample of the finished goods as well. In his survey of such museums he recorded that there were at least ten which housed a substantial industrial collection – accounting for about one fifth of the museums in Great Britain. This is in some way close to the materials galleries of the Science Museum in South Kensington which, following the decline of British industry, now seem to be falling out of favour.

His concept of 'Commercial Museums' was intended to create something more dynamic than just a display of objects:

> *[Museums could] collect specimens of manufactures in foreign countries, such as are made in that locality, so that manufacturers and work people may have an opportunity of seeing the particular kind of goods which are in use in the various parts of the world* (Snape, 2010)

This more 'dynamic' museum might be a development of the way John Hunter displayed objects in his museum which was not as a collection of individual objects but as a way or presenting the natural order of the biological world (Chaplin, 2008).

The Technological Museum in Sydney, founded in 1879, followed this trend of presenting the bigger picture rather than making the individual object the focus of the visitor's attention. When it first opened it comprised three floors each of which represented resources and commercial products from either the animal, vegetable of mineral kingdoms set out in an orderly fashion. In 1947, the name changed to the Museum of Technology and Applied Science, the distinction into 'kingdoms' had disappeared. There were than twice the number of objects which included new exhibits displaying new technology such as nylon and fibres glass. Its present reincarnation, as the Powerhouse Museum which opened in 1988, maintains this trend with exhibits on nuclear power and Lego (Hicks, 2005).

ii. Case Study: Montagu House

In the archives of the British Library there are prints of two watercolours by George Scharf of the interior of Montagu House. They are both from 1845 and painted just before it was demolished to make way for the British Museum. They give a degree of insight into how objects were displayed and the aesthetic and didactic values of museums of the time.

The first is of the entrance hall (Scharf, 1845a). The house was originally built as the residence of the Duke of Montagu and the entrance is very grand. It is in the style of a Greek temple with columns that have Corinthian capitals, and in keeping with the grandeur of the architecture there are statues of important cultural and scientific figures – Sir Joseph Banks, Sir Francis Chantry and William Shakespeare. These statues are freestanding but are placed high up and staring down at the visitors as they enter leaving no doubt as to the importance of these carefully selected representatives of the cultural and scientific elite.

The staff, dressed very smartly in easily identifiable tailcoats, are accompanied by someone who appears to be a policeman and visitor buying a ticket.

To the visitors' left, stairs lead up to a gallery and on the landing are two natural history specimens – a bison, possibly in a glass case, and perched on top of that case an unidentifiable antelope, possibly an oryx. There does not be much an attempt for degree of contextual display.

The second painting is of a staircase (Scharf, 1845b), although it is unclear whether this is the same staircase that can be seen in the picture of the entrance hall. In other pictures the same scene it is variously described as 'the staircase' or 'the grand staircase' and at the top of these stairs are further natural history specimens. There is a group of three giraffes of varying sizes, perhaps intended to represent a family grouping and a rhinoceros. These animals are not in a glass case although a waist high rope indicates that touching the specimens is not encouraged. There is no attempt to display these animals in anything like their natural habitat.

This display is described by *Prince Pückler-Muskau* in his Letter IV 15 October 1826:

> *Prince Pückler-Muskau in his English Diary 'at the top of the staircase, as you enter, stand two enormous giraffes, in the character of stuffed guards, or emblems of the English taste' (Pückler-Muskau,1833)*

The fact that the Prince mentions only two giraffes and no rhinoceros might indicate that specimen collection had been on-going for the last twenty years.
He describes the British Museum as a "*Mischmasch*" *of works of art, natural curiosities, books, and models…preserved in a miserable building (Pückler-Muskau,1833)*

iii. Looking At The Present

Whilst there is a desire for museums to maintain contemporary relevance as far as the objects they display is concerned, there is now a tendency to take the needs and desires of the visitor into consideration as well. Displays are designed so visitors do not just see the object but tin order that their visits become more of an encounter with the object they are seeing. The V&A sets out the following in its mission statement:

> *Our mission is to be recognised as the world's leading museum of art, design and performance, and to enrich people's lives by promoting research, knowledge and enjoyment of the designed world to the widest possible audience. We strive to make the V&A matter to more people and in that context we work to the following six strategic objectives:*
>
> - *To create a world class visitor and learning experience across all V&A sites and collections.*
> - *Focus and deepen the relevance of our collections to the UK creative and knowledge economy.*
> - *Expand the V&A's international reach, reputation and impact.*
> - *To operate with financial and organisational initiative and efficiency.*
> - *Showcase the best of digital design, and deliver an outstanding digital experience.*
> - *Diversify and increase private and commercial funding sources.*
>
> (V&A Our Mission, 2020)

As museums shift their role from being an authority on objects to being a mediator, objects become the focal points for the personal experience of the visitor (Wood & Latham, 2009) and so the context of the object comprises not just the physical display but the thoughts and emotions of the visitor.

Nicholas Serota, noting the changing design of art gallery exhibits, describes this as a move away from '*the conveyor belt of history*' (Rowland & Rojas, 2006). It is perhaps in art galleries

that this question was first addressed when the changes in relationship between the subject and object as the use of space was altered with the concept of the White Cube gallery (Hetherington, 2010). Art historian, Carol Duncan (1995) suggests that the way artworks are hung precludes this interaction and that the role of the artworks is not to speak about anything but only to exist, producing simply a heightened state of absorption on the part of the visitor.

Nevertheless people respond to a degree of structure and in order to make sense of the past they need to be made aware that, in terms of gallery display, there are fixed points which have been clearly defined so that there is a basis for their journey of discovery. This journey is not necessarily about education, in the sense of acquiring factual knowledge, but learning about themselves and being able to adapt this journey to their desires and need (Trodd, 2003). This journey can be enriched by digital objects but these should be looked upon more as an enhancement to the physical rather than as a replacement for them (Bayne et al 2009) or, for example, at the Medelhavsmuseet in Stockholm it is possible to digitally 'unwrap' a mummy which the curators hope will enable visitors to better understand the lives of the ancient Egyptians (BBC News, 2013a).

Despite trying to make the display more of an encounter between object and visitor, there is some suggestion that, in fact, most visitors do tend not to look beyond the objects that museums have put on display or to examine any of the significance of what is displayed and how it is displayed (Wilson, 2010). Similarly, it is suggested that museums show little inclination to explain the choices they made in selected these objects (Wilson, 2010) and that there is also a tendency towards branding over content, as Hal Foster writes:

> *Design is inflated as the package all but replaces the product*
>
> (Foster, 2001)

There are broadly three arguments which determine the display of objects in museum galleries and which objects are selected for display. These are the needs of visitor; a need to reflect the society and culture within which the museum is set and the individual desires of the curator or museum management. Intertwined with these arguments is, of course, the prevalence of financial constraint.

The arguments relating to prioritising the needs of the visitor are best demonstrated by what museums and galleries actually doing.

In an interview, Steven Parissien, the director of independent art gallery Compton Verney, related that when they lost their grant they needed to rethink the way in which they raised their money. The programme of exhibitions could no longer afford to be experimental but instead had to refocus itself on what the visitor actually wanted. Feedback showed that visitors wanted to be entertained rather than lectured about art. He writes:

> *Everyone is moving away from that Reithian idea of 'here is what you ought to know', but there is still an element of that in a lot of museums and galleries. For people who have not been to museums and galleries that is off-putting.*
>
> (Stephens, 2014)

Leila Meinertas (2018) spoke of how the connoiseurial has now gone and the objects can no longer speak for themselves. Whilst David Judd (2018) noted that they had tried to display objects to intrigue people by, for example, having mystery objects with answers in mirror writing to arouse people's curiosity.

In a review of The Black Watch Castle and Museum in Perth visitor Mary Stones (2014:46) writes that she was initially apprehensive about the military subject matter, but the visitor route was carefully explained. Whilst in some galleries she felt that there was too much text and the font size did not help, she made a very real connection with the displays in the First and Second World War galleries which had been set out in such a way which allowed the objects to tell their own story. Objects had been carefully selected to illustrate the devastation and heavy loss of life. These included a prayer book riddled with bullets and a kilt worn by Captain WD McStewart at the battle of the Somme, still spattered with blood.

At, some would say, the opposite end of the spectrum are the curators who have the ultimate say over what is displayed and how, and perhaps most visibly demonstrated by the 'no-photo policy' which can turn staff into enforcers of rules and behaviour instead of supporters and encouragers of visitor experience (Tan, 2012).

Studies have shown that the intent of the curator and the response of the visitor do not necessarily tally (Alberti, 2005). This intent can often be a desire to follow the social norms and industry practices or simply following current trends (Rowland & Rojas, 2006). So, whilst museums are well able to present the overriding ideologies and culture of the state, curators

still have to make decisions of display which give some form of meaning to those objects (Chandler, 2009).

These decisions can backfire. In the 1980s, at the Tochigi Prefectural Museum of Fine Arts there were allegations of corruption over the works selected for the annual Kenten exhibition with decisions based on nepotism and favouritism rather than merit (Morishita, 2007).

At the First Asia-Pacific Triennials of Contemporary Art (APT) in 1993 at the Queensland Art Gallery curatorial decisions were made to organise works by country. Whilst this was a valid decision as the exhibition was intended as a survey of the region based at a predominantly Australian audience with a limited knowledge of the region, it mean that some quite disparate works were grouped together and that as a result the culture of other countries was being oversimplified. There were claims that countries were selected because of pragmatic reasons (involving such concerns as logistical considerations) and that there were token representations only other countries. There were similar questions over the validity of the way which artists were selected to represent their country and whether cultural or aesthetic considerations should prevail (Chandler, 2009).

Representation through display involves identifying a concept and then basing the display on commonality or difference between the various objects (Hall, 1997). But if, as in the APT, the aim is to juxtapose different views then this needs to be highlighted to give the visitor not just an understanding of the works but to challenge their ways of seeing as well (Chandler, 2009).

Exhibitions and galleries which try to emphasise prevailing culture and the community are not quite as inclusive as they might aim to be. Practical necessities dictate that museums can really only work with individuals within particular communities or cultures and those individuals will, again by necessity, work with specific individuals from the museum. There are perhaps some rather unrealistic ideas about social inclusion with museums reflecting the aspirations of curators and educators rather than what can actually be delivered (Gallway and Stanley, 2004). If museums fail to rise to the challenge of embracing different perspectives, though, it may limit their potential audience and create an intellectual hierarchy between them and that audience (Jung, 2011).

Culture (and science) and politics go together (Hetherington, 2010) and museums are still places where '*behaviour, culture, knowledge and significantly identities are acquired*'. For example, in the 1980s Mexican museums were promoting the dominant Mestizo culture and identity (Wilson, 2010).

In the UK a few years ago the 1807 Commemorated series of exhibitions to remember the abolition of slavery tried to reconcile the past by responding to the usual omission of the complicity of British governments and businesses (Wilson, 2010). Whether or not this succeeded was questioned by some. Fouseki (2010) believes its '*dominant object-centric curatorial attitudes*' and the lack of training of curators prevented these exhibitions from being sufficiently democratic.

As an example of a museum in which the objects displayed present a very singular view of the prevailing culture, the *Stalin Museum* in his hometown of Gori, which the researcher visited when on holiday, is an excellent example. Until very recently, and still in a very discreet way which the museum guides seem almost embarrassed to show, no reference was made to the atrocities committed in his name.

But objects can tell stories, and this seems to be way curators are now thinking. The 2014 V&A exhibition '*Disobedient Objects*' seemed to successfully curate people, culture, politics and objects by displaying items which had been made, or adapted, for use by grassroots movements for social change (BBC News, 2014a).

The museum of the present has also had to make some very practical changes. In his interview, David Judd (2018) mentioned that glass cases are still often needed for very practical reasons such as protecting them from the external environment. Leila Meinertas (2018) spoke of how visitors are much more prone to touching objects and they need to be protected. In the British Galleries this is particularly true of the beds which now have an alarm system that is activated some 365 times every month.

And, of course, in these times the biggest deciding factor is a financial one. When it boils down to money, as Leila Meinertas (2018) put it, the museum needs to decide between the cheaper option of fewer objects exhibited and broader displays or the more expensive option when you have more on display.

iv. Case Study: The Parthenon Gallery At The British Museum

The Parthenon sculptures have been on permanent display in the British Museum since 1817 (British Museum, 2017a) although the museum guide from 1830 (British Museum, 1830:39) notes that the building in which they were housed was still temporary. In a Letter IV, dated 15 October 1826, Prince Pückler-Muskau, notes:

> *In a huge shed are deposited the noble Elgin Marbles, as they are here called*

In 1939, with renovation in 1963 the Duveen Gallery was built and designed specially to house the Parthenon sculptures. It has two side rooms to provide explanatory information about the temple and its setting as well as to display fragments of sculpture and architecture that could not be accommodated in the principal room (British Museum, 2017c).
Along with the Rosetta Stone and the Townley collection of classical sculpture are among some of their most important acquisition.

The same 1830 museum guide (British Museum:1830, p.3) notes that the sculpture gallery of the British Museum is inferior to those on the continent but superior as a school of study even if the Elgin Marbles are included are the only objects included.

By 1899 the museum guide (British Museum 1899:19) was writing that:

> *accounted, by the consent of critics and artists, to be finest series of sculptures in the world… it is, however, still pervaded a certain grave dignity and simplicity which is wanting in the more sensuous, more florid, or more conventional works of a later time*

In the museum today, room 18a puts Parthenon in historical context and still has a board stating that Lord Elgin had a letter of permission to remove '*pieces of stone with inscriptions and figures*' and that they prevented it from further damage by vandals, weather and pollution. The current position of the British Museum is that the museums in London and Athens provide different but equally valid contexts in which to display these sculptures.

The 1899 museum guide goes into some detail about the sculptures. As an aid to study there was a model of the Parthenon on a scale of 1:20 as it was before the damage sustained in the war with Turkey along with various drawings. It describes the objects as follows

There are sixteen metopes, although No. 9 is a plaster cast from the original in the Royal Museum, Paris. The 1830 guide (British Museum, 1830:114) records that they were placed as accurately as possible in the order in which they were placed in the Parthenon with those on the eastern side (the front) of the temple on the left hand side as the visitor enters the room. Of the original 92 metopes 41 are still on the temple although they are too decayed to determine their subject matter.

Part of the frieze is made of plaster from moulds made before the destruction of these figures, which took place before the marbles came into the possession of Lord Elgin. It was originally 522ft 10in. The British Museum has 241 feet 2½ inches of the original of which 171 feet 11½ inches is plaster cast, 62 feet 3 inches comprises drawings only and 47 feet 5 inches is entirely lost (British Museum:1899, p.27).

There are various pedimental sculptures and other miscellaneous objects, statues and descriptions.

In the museum today there is a side gallery explaining its history and architecture and a 1:50 model indicating its geographical placement; an example of painted marble showing how the Parthenon may have originally looked; an original Doric column and casts purchased in 1844 from Philippe Le Bas which are displayed to show that they are not original.
In contrast to the Parthenon Museum in Athens the frieze in the British Museum is displayed as if it is inside out and not at full size.

3) The Relationship Between The Museum Visitor And Information

Whatever the type of display, or however one defines object or museum object, the one common factor is that there must be a degree of communication between an object and the person. Buckland specifies three different types of communication. The first is direct communication where a message is communicated directly from the source to the recipient. In the case of a museum object, this could be the object directly informing the visitor through, for example, the material out of which it is made. The second is indirect/store-and-forward communication where a stored signal is forwarded to the recipient. In the case of a museum object, this could be the object informing the visitor through means of a displayed curator's label the material from which it is made. The third is indirect/store-and retrieve communication where a stored signal can be retrieved at will by the recipient. In the case of

a museum object, information about the object in a guidebook which the visitor has the potential to look up.

The information that is communicated by the object still needs to be retrieved for it to be useful. Buckland points out that whilst the nature of the message to be communicated to the recipient, or visitor, can be controlled by the person or institution communicating that message it is the recipient. The museum visitor is under no obligation to read a guidebook or the curator's label or, indeed, even look at the object.

Buckland further points out that retrieving information is not the same as using information. Retrieving information is to become informed by that information with the result that our knowledge has changed. To be informed, though, means we have to be open to being informed which means we must be in a position both to understand the information in front of us and accept that the object in the museum is a document which is able to impart information (Latham, 2012).

The information user can retrieve information in a number of ways:

- Sensing information
- Asking for information
- Searching for and retrieving information
- Preparation for retrieval through collecting and arranging information
- Creating, recreating, and transforming information.

Sensing information is a part of each option (that is, the visitor accepts the museum object as document) although what is perceived as information and then retrieved may vary according to the personal circumstances of the visitor (Latham, 2012).

This power to reinterpret becomes much stronger when a museum objects are made available digitally. The physical object, set into an academic and cultural perspective by a museum, can be transformed by the visitor into something that is more suitable and appropriate to them. They have control over the environment and timeframe in which to view the object and they are more easily able to derive a meaning that may have been unintended by the curator (Bayne et al, 2009).

Personal circumstances may also mean that the main reason a visitor goes to a museum is not necessarily retrieve information or to be informed by what they see. Kotler and Kotler

(2000) suggest that the casual visitor enjoys their visit but wants more information and direction, a higher level of comforts and services and more human contact. For the majority of visitors social and recreational experiences are just as important as educational and intellectual ones.

Kotler and Kotler (2000) quote Marilyn Hood's 1980s study in which she described visitor attitudes and behaviours in all recreational activities, which included visiting museums. She found that there were six types of benefits and values:

- Being with people and enjoying social interaction
- Doing something worthwhile
- Feeling comfortable with the surroundings
- Enjoying the challenge of a new or unusual experience
- Having a learning opportunity
- Participating actively

She also noted that those museum visitors who were taking an active part in the visit rather than just making a casual visit were looking more for learning, a novel experience and doing something worthwhile.

Yet what makes a casual visitor into an active visitor might not be immediately apparent. Swenson (2019) writes about the report into the change of free Sundays at the Louvre Museum in Paris to paid Sundays. It resulted in an increase in visitors with the explanation being that if they had to pay to visit the museum then there must be something worth seeing.

Visitors learn in different ways and a number of studies have been done to try to categorise museum visitor type by the reasons they visit and their information behaviour when looking at objects. Whilst this research is concentrating on objects rather than visitors, studies of people's learning styles do influence the way in which objects are displayed and these ideas did become incorporated into the observational data which were collected.

In the same way that societies and communities have changed over time so has the makeup of the museum visitor altered bringing new values, a different educational perspective and a shifted world view and these will continue to change (Alberti, 2005).

Schreiber at al (2013) categorised visitors into the different preferences they had. Idea-preference people are looking for information, perspective, significance, statistics, and chronology. They range from getting facts and snippets of broad information through understanding the main themes and concepts of the exhibit. They tend to discuss an exhibit with the statement "Did you know." People-preference visitors search for opportunities to take photographs, video or audio and look out for stories and biographies and the emotional connection. This group tends to range from imagining the life of someone represented by the exhibit to watching demonstrations and performances. These visitors tend to discuss an exhibit with the phrase "Did you hear." Object-preference visitors are there for the artefacts themselves. They are interested in the aesthetics of the object making comparisons between objects, how they were made, where they came from and how they were used. They range in their interest from the minute details of the object and its craftsmanship through to the style and use of the objects. They tend to talk about an exhibit with the phrase "Did you see."

The Learning Department of the V&A also carried out an audit of learning styles and tried to ensure that objects were presented in a number of different ways to suit these different styles.

> *We audited against the learning styles. So, it was an imaginative learner, common sense learner, analytical learner, and experiential learner. So that's what we so we tried to make sure that across all the interpretive devices that we had that there was a fair…spread of engagement for those learners and then we had about eight different audiences that we tried to make sure that we had something for everybody.* (Judd, 2018)

Falk (2009) sorted the museum visitor into five different categories looking at what they were interested in and why they had come to the museum.

The first, which he labelled the 'Explorer', visits a museum more out of a general interest in discovering more about the subject matter presented by the museum. The second, the 'Experience Seeker' is motivated by the main attraction of the museum and is often a tourist. The third, the 'Professional' or the 'Hobbyist' comes to look at specific topics in the complete collection. The primary interest of the fourth, the 'Recharger', is the atmosphere of the museum and they come to reflect or to relax. The final category, the 'Facilitator', visits a museum in order satisfy the needs and desires of someone which is only manifested within other groups.

Dim and Kuflik (2014) looked at visitors' behaviour when they went around museums in pairs and devised six categories which like Falk's 'Facilitator' are more socially based. 'Geese' represents a pair of visitors who advance together, with one visitor seeming to lead and signalling the other visitor that it is time to move on; 'parrots' advance from one exhibit to another together, turn halfway toward each other and halfway toward the exhibits, and interact while looking at the exhibits; 'doves' represent a pair of visitors who stand face to face, and become involved in conversation whilst ignoring the exhibits; 'meerkats' represent those who advance from one exhibit to another, together, standing side by side, and pay a lot of attention to the exhibits in a synchronized manner; 'penguins' represent a pair of visitors who walk through exhibitions without paying any attention to the exhibits. Their time in an exhibition is short, and they proceed to other parts of the museum; 'lone wolves' represent a pair of visitors who enter the museum together and then split. The split may be manifested as the pair members either walking apart or standing

One cannot pass the relationship of museum of objects to people without touching on the field of museopathy – the emotional healing of people through the handling of museum objects. However, what the facilitator says about the object is far more useful than just letting the patient handle the object. One patient, for example, was given an amulet made of obsidian and had very little personal reaction to it until it was explained that obsidian was volcanic glass (Chatterjee et al, 2009). Perhaps Lord Farnborough was right after all.

Chapter 6. ANALYSIS OF POTENTIAL METHODOLOGY

A variety of methods used for collecting visitor data were examined and their advantages and disadvantages were analysed and discussed here along with a brief history which shows how these methods have developed. The reasons for choosing the selected methods are given at the end of this chapter.

The history of observational studies in museum research dates back to the first half of the twentieth century when Robinson, in 1928, and Melton, in 1935 and 1936, made observations of the general patterns of visitation in order to analyse visitor behaviour. By the end of the 1980s observational research had become a standard data collection method in visitor studies (Yalowitz & Bronnenkant, 2009) and an established form of gathering qualitative data (Hennink et al, 2011). At this time observation was defined as 'the systematic description of events, behaviours and artefacts in the social setting chosen for study" (Marshall and Rossman:1989, p.79). Observation enabled the researcher to describe existing situations using the five senses, providing a "*written photograph*" of the situation under study (Erlandson et al, 1993) provide data which took in the whole picture of visitor-object interaction (Nelson & Cohn, 2015).

The method simply involves "*active looking, improving memory, informal interviewing, writing detailed field notes, and perhaps most importantly, patience*" to discern how those visitors being observed act and behave in a natural setting. However, observation really works best in conjunction with other research methods such as interviews, questionnaires or other quantitative methods. Before commencing such observational research it is necessary for the researcher to consider what questions need to be answered, where the study is to be located, if it is actually possible to observe participants at the required location and how the observed data can be recorded and analysed. (DeWalt and DeWalt:2002, p.vii).

Some of the earliest studies tracked the wear and tear on carpet but the paper and pencil method is the most common form of timing and tracking because of its simplicity and affordability. The minimum equipment for this type of research methodology needed is a notebook, a pencil and possibly a stopwatch (Yalowitz & Bronnenkant, 2009).

As with any form of human-based recording there are the disadvantages relating to the lack of efficiency in recording accurate or complete data. It might also be necessary to delete

records if the researcher was detected by the visitor and this affected the data in some way (Nielsen, 1946). It is also very time consuming to track one visitor at a time especially if larger amounts of data are required (Schautz et al, 2016) and Nelson & Cohn (2015) also note that a single observation can depend on the visitor's entire time in a gallery.

This human-based factor in this method of data collection also leads to another difficulty: that of trying to juggle observing the visitor whilst keeping a discreet distance, operating the stopwatch and writing down the data. There are also limits on the different types of visitor behaviour that can be recorded at any one time. For example, checking to see if the visitor reads the label or how much they interact with the object as well recording the length of time the visitor stays observing the object and many other factors that the research may want to take into consideration (Nielsen, 1946).

Goulding (2000) picked up on this, making the point that unless the observed participants are interviewed their precise motivations when they viewed an object or their experiences when they did so cannot be fully known or understood. McManus (1989) found that it was not always possible to determine whether the visitor was reading the label on the object. It is therefore necessary to rely on common sense to interpret what is seen and use insight from existing theory.

The same difficulties were also noted by Yalowitz and Bronnenkant (2009) who stated that. whilst it was perfectly possible to record many different visitor-object interactions using the 'paper and pencil' method of observation, care needed to be taken to ensure that these were recorded accurately. They also noted that, because a great many variables might have to be recorded in short time intervals, many studies only measure the visitor's total time in an exhibition rather the time at each individual object within that exhibition. This means that, ultimately, the researcher may be forced to choose which interactions are actually recorded for analysis. Certain factors may have to be grouped together if there is no clear distinction between certain elements of the display. For example, with a wall containing labels and videos it might only be possible to record if the visitor took any notice of the video.

There are also other factors which affect the reliability of data collected in such a way. Bitgood and Patterson (1993) ask the question:

> *Why, under the best condition in this study, did only 56% of visitors read?* [the information about the object]

They suggest a number of possible wide-ranging reasons which might be impossible to answer:

- Was this the last gallery to be visited in the museum?
- Are there some visitors who never read labels under any circumstances?
- Are some visitors who do read labels but in ways which are not obvious to the researcher?

There are also difficulties which stem from the use of using several people to collect the data which requires both the training of those recording the data and reliability testing of the recording method so that the data are collected on a consistent basis. (Schautz et al, 2016). When the data are being recorded by volunteer collectors this is even more vital. This can be done by ensuring the volunteers understand what the exhibit is, the various elements which comprise the exhibit, precisely what visitor behaviour will be measured and to have a practise session with all collectors measuring the same observation (Yalowitz & Bronnenkant, 2009).

One more difficulty associated with collecting observational data is the distance the recorder has to remain from the object. This needs to be close enough to be able to see how the visitor is interacting with the object yet at the same time be far enough away that it does interfere with their experience (Nelson & Cohn, 2015; Yalowitz and Bronnenkant, 2009). Yalowitz and Bronnenkant (2009) further suggest that if volunteer collectors are used then this discretion is included as part of their training as they note that writing on clipboards is noticeable. This is a factor noted by Nielsen (1946) in his research some seventy years previously where he described this as the recorder needing to keep a discreet distance from the visitors whilst maintaining '*an air of studied casualness*'.

Further difficulties arise once the data has been collected as the transfer of the data from the observation into the chosen form of analysis software is a necessary but time-consuming process (Schautz et all, 2016).

It would seem that technology may have provided many of the solutions to the difficulties posed by the traditional 'pen and paper' method of collecting observational data, particularly with the development of portable technology. Portable devices have become part of everyday

life and have become a well-established tool in supporting museum and other cultural and heritage sites (Schautz et al, 2016). One such software system, in which researchers use a handheld computer and a stylus to record information after which the collected data is loaded on to desktop-based software is the Noldus Observer (www.noldus.com, 2019). This is being used by a number of institutions around the world.

Noldus has a number of advantages over 'pen and paper'. The recorded data are more accurate, particularly with the recording of the time spent at one object; it is able to record separate times for concurrent behaviours and interactions; it is not difficult to learn; the data are downloaded directly into the analysis software and the handheld device is less obvious than a clipboard (Yalowitz & Bronnenkant, 2009; Schautz et al, 2016).

There are a number of disadvantages to the use of such technology. The first of these, and probably the most overriding factor is the initial cost of the equipment and corresponding software (Schautz et al, 2016). Noldus has an initial outlay of around $USD6000 which makes it out of reach for most individual researchers and smaller institutions. The devices still require the researcher to be in close to the visitor and all the disadvantages of interference with visitor behaviour still apply. Some training is still required to use the equipment and software (Schautz et al, 2016).

There are other technological solutions besides handheld devices which available that can effectively gather observational data.

Location sensors can be installed in a gallery to measure various signals which detect the visitors' social behaviour. The sensors can measure their proximity to other visitors or individual objects, activity in specific locations in a museum or even visitor interest in museum exhibits (Dim and Kuflik, 2014).

These sensors also have their disadvantages and, again, it is the need to be unobtrusive which is the most difficult to overcome. The sensors and the communication and power cables need to be hidden as far as they can to minimise their impact on visitor behaviour but still be placed so that they can cover the required observation area; the processing time needs to be short enough so that conclusions can be reached in as close as possible to real time to allow the system to act accordingly and an indoor museum may require its own global positioning system (Dim and Kuflik, 2014).

Dim and Kuflik (2014) found some difficulties with this form of technology in their own research in the Hecht Museum at the University of Haifa. They focussed on simple measurements – time, orientation and proximity – then realised that because the research was carried out in a realistic setting many records had to be discarded because of equipment malfunction or because observations were too short. The sensors were set up in a corridor, but the study was limited by the where the sensors had been positioned and this affected its accuracy and level of detail.

Another form of technology is the use of automatic tracking systems. Moussouri (2005) describes the use of the Museum Experience Recorder in which visitors wore a device to track and digitally track their route through the British Museum. Dependent on the technology and software these systems can automatically collect data about the position of visitors and the length of time they spend at particular objects or locations.

They have several advantages. Firstly, they have the potential to minimise the intrusiveness of the observer (Schautz et al, 2016) and, as technology advances these devices will become smaller and even more unobtrusive (Yalowitz and Bronnenkant, 2009); secondly, they are also a very efficient way of collecting data as several visitors can be tracked at the same time and the transfer of data to analytical software is straightforward (Schautz et al, 2016).

There are some limitations especially with what data can be collected with tracking systems. They cannot measure such behaviour as whether visitors read labels or are interacting with the object or other people in their group. There are also the initial costs of purchasing and setting up of the equipment which need to be taken into consideration (Schautz et al, 2016) although Yalowitz and Bronnenkant (2009), in reference to Noldus Observer, suggest that these could be recouped after a few projects.

Another form of technology that has been used to gather such observational information are audio guides. Schautz et al (2016) used a Sennheiser guidePORT audio guide system (Sennheiser guidePORT, 2019) which are commonly used by museums to guide visitors through a tour. They can also be used to obtain visitor statistics for exhibit evaluation and marketing. They used them for a large number of visitors and were able to compare the movements of various experimental groups and a control group.

They have a number of advantages. The data can be directly and accurately imported into a database without any alteration and each data set includes a complete tagged movement

pattern for every individual visitor. The software can display a graphic representation of a visitor's path and provides the ability for a detailed analysis of the observation data (Schautz et al, 2016).

There are other observational techniques which use simpler, more affordable and more widely used technologies. Charitonos (2011) used social media, specifically Twitter, to study the visit to the Museum of London of a group of Year 9 history students. They tweeted their reactions and thoughts as they went around the museum and were interviewed at the of their visit. These two sets of data were then analysed.

Vartiainen and Enkenberg (2014) used participant-led photography. Students took photographs and videos of a museum visit. These were analysed to determine their relationship with the objects they had photographed or filmed. The photographs and clips were also used to examine the relationships between the students and if they gained knowledge about the object that went beyond just taking a picture of it. This does have the disadvantage, though, that the museum was closed to the public whilst the students were there.

Other ways of collecting this data include three less obtrusive ways. The first, described by Nelson & Cohn (2015) analyses the way visitors use a museum's website, which can be easily done using a web tracking service such as Google Analytics. They also suggest analysing attendance records, for a particular project or exhibition, to gain an understanding of how the differing levels of participations demonstrate how the project achieved its aims. Skov and Ingwersen (2014) took the website analysis one step further and combined this with a web questionnaire.

The video and film recording of visitors and their interaction with objects is one method that seems to overcome many of the difficulties of pen and paper tracking. Vom Lehn (2006) describes one way of doing this. This involves initially discussing with managers how visitors should be informed and making sure that notices are displayed which let visitors know they can refuse permission to be filmed if they wish and, if requested, any recorded materials will be destroyed after analysis. The researcher remains close by to discuss the research with gallery visitors. The camera is set up on a tripod close to a particular exhibit and left to record over a reasonably long period of time with recordings being made at different times and on different days.

The analysis of the video allows the researchers to see how visitors approach and examine objects and how they interact with the object at the 'point of experience'. This can then be used to inform the museums about the design of exhibits and galleries and what interpretation resources work best.

This method of filming these interactions has a number of advantages which were noted by Nielsen as far back as 1946. He wrote that the notebook and stopwatch approach of gathering observational data was very error prone and labour intensive. It allows the researcher to watch visitor movement and behaviour multiple times (Schautz et al, 2016) but is best suited for a single exhibit or gallery or at important orientation points in the museum (Yalowitz & Bronnenkant, 2009). Advances in technology have also made the recording and analysis of visitor behaviour easier and more accurate (Yalowitz & Bronnenkant, 2009) and can highlight situational factors which influence their experience of cultural content (vom Lehn, 2006).

However, there are a number of disadvantages as well. The first, and in these times the most important, are the ethical and privacy considerations. Best (2012), who also filmed her subjects, placed signs indicating the presence of a camera and included an opt-out clause. To record real behaviour, she noted, the camera had to be unmanned and in a static position which can be limiting to the type of data being collected. This was also noted by Dim and Kuflik (2014) and Yalowitz and Bronnenkant (2009) in their research. Attempting to join together multiple videos to accurately record visitor behaviour over a larger area can be extremely frustrating and recording with one camera limits the area that can be covered and is not suitable for timing and tracking research (Yalowitz & Bronnenkant, 2009). Nielsen (1946) points out that when a gallery becomes crowded it can become too difficult to follow individual visitors.

There are also the costs of purchasing a suitable camera and providing any necessary training (Schautz et al, 2016) and the manual analysis of the recorded images is time consuming (Yalowitz & Bronnenkant, 2009).

Nielsen (1946) noted that because his recordings lacked sound that his data was not as complete as he would have liked. Without sound these pictures only revealed how visitors behaved in specific situations. Using an audio-visual way of recording data would have necessitated the transcription of both the actions and sounds of the visitors which would have greatly increased the time for data collection and analysis.

There can be a danger that the analysis of these recordings focusses too much on what the visitors are saying to each other and not enough on body language and how that affects such discussion and interaction (vom Lehn, 2006). Kotler and Kotler (2000) also emphasise the importance of talking to visitors instead of being content to count visitor numbers and trying work out what they might want if museums want to improve services.

Interviews are one way gathering this relevant information from visitors. These can take the form of a structured interview which takes the form of a standard script which is adhered to ensure consistency; a semi-structured interview which has a set of questions designed to elicit the required information but which may not be asked in order and an unstructured interview which focuses on the topics and themes of the research (Nelson & Cohn, 2015).

Kawulich (2005) used a structured interview with visitors as they left an exhibition asking them what they had hoped to get out of the visit, what they had discussed with one another, what difference their social context made to the visit and any changes in knowledge, understanding, attitude or emotion brought about by the visit.

Tong et al (2007) used in-depth and semi-structured interviews to develop a formal reporting checklist in the field of healthcare. These explored the experiences of the participants with researchers asking open-ended questions in one-to-one interviews. This allowed the researcher to be able to reword or clarify questions to get more information about the topic from the interviewee.

Rostami et al (2018) undertook a series of pilot interviews which allowed them to add new topics to the interview schedule. These took place at the participant's place of work or by telephone and were recorded and transcribed verbatim and lasted from between 32 and 99 minutes. Field notes were made in order to clarify the meaning some of specialist terms.

The advantages of interviews are that they are able to obtain high quality data by using a small enough number of participants to allow an in-depth analysis and at the same time allow a wide variety of perspective and opinion (Rostami et al, 2018). Nelson & Cohn (2015) also noted that they were useful for gaining a detailed understanding of a range of how museum experiences are received by different people and that it was possible to ask follow-up questions to allow for clarification and further exploration of the topic. Nevertheless, it can be a time consuming and expensive to collect, transcribe and analyse the interview data.

Focus groups represent an alternative to interviews. They are semi-structured discussions comprising groups of 4–12 people who explore a specific set of issues guided by a facilitator who encourages free and unhindered conversation and interaction amongst the group. The aim is to get individual group members to explore and explain their opinions (Tong et al, 2007, Nelson & Cohn, 2015). The individuals share a common experience or characteristic, such as teachers on a museum field trip, and they can provide reactions to new ideas and gather information on a wide variety of information (Nelson & Cohn, 2015). For example, Nelson & Cohn (2015) note that focus groups were used to understand why visitors came to the site, what they enjoyed, what they learned from the experience, and what suggestions they had to improve the tour. To get the most detail out of these conversations the facilitator may choose to record them using either audio and/or video.

The selection of individual group members can be an issue and it needs to be made clear how they were selected as well as rejected. Generally, purposive sampling is used to select participants so that the conversation can be more pertinent to the theme under discussion. Convenience sampling may not be able to capture all the important perspectives (Tong et al, 2007)

The main advantage of focus groups is that their small size allows meaningful participation from each individual. Multiple focus groups may be held and common themes which emerge from across them (Nelson & Cohn, 2015).

The main disadvantage of focus groups is that they are dependent on the effectiveness of the facilitator in encouraging the conversations and the willingness of individuals to openly and honestly share their thoughts within the group. It is also very time consuming to transcribe the recorded conversations and reviewing them outside the experience of the group or visit could prove difficult (Nelson & Cohn, 2015).

As with interviews and focus groups, surveys can provide insights into what museum audiences are learning, thinking, and experiencing and can be useful for quickly collecting data from a large number. With technology-based surveys data can be entered immediately saving both time and money and, if required, they can also be anonymised to allow respondents to be more honest than they might with an in-person interview (Nelson & Cohn, 2015).

Problems arise with the setting of relevant questions and whether they should open or closed. Closed questions may provide more accurate answers but without providing very

much detail; open questions might elicit more detail which does not answer the question or short answers which do not fully explain the respondent's opinion. There may be no opportunity to follow up with these answers up for further explanation. To help prevent this a u pilot survey undertaken with a few individuals can provide feedback on the questions themselves and ensure that the questions posed make sense and are getting the required data (Nelson & Cohn, 2015). The other disadvantage of surveys is that they can have low response rates (Marty, 2008) and little explanation as to how visitors and online users interact with collection-related information (Skov & Ingwersen, 2014).

A number of researchers have used a multiple approach to data collection by adopting more than one method. Barron and Leask (2017) carried out this two-fold approach of data collection in researching visitor behaviour at the National Museum of Scotland and by observing visitor behaviour and carrying out structured interviews. They used a team of trained volunteers which might not feasible in all circumstances.

Observational techniques are advantageous if the researcher wants to understand actions, roles and behaviour and can provide information not obtained by other methods. If an understanding of a structure or process is required, though, they can be limiting.

The advantages of this dual observation/interview method of research are summed up by Walshe et al (2012):

> *an interview allows someone to say what they do; an observation allows you to see directly what someone does*

Yalowitz and Bronnenkant (2009) used a timing and tracking method alongside interviews to allow the visitor to explain their behaviour and look at the relationship between what a visitor actually does and the intended outcome of an exhibition.

Whatever method data collection is used an important fact is how the visitors are selected for observation. Barron and Leask (2017) did this simply selecting individual visitors who entered the gallery at random and Dim and Kuflik (2014) had a research assistant who stood at the entrance of the museum asking visitors if they wished to participate in their study.

Yalowitz and Bronnenkant (2009) make some further suggestions regarding the random selection of participants. The first is to select every third visitor who enters, or every tenth

if the gallery is busy, or developing a system which has as random an approach as possible; the second is to focus on one member of a group as representative of that group as groups may split up or indeed individual members of that group behave slightly differently.

Englander (2012) notes that, whilst random sampling is the best way to choose participants, perfect random sampling is not possible. What is more important is to try and ensure that the representativeness of the sample is indicative of the general population. Good sampling procedures provide better validation of research and the question needed to be asked by the researcher about participant selection is "Does the subject belong to the population that I am studying?" He also disputes the fact that a large sample size is required and that it is again the representativeness which more important.

All these different methods of collecting research data were considered and, whilst each individual type of methodology has its advantages, it was decided to use a twofold approach as Barron and Leask (2017) had done in their research. This approach involved the observation of visitors in a museum, and how they interacted with the objects on display, and the interviewing of museum curators responsible for gallery display regarding their reasons for the way they approached displaying objects. However, it took on the advice of Goulding (2000) who suggested a common-sense approach to determine how the visitors were behaving and interacting.

One important determining factor was financial, with the need to use what was already available to the researcher and their existing knowledge.

A FileMaker database with its equivalent iPad app, FileMaker Go, were used to record all data which had the advantage that data could be exported to appropriate analytical software without the need for changing it in any way. After an initial period of testing it was ascertained that sufficient data could be collected this way and that up to six individual visitors or groups of visitors could be observed, with their actions being recorded, simultaneously.

In order to be able to analyse the data a database comprising three tables was set up: Object Description, which records information about the object being observed; Galleries, which records information about the gallery in which the object is placed and Object Observation which records information about visitor observation of the object. Data fields were determined initially by ascertaining what sort of information might be available and then developed through trial observation runs and a review of literature.

It was decided to have semi-structured interviews so that the conversations could begin by discussing the relevant themes but then allow the interviewees to speak about ideas and concepts that may prove relevant and interesting. It would have been ideal to interview each visitor after each observational measurement to compare the information that had actually been communicated to them with the observed results. The time constraints of a PhD do not allow for this and it also makes the research more ethically appropriate. Schreiber et al (2013) noted that they were unable to interview enough visitors to sufficiently complement their research. However, in his research into search engines, Lazarinis (2011) limited the interviews to a few people who had experience and knowledge of this field and this worked well. It was therefore decided to limit the interviewing to museum curators and, with the permission of the interviewees, these interviews were recorded for later analysis.

It was further decided that observations would be made on a 'first come, first served' basis in order to try and get a wide as cross-section as possible of visitors. The only visitors whose observations would not be observed were children who were obviously without parents or guardians or school groups to keep it in line with the ethical guidelines.

Chapter 7. DESCRIPTION OF RESEARCH METHODS

1) Analysis of Concepts

The concepts of document, object, object as document and museum object as document were analysed to ensure that these fitted in with the requirements of the research and to confirm that any such analysis of data done in this light was correct.

2) Interviews of Museum Curators

Four interviews with five curators, all from the V&A, were recorded using a 'recording' iPad application. Three were of interviews with an individual curator and one with two curators. They lasted between 23 and 42 minutes and took place at the interviewee's place of work either in their office or in another suitably neutral room within the museum. Logistics meant that it was not possible to have a pilot interview but as they were semi-structured it was considered that this was detrimental to the research.

The interviews were professionally transcribed and then imported into the qualitative data analysis management software NVivo. They were analysed using the existing nodes (keywords) which had been used in the literature analysis to find relevant matches.

3) Observation Analysis

i. The Selection Of FileMaker As Database Software

It was foreseen that the quantity of data to be collected during the period of this research might be considerable. It was therefore necessary to develop a method which would both easily facilitate this collection and enable both management and analysis of the collected data. It was decided to use readily available commercial database software in order that the emphasis of this research could remain on the methodological rather than the technical.

A number of applications were examined and ultimately it was decided to use FileMaker. The reasons for this included:

- Dedicated database software
- Ease of use without a steep learning curve for basic operation
- Adaptability

- Reputation
- Compatibility with various Windows platforms
- Ability to alter database fields without loss of data
- Ability to easily import data from other applications
- No apparent limit on database size
- Simple reporting system to analyse data
- Corresponding iPad application to allow data to be easily collected and transferred to appropriate analytical software

The one difficulty with FileMaker that did arise was that whilst photographs could be taken directly from within the iPad application, these could not be transferred with the corresponding data fields to PC. Photographs taken with a camera and then stored as part of the PC application made the size of the database too large for easy transfer to the iPad. It was therefore decided not to transfer the PC database back to the iPad and use the iPad application for data collection and transfer only.

ii. Initial Database Development

An initial review of the literature indicated some of various factors in visitor observation that had been collected in past research.

Sookhanaphibarn and Thawonmas (2009) suggested the distance from which the visitor observed the object, what the visitor did after looking at the object and how this observation altered when the visitor was accompanied by other visitors.

Most literature mentions the time spent in front of an object as important factor. Lindauer (2005), Nelson & Cohn (2015) and Barron and Leask (2017) all suggest recording the time a visitor spends looking at, or passing, an object as important.

Equally as important the stopping time is what the visitor does when they are in front of the object. Yalowitz and Bronnenkant (2009) suggest a number of behaviours could be recorded:

- Total time in area
- Total number of stops
- Proportion of visitors who stop at a specific element
- A level of engagement scale for specific elements (i.e., high, medium, low)

- Time (min:sec) of a stop at a specific element
- "Down time" or non-exhibit related behaviors, such as talking on a cell phone or discussing something not related to the exhibition

Barron and Leask (2017) suggest further details to be measured:

- Walked past exhibit without stopping
- Stopped briefly but did not read
- Stopped and read
- Stopped, read and engaged with material
- Stopped, read, engaged with material and commented to others (pointed, shared through conversation)

Vom Lehn (2006) also highlights the importance of the interaction with other people when looking at an object. It may be that they just see how other visitors respond to the object which affects their own response and offers them information about the object and how, or whether, to approach the object. If these other visitors are in the same group then discussion about the object can affect perceived information especially is the object is effective in holding the visitors' attention and Sookhanaphibarn and Thawonmas (2009) examined how a visitor's observation altered when accompanied by other visitors.

Other researchers took demographic factors into account. Dim and Kuflik (2014) provided a demographic questionnaire, although Barron and Leask (2017) used gender and an estimated age. Yalowitz and Bronnenkant (2009) point out that if demographic data are estimated then it must be assumed that there will be a margin of error both in age and the number of visitors in a group. They also note that many visitor studies observe only adults to avoid any informed consent and ethical issues.

There are a number of other behaviours which had been measured by other researchers and provided a good starting point:

- Visitor path (the route a visitor takes through the space)
- Using hands-on/interactive elements
- Watching videos
- Levels of crowding
- Month or season
- Day of week

- Time of day
- Any special events or programs going on at the museum
- Any special events or programs occurring in the exhibition
- Presence of staff, carts, or other related experiences

(Yalowitz and Bronnenkant, 2009)

- Installation style
- Label placement
- The effects of signs and pamphlets
- Display location.

(Lindauer, 2005)

- The distance from which the visitor observed the object
- What the visitor did after looking at the object

(Sookhanaphibarn and Thawonmas, 2009)

A visit was made to the V&A to determine what sort of objects it might be possible to observe, how visitors were looking at the objects and, in light of the literature, what sort of information could reasonably and practically be collected whilst remaining within the ethical boundaries set down by this research. The various ways in which objects were displayed were also noted.

iii. Initial Database Design

Following this visit, and using the factors from previous research, a database was set up with the two tables - 'Object Description' and 'Object Observation Data'.

The table 'Object Description' was designed to collect information regarding the objects in the museum gallery which were being observed. It contained the following fields:

Picture

A photograph of the object, taken in situ, serving primarily to provide a visual description and prompt when analysing the data when outside of the museum.

Reference

A unique number, automatically generated by database software, to allow the two tables to have a relational link and make later data analysis easier.

Type

The generic object type designed to match the coding of the nodes in NVivo and allow for cross-referencing.

Name

The name by which the object is commonly known, which may not necessarily be the name given by the museum.

Description

A brief description of the object largely intended as a further explanation of the 'Name' field. This is how a visitor would describe the object and is not the description given by the museum.

Museum

The name of the museum in which the object is displayed. This can be a gallery if it meets the definition set out in this research.

Gallery

If the gallery has a specific name, the name of the gallery within the museum in which the object is displayed.

City

The city in which the museum is located.

Country

The country in which the museum is located.

Display Name

The name given to the display by the museum, whether it comprises either single or Multiple Objects.

Original Context

Whether or not the original context of the object is demonstrated by the way the object is displayed.

How Displayed

The way in which the object, or set of objects, is displayed by the museum. It has the following options:

- Glass Case – Single Object

  A Single Object is displayed in a glass case.

- Glass Case – Similar Objects

  A number of objects of a similar type are displayed in a glass case; for example, vases.

- Glass Case – Themed Object

  A number of objects which demonstrate a similar theme, are displayed in a glass case; for example, fashion.

- Freestanding – Single Object

  A Single Object is displayed in an open setting unconstrained by a case or other barrier.

- Freestanding – Similar Objects

  A number of objects, of a similar type, are displayed in an open setting unconstrained by a case or other barrier

- Freestanding – Themed Objects

  A number of objects which demonstrate a similar theme, are displayed in an open setting unconstrained by a case or other barrier

Interactivity

This denotes whether or not any explicit interaction by the visitor with the object is intended. It has the following options:

- None

  No interaction with the object is intended

- Button Push

  Some part of the display is activated by pushing a button, or there is similar functionality

- Pick Up

  The object is intended to be handled

- Complete

  The display invites complete interaction, for example train carriage which can be entered

Notes

A measure of any descriptive notes about the object which have been put on display by the museum as an intrinsic part of the object display. It has the following options:

- Brief

  There are just enough notes to have a slight understanding of what the object(s) is/are

- Moderate

  There are enough notes to a have a clear understanding of what the object(s) might is/are

- Verbose

  There are extensive notes about the object(s)

Curation

A description of how the museum curators intend the object to be regarded and what information is intended to be imparted by the way the object is displayed. This is not currently in use.

The table 'Object Observation Data' contains all the information regarding visitor reaction to the object and its information and had the following fields:

Reference

A unique number, automatically generated by database software, to allow the two tables to have a relational link and make later data analysis easier.

Date

The date on which the observation took place.

Time

The time at which the specific observation took place,

Demographics

The broad demographic of the visitor(s) observing the object, primarily intended to distinguish between number of visitor and type of group. It has the following options which take into account the criteria set out in the section 'Ethical Considerations':

- Single Adult

  An adult on their own
- Adult Group

  A group of adults
- Family Group

  A group of people of any age, but including adults, who obviously comprise one family
- Tourist Group

  A group of people of any age, but including adults, who obviously comprise a group of tourists under the leadership of a guide

From Where

The object previously looked at by the visitor(s). It has the following options:

- Adjacent Object

  The visitors looked at an object adjacent, or in close proximity to, the object being observed.
- Another Object In The Gallery

  The visitors looked at another object somewhere in the same gallery.

Read Notes

A measure of the extent to which the visitor read the notes provided by the museum about the object. It has the following options:

- No

  The visitor(s) did not read the notes at all.
- Cursory Glance

  The visitor(s) acknowledged that there were notes available but little attempt was made to engage with them.
- Moderate

  There was a degree of engagement with at least some of the available notes.
- Intent

  There was a high level of engagement with the available notes.

Interaction

How the visitor(s) physically interacted with the object (when explicit interaction was intended by the museum). It is not a measure of interaction with anything that has been

added by museum, such as a description of the object or watching a film clip about the object. It has the following options:

- Not Applicable

  No interaction with the object was intended by the museum.
- None

  Interaction with object was intended by the museum but the visitor(s) did not interact with the object in any way.
- Some

  Interaction with object was intended by the museum and the visitor(s) made some attempt to interact with the object.
- Complete

  Interaction with object was intended by the museum and the visitor(s) interacted with the object as fully as the museum intended.

Observation Time

The time, in minutes, spent by the visitor(s) in observing the object.

What Next

What the visitor(s) did when they had finished observing the object. It has the following options:

- Left Gallery

  The visitor(s) left the gallery without looking at any more objects.
- Adjacent Object

  The visitors looked at an object adjacent, or in close proximity to, the object being observed.
- Another Object In The Gallery

  The visitors looked at another object somewhere in the same gallery.

4) Data Entry Forms

A data entry form was designed for each of the two tables, 'Object Description' and 'Object Observation'.

Figure 1 Object Description Data Entry Form (Initial Database)

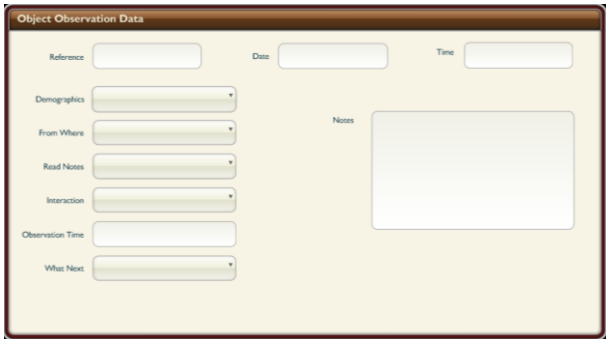


Figure 2 Object Observation Data Entry Form (Initial Database)

5) Database Tables' Relationship

The table 'Object Description' contained a unique key, the field 'Object Reference', so that the tables could be set up relationally as follows:

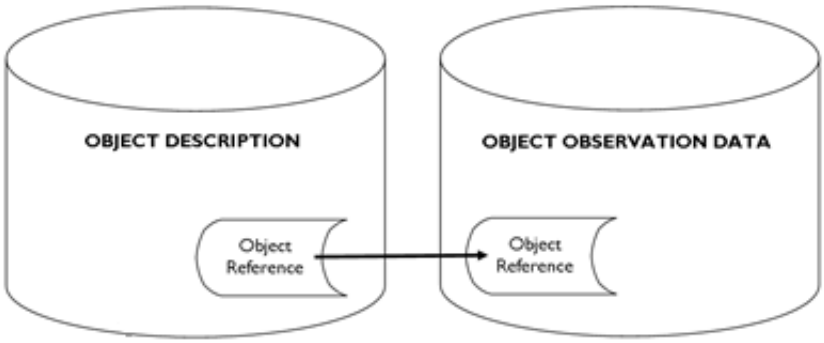


Figure 3 Relationship Between Data Tables (Initial Database)

6) Preliminary Data Collection

A visit was made to the Victoria and Albert Museum, South Kensington, on 21 August 2014 for the purposes of testing the proposed method of data collection. Overall, this methodology seemed to work as expected.

For this initial testing, a more traditional museum object, the statue of Neptune and Triton in the gallery '*Sculpture In Britain 1600 – 1900*' was selected. There were two main criteria for selecting this object. Firstly, that it was located in a place where it was possible to simultaneously discreetly observe the object and the people looking at the object; the second being that there was seating close by that made this observation more comfortable.

Best (2012) noted in her study, in which visitor and tour guide behavior was filmed, that cameras were left unmanned as people were not as sensitive to being looked at by a camera as by the human eye. This did not prove to be the case in this instance as no one took any notice of this observation at all and after a while the researcher did not have to make too much effort to be discreet.[1]

A short period of time was spent observing without collecting data to determine whether or not people were actually looking at the object and what the potential footfall might be.

It was relatively straightforward to establish how people were looking at the objects and what particular aspect, or aspects, of information were being taken notice by them. For example, the difference in behavior between those who were intently reading the curatorial notes or just giving the object a quick glance and then moving on to something else was quite distinct. It was also relatively straightforward to pick up other information-related clues, such as if they were carrying a guide book and whether this was being used in conjunction with looking at the object; or if they were listening to a tour guide either for a group to which they belonged or to a guide from another group. Recording the data using the FileMaker application was also demonstrated to be perfectly feasible, as was transferring this data to PC at a later stage.

[1] The only time the researcher was ever spoken to by someone during this process was by a curator in the Parthenon Museum in Athens who asked if I needed to use Wi-Fi!

Nevertheless it was immediately apparent that there were some obvious difficulties. Despite the location of the object it was still not possible to get a complete 360° angle of vision and so it was difficult to record the actions of people who were behind the object. The gallery was also quite busy and the slowness of data entry meant that not all records were complete. Information about some of the people who were looking at the object could not be recorded at all.

This initial testing led to some immediate changes specifically relating to the way in which data was entered on-site and the replacing of the 'notes' field into various constituent fields. This gave the database a somewhat clumsy, and even amateurish, look but its development into a data collection application rather than an application, in which collected data could be browsed, was considered to be a more overriding factor.

7) Amendments To The Database Design

Some seventy years ago, Nielsen (1946) wrote of the difficulties in collecting data for similar research to this. Although his study was concerned with visitor behaviour rather than the effect of the contextual display of objects, some of those difficulties were still relevant and presented a useful insight into what was possible, what was difficult and what needed to be overcome.

He noted that the number of items of data which could be recorded in one round was limited, citing examples of field names such as '*time of stay*', '*labels read*', '*degree of physical participation (if operative)*' and '*closeness or survey-character of the visitors' observation*'. He also noted the difficulties of documenting all the required information for an individual visitor record when he needed to '*adjust his stop-watch, jot down his data and keep the 'subject' in sight, while at the same time maintaining a discreet distance and an air of studied casualness*'.

Some of the issues which made Nielsen's data-gathering challenging have been overcome with the development of suitable technology. However, those challenges of recording all the necessary data for each visitor record have not as this is still dependent on the limitations of the (human) researcher. Even when observing an object which just has a few visitors, it was still difficult to observe all that was going on. Fortunately, the recent trends of society's relationship towards technology, especially as regards privacy and towards the use of mobile devices in public, meant that it was a great deal easier to be unobtrusive without the need for Nielsen's '*discreet distance*'.

Nielsen filmed his subjects and so was able to examine and, as required, re-examine the recorded data in an 'offline' state. Whilst our modern communities generally have no objection to the use of recording technology the data protection laws do and the processes required to record, as Nielsen did, would have been prohibitive. He similarly suggested that a sound recording would have allowed him to determine both the education and motivation of the visitors to the museum. Again, the required legal and ethical formalities would make this very awkward for the number of individual visitors whose behaviour was being observed.

Nielsen noted that:

> '*studying visitor reactions to the educational experiences within the museum is a necessary first step in evaluating the extent of fruition of museum educational efforts, and a necessary link between practice and even better, more effective, practice.*'

His study of visitors, and his comments on the difficulties of recording their behaviour, strike a note when he hints at the one context not taken into account by the data in this research – that of the state of the visitor themselves. He writes that museums must

'*take its visitors as they are - tired, hurried or uninterested - and seek ways of making their visits, short or long, as fruitful educationally as possible'.* (Nielsen, 1946)

Whilst this research is not specifically about visitors it still requires visitor behavior, at least in respect to their reactions to the objects on display, to be examined. Even though it is investigating the way in which objects are displayed and how the information which visitors glean differs according the different ways these objects are displayed, this can really only be measured by observing visitor reaction to the objects and their information. Recording human behavior, however advanced the technology, will always be problematic.

Melton (1972) notes a number of points about the layout of a gallery, particularly in relation to what he terms the 'overcrowding' of a gallery with objects, which can lead to museum fatigue and a consequent lack of attentiveness to the objects. He suggests that overcrowding should be reduced for visitors who want to focus their attention on one particular individual object as every object is competing with every other object for this attention. He further suggests that period rooms, rooms filled objects from the same genre (roughly equating to the 'freestanding – inhabited' option of this research) may again be just another form of

'overcrowding' with a resultant lack of interest or may indeed stimulate the visitor to a better understanding of the particular age being displayed.

In order to measure the more subtle differences the way visitors reacted to the information some more qualitative fields, as suggested by Nielsen (1946) and Melton (1972) were added with various options as set out in the description of each version. Other changes were made as a direct result of field testing either because different display conditions regarding objects had been noted or because it was felt that these would simplify the recording or analysis of data. These changes are noted in the sections below

8) Database Version 2

Table: Object Description

The following fields were added:

Catalogue Number

This records the museum catalogue number, if it is displayed, to enable the object to be located within the museum's database.

Context Display

This indicates if the original context of the object is made clear by the way it was displayed. It has the following three options:

- Made Clear By Written Information

  The original context of the object is clearly set out in written information that is readily accessible as part of the display.

- Made Clear By Display

  The original context of the object is made clear by the way in which the object is displayed. This may include 'themed', 'comparative' or 'inhabited' displays.

- No Reference Made To Context

  There is no reference made to the original context of the object.

The following functionality was changed to simplify data entry:

- The field 'interactivity' was changed to a checkbox method of selection from a drop-down option box.

The following changes were made to improve the readability and understanding of the data entry forms:

- The field name 'Type' was changed to 'Object Type'
- The field name 'Name' was changed to 'Object Name'
- The field name 'Notes' was changed to 'Written Information'

The following options were added to existing fields:

- The option 'None' was added to 'Written Information'

Table: Object Observation Data

The following functionality was changed to simplify data entry:

- All drop down lists changed to checkbox

The following options were added to existing fields:

- The option 'Directed By Tour Guide' was added to the field 'What Next' to take into account that visitor behaviour may not be self-directed
- The options 'Some' and 'Complete' were deleted from the field 'Interaction' and the following options were added to better describe the actions of the visitor:
  - Photograph Object
    A photograph of the object only was taken.
  - Photograph Object And Self
    A photograph of the object was taken which included the observer.
  - Photograph Object And Other(s)
    A photograph of the object was taken which included other members of the observer's group.
  - Directed By Tour Guide
  - Push Button (etc.)
  - Operate Object
  - Sit On Object
  - Look At Object From Multiple Angles
    The object was observed from more than angle.
  - Return To Object

The visitor was observed returning to the object on at least one more occasion as part of the same period of observation.

The following options were added to the field 'Read Notes' to better describe what information was being communicated to the visitor:

- Read Title

- Listen To Guide
  An accompanying tour guide was listened to by the visitor, this is measuring what the majority of the group do rather than one individual
- Guidebook/Map:
  Whether the visitor was carrying a museum map or guidebook and what use, if any, was made of these when observing the object. These could only be measured if the visitor was obviously carrying either a guidebook or map and not if this were hidden away in a bag or coat pocket.
- Check Guidebook
  A map or guidebook was checked as part of the observation of the object
- Check Map
  A map or guidebook was checked as part of the observation of the object
- Recognise Object
  The visitor has obviously recognised the object and appears to have some prior knowledge of what it is
- Object Was Sought Out
  There is a noticeable 'ah, there it is' moment from the visitor

The following field was corrected:

'From Where' had incorrectly been assigned the options for 'What Next'. These options were corrected to:

- Adjacent Object
- Another Object In Gallery
- Walking Through Gallery
- Directed By Guide

Galleries Table

After the initial testing it became apparent that in order to sufficiently place the object in its appropriate context a further table to record information regarding the gallery in which it was displayed was necessary. It contained the following fields:

Gallery Name

The name of gallery in which object is displayed.

Type of Gallery

The generic type of gallery in which the object is displayed. It has the following options:

Option	Description
Free Permanent	The gallery is a permanent feature of the museum and there is no entry charge
Paid Permanent	The gallery is a permanent feature of the museum but has an entry charge
Free Special	The gallery is a special exhibition on display in the museum for a limited time and there is no entry charge
Paid Special	The gallery is a special exhibition on display in the museum for a limited time but has an entry charge

Table 1 Options for 'Type Of Gallery' (Database Version 2)

Layout Of Gallery

A description of the overall layout of the gallery. It has the following options, one or more of which may be selected:

Option	Description
Specified Theme	The objects in the gallery are related to a single narrow theme which is specified at the gallery entrance or other obvious location
Taken On A Journey	The gallery is designed with the intention of telling a story that has a beginning an and end, for example, a biography of a particular person or event
Intended To Get An Overview	The gallery has a more general theme than in the option 'specified theme', for example, a broad time period such as 'Renaissance' or geographical region
Exploration Encouraged	The gallery has no apparent structure to its layout and visitors are intended to observe objects in whatever order they choose
Led Around In A Particular Way	Visitors are intended to follow a particular route around a gallery, which may be done deliberately by the use of barriers or because the objects naturally tell an unfolding story
Drawn To Particular Object(s)	There is one display which forms the focal point of the gallery. There may or may not be other objects displayed as well

Table 2 Options for 'Layout Of Gallery' (Database Version 2)

Gallery Information

Information about the gallery itself. It has the following options, one or more of which may be selected:

Option	Description
Named	The gallery has a name which is displayed at the entrance or other obvious location. This is not just a reference number.
Information Displayed	Information describing the gallery and its contents is displayed at the entrance to the gallery or other obvious location.
Sponsored Gallery	The gallery has been sponsored by a private individual or, individuals, commercial enterprise, government or government department, national or international organisation
Theme Of Gallery Is Obvious	The theme of the gallery is obvious to non-experts even with a casual look
Gallery Described In Catalogue	The official museum catalogue contains a description of the gallery
Information In Other Media Or Locations	Information about the gallery is available in other forms of media and in locations other than the gallery, although the media and locations are specifically referred to at the entrance to the gallery or other obvious location

Table 3 Options for 'Gallery Information' (Database Version 2)

9) Additional Data Entry Form

Figure 4 Gallery Details Data Entry Form (Database Version 2)

10) Updated Database Tables' Relationship

To maintain the relational nature of the database, a link was made between field 'Gallery Name' in the table 'Galleries' and the field 'Gallery' in the table 'Object Description'. The three tables are related in the following way:

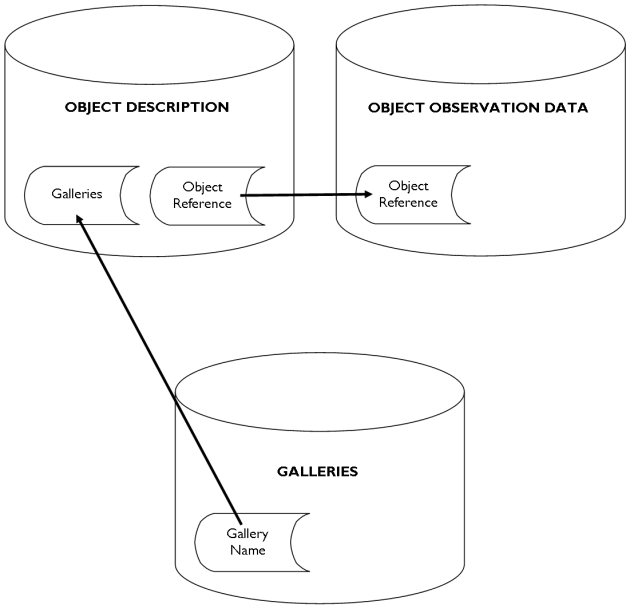


Figure 5 Relationships Between Data Tables (Database Version 2)

11) Database Version 3

Table: Object Description

The following options were added to existing fields:

It was noted that there were other methods of display which had not been listed and accordingly the following options were added to the field 'How Displayed' (formerly 'Display')

- Glass Case – Comparative
  A number of objects are displayed in a glass case for the purposes of comparison
- Freestanding – Comparative
  A number of objects are displayed in an open setting unconstrained by a case or other barrier for the purposes of comparison

The following changes were made to improve the readability and understanding of the data entry forms:

- The field name 'Display' was changed to 'How Displayed'.

Table: Object Observation Data

The number of fields describing visitor actions was considerably increased and reorganised into two sections, 'Interaction' and 'Information Behaviour', to facilitate data entry in the field.

Interaction

- Photograph Object
- Photograph Object And Self
- Photograph Object And Other(s)
- Photograph Object From Multiple Angles
- As Directed By Tour Guide
- Push Button (etc.)
- Operate Object Fully
- Sit On Object
- Look At Object From Multiple Angles
- Return To Object

The following options were also added:

- Quick Glance And Move On

  The object was observed but there was no attempt to engage with it
- Look At One Specific Part Of Object

  A particular part, or parts, of the object was more closely observed

Information Behaviour

- Did Not Look At Provided Information
- Cursory Glance
- Moderate
- Intently
- Read Title
- Listen To Tour Guide
- Object Was Recognised
- Object Was Sought Out

The following options were also added:

- Ask Tour Guide

  An accompanying tour guide was questioned by the observer
- Group Discussion

  There was discussion about the object by the group of visitors observing the object
- Group Discussion With Expert Leader

  There was discussion about the object by the group of observers observing the object with one member of that group appearing to have a greater knowledge about the object (but was not a tour guide)
- Checked Map/Guidebook

  The previously separate map and guidebook options were combined as it often proved too difficult to distinguish between the two and in-house museum guides also tended to serve as guide and map
- Read Map/Guidebook

  The visitor(s) looked more definitely at the map or guidebook whilst looking at the object

Table: Galleries

No changes were made.

12) Database Version 4

Table: Object Description

The following fields were added:

- Provenance
  An additional description regarding the context of the object
- Evidential
  An indication of whether the object was evidence of another object or piece of information with 'yes' and 'no' options
- Original Object?
  A record of the degree of originality of the object with 'yes' and 'no' options
- Everyday / Art
  An indication of whether the object was originally intended for everyday use or as a piece of art
- Senses
  An indication of which forms of sensory perception were used by the object to communicate information and so match the data in 'Object Observation', namely: Sight, Touch, Hearing, Smell, Taste. These are a measure of any way the visitor(s) may receive information the object.
- Text On Object
  An indication of what, if any, textual information was on the object or an intrinsic part of the object that is readily visible to the observer.
- Related Media
  An indication of whether the display included other forms of media that were either part of the display or referenced as part of the display. These media are separate from the main information display board.

The following changes were made to improve the readability and understanding of the data entry forms:

The options for the field 'Interactivity' were changed to be more descriptive. These are:

- No Explicit Interaction Intended
- Button Push
- Handling Allowed
- Full Interaction Intended

The options for 'Context Display' were changed to be more descriptive:

- Made Clear By Written Information
- Made Clear By Display
- No Reference Made To Context

Table: Object Observation Data

The following fields were added to the section 'Interaction':

- Senses

An indication of which forms of sensory perception were used by the object to communicate information and so match the data in 'Object Observation', namely: sight, Touch, Hearing, Smell, Taste. These are a measure of any way the visitor(s) may receive information the object.

- Look At Object From Static Point (close)
  The object was observed from one a single unmoving and close point of view
- Look At Object From Static Point (far)
  The object was observed from one a single unmoving and far-off point of view
- Look At Object From Multiple Distances
  The object was observed from more than distance
- Comparison With Another Object
- Brief Look From Multiple Angles

The following fields were added to the section 'Information Behaviour':

- Read gallery notes
  Information about the gallery in which the object was displayed was read
- Listened to tour guide from another group
  A tour guide from an unrelated group was listened to by the observer
- Carrying map/guidebook
  Visitor was carrying a map or guidebook and had it visibly to hand

Table: Galleries

No changes were made.

13) Database Version 5

Table: Object Description

The following options were added to existing fields to ensure consistency of data entry:

'Original', 'Reproduction', 'Restored' and 'Augmented' were added to the field 'Original Object'

'None', 'Name Of Object', 'Description Of Object', 'Contextual Information', 'Other Information' and 'Unknown' were added to the field 'Text On Object'

Table: Object Observation Data

Sookhanaphibarn and Thawonmas (2009) suggested that a visitor's attendance to an exhibit was a fun of the time they spent looking at the exhibit and the distance from which the object was observed. Accordingly, a more accurate way of recording the observation time and the distance of the visitor from the object were added. It was felt that the figures recorded for these fields need only be sufficiently accurate in order to get a comparison from relative values. The following fields were therefore added or modified to record more accurately information:

- Observation Time
  This field was modified to calculate the value from the system variable *CurrentTime* and the field 'Time' and to be updated with a button click. The time was automatically rounded up to the nearest minute as it was felt that differences measured in only a few seconds were of little value. The minimum possible observation time was one minute.
- Distance From Object
  This was added as a set of check boxes with values from 1 to 10 feet. This allowed several different distances to be recorded for one observation to allow for the fact that some visitors looked at the object from a number of different viewpoints. It was also possible to record a zero distance for visitors who walked past the object, looked at the object, but did not stop.

The following fields were added:

- Direction
  An indication of whether any direction was given to visitors as to what should be observed. It has the following options:

  - From Tour Guide – An accompanying tour guide directed the visitor(s)
  - From Group Expert - An expert from within the group, but not a tour guide, who directed the visitor(s) as to how to look

- Recognition
  Melton (1972) noted that that there are some objects to which people are naturally drawn and to which they are more perceptive. This may be because they have an

existing interest in the particular object or because a particular object is representative of an interest they hold. Some objects are deliberately sought out by these visitors and the way they react to those objects and the information that those objects reveal is altered.

The field 'Recognition' was added as a measure of whether the object appeared to have been recognised or to have been deliberately sought out. It has the following options, one or more of which may be selected:

- Object Recognised - There was an apparent recognition of the object by the visitor(s) when they encountered it or recognise something within themselves
- Object Sought Out - The object appeared to have been deliberately sought out by the visitor(s)

The following options were added to existing fields:

The option 'Listened To Electronic Tour Guide' was added to the field 'Verbal Information'3

The following fields were deleted:

The field 'Notes' was removed as this had proved too cumbersome to use and had been made superfluous by the addition of other fields to record individual pieces of information.

The following changes were made to improve the readability and understanding of the data entry forms:

The visitor information actions, previously categorised into 'Interaction' and 'Information Behaviour', were reorganised into a number of more accurate categories intended to make data analysis easier. Some new options were also added where indicated.

Type of Looking

- Quick Glance/Move On
- Static Point
- Multiple Distances
- Multiple Angles
- Specific Part(s)

- Comparison
- Revisit

Photography

- Object Only
- Object And Self
- Object And Other(s)
- From Multiple Angles
- From Single Angle (new) - A photograph of the object was taken from a single angle
- Single Shot (new) - A single photograph of the object was taken
- Multiple Shots (new) -More than one photograph of the object was taken

Physical Interaction

- Casual Operation
- Moderate Operation
- No Operation
- Did Not Understand Operation
- Sat On Object – unless the object is designed to be sat (e.g. a chair in the Design Museum)

Senses

- Sight
- Touch
- Hearing
- Taste
- Smell

Intrinsic Information

This was developed from 'Read Notes' and measured to what degree, and how, there was an overall engagement with information that was an intrinsic part of the object display. There are some general values as well as some specific measurements.

- Cursory Glance
- Moderate
- Intently
- Read Title

- Read Gallery Notes
- Read Description (new) - The description of the object was read
- Read Text On Object (new) - Text that is an original and intrinsic part of the object was read
- Listened To Audio (new) - Audio material provided as part of the information about the object was listened to
- Watched Video (new) - Video material provided as part of the information about the object was watched

Guidebook

- Carrying Map/Guidebook
- Checked Map/Guidebook
- Referred To Map/Guidebook (amended) changed from read as seemed better description

Verbal Information

- Listen To Tour Guide
- Question Tour Guide
- Listen To Tour Guide From Another Group
- Listened To Electronic Tour Guide
- Group Discussion
- Group Discussion With Expert Leader

Recognition

- Object Recognised
- Object Sought Out

Direction

- From Tour Guide
- From Group Expert

Table: Galleries

No changes were made.

14) Database Version 6

From this version on, live data was being used.

Table: Object Description

The following options were added to existing fields to ensure consistency of data entry:

'None', 'Audio', 'Visual', 'Audio-Visual', 'Social Media' and 'Website' were added to 'Related Media'

The fields were further reorganised into a number of categories to simplify data entry:

Display Information

- How Displayed
- Display Name
- Written Info
- Text on object

Context

- Original Context
- Context Display

Meta Information

- Provenance
- Original Object
- Evidential

Designed Interaction

- Interactivity
- Senses
- Related Media

Table: Object Observation Data

The following options were added to existing fields:

The option 'none' was added to 'Intrinsic Information' to indicate that none of the information was observed.

The options 'none' and 'unknown' were added to each of the fields 'Guidebook', 'Direction' and 'Recognition' to indicate when no action was taken in these instances or if it could not be determined whether an action had been taken.

Table: Galleries

No changes were made.

15) Database Version 7

Table: Object Description

The following fields were added:

- Curator On Hand

  A simple yes/no option to indicate whether a curator was within the vicinity of the object and available to answer questions. Curator is defined as a member of the museum staff on duty in the gallery.

The following options were added to existing fields:

The options 'Freestanding – Unrelated' and 'Glass case – Unrelated' were added to 'How Displayed'.

The option 'Model' was added to 'Original Object'.

The options 'yes', 'no', 'somewhat' and 'unknown' were added to 'Evidential'.

The following changes were made to improve the readability and understanding of the data entry forms:

Options were changed for the following fields:

Original context

- Deliberately No - Time
- Deliberately No - Location
- Deliberately No - Time And Location
- Reproduced
- Yes

Provenance:

- Not Stated
- Some Detail
- Stated Precisely

The following fields were changed so that all the available options became yes/no

- Text On Object
- Designed Interaction
- Senses
- Related Media
- Context

Table: Object Observation Data

The following options were added to existing fields:

The option 'Checked Online Notes' was added to 'Intrinsic Information'.

The option 'Asked Curator' was added to 'Verbal Information'

The following changes were made to improve the readability and understanding of the data entry forms:

The following fields were changed so that all the available options became yes/no

- Senses
- Type Of Looking

- Physical Interaction
- Photography
- Intrinsic Information
- Guidebook
- Verbal Information
- Direction From
- Recognition

Table: Galleries

No changes were made.

16) Database Version 8

Table: Object Description

The following fields were added:

- Curator on hand' with options 'Yes', 'No'

    This was added after encountering the first instance of a curator being available when observing object 0010

The following options were added to existing fields to record more detailed information:

The options 'Deliberately No – Time', 'Deliberately No – Location', 'Deliberately No - Time And Location' and Reproduced were added to 'Original Context'

The options 'Somewhat' and 'Unknown' were added to the field 'Evidential'

The following options were renamed to improve readability of the data collection form:

The field 'Interactivity' was changed to 'Designed Interaction'

The following options were renamed to improve readability of the data collection form:

The option 'No Reference Made To Context' was changed to 'Not Set In Context' in the field 'Context'

The options 'No explicit interaction intended' and 'Full interaction intended' were changed to 'None intended' and 'Complete interaction' respectively in the field 'Designed Interaction'

The following options were removed as they were considered redundant:

The option 'none' was removed from the field 'Related Media'

The following fields changed to a data entry type of 'Radio Button', a value list which only allows one option to be selected from a predefined list. The choice of options was not changed.

How Displayed

Curator On Hand

The following fields changed from a data entry type of 'Checkbox Set Value List', which allows multiple options in one field, to 'Radio Button'. This allowed for greater consistency of data and initial testing regarding results showed that a 'yes/no' option could be more easily manipulated within FileMaker.

Designed Interaction

Senses

Related Media

Table: Object Observation Data

All fields were changed to radio button set for the reasons described above.

The field 'distance from object' was split into two fields 'Distance from object max' and 'Distance from object min' to enable the calculation of the observation range which was entered a number. The maximum distance as set at nine feet as up until this point no visitors had been recording observing the object from ten feet. Ten feet also seemed too far to be observing the object. The default value for the minimum distance was set at one foot, for example, if the visitor touched the object. It also simplified calculations as only relative values were needed and all previous values of zero feet were amended to one foot to allow for this. In some cases, this also meant deleting one or more of the recorded distances and only

keeping the lowest and highest values. The factor 'Static Point' had been recorded and so it was possible to have accurate values.

The following changes were made to improve the readability and understanding of the data entry forms:

Options were changed for the following fields:

'Casual Operation' and 'Moderate Operation' were changed to 'Casual' and 'Moderate' respectively for the field 'Physical Interaction'

The following options were added to existing fields to record more detailed information:

The option 'Extensive' was added to 'Physical Operation'

The option 'Asked Curator' was added to 'Verbal Information'

The following options were removed as the 'Radio Button' option made them redundant:

The option 'No Operation' was removed from the field 'Physical Interaction'

The option 'None' was removed from the field 'Intrinsic information'

The following options were removed as it proved too difficult to determine whether this was happening:

The option 'Listened to electronic tour guide' was removed from the field 'Verbal Information' – it was difficult to tell what the device being listened to actually was

The options 'None', 'Unknown' and all references to 'Map' were removed from the field 'Guidebook' – it was difficult to tell what was being looked at as some guidebooks contained maps and some maps had information regarding the museum objects

The following options were removed to improve the readability of the data collection layout:

The options 'Unknown' and 'No' were removed from the field 'Direction'.

The options 'Unknown' and 'No' were removed from the field 'Recognition'.

The following options were added to fit in with observed data

Added options:

Physical Operation – ‘Extensive’

Verbal Information ‘Asked curator ‘

Table: Galleries

The fields ‘Picture1’ and ‘Picture2’ were added to include images of the gallery

The options ‘Free permanent gallery with free special exhibition’ and ‘Free permanent gallery with paid special exhibition’ were added to the field ‘Type of Gallery’ to allow more gallery types to be recorded and observed.

17) Database Version 9

Table: Object Description

The layout was redesigned using a ‘tabbing’ system to improve the readability and individual ‘tabs’ were set up as follows with the fields as specified:

Object Info:

‘Object Type’, ‘Everyday / Art’, ‘Museum’, ‘Gallery’, ‘City’, ‘Country’, ‘Description’

Display info:

The different types of freestanding and Glass Case Object display

Context:

‘Made clear by written information’, ‘Made clear by display,’ ‘Not set in context’, ‘Original context’

Meta information:

‘Provenance’, ‘Original object’, ‘Evidential’, ‘Written info’, ‘Curator On Hand’

Senses:

‘Sight’, ‘Touch’, ‘Hearing’, ‘Taste’, ‘Smell’

Related media:

'Audio', 'Visual', 'Audio-visual', 'Website', 'Social media'

Text on object:

'Title', 'Description', 'Contextual Information', 'Other', 'Unknown'

Interaction:

'Interaction Intended', 'Button push', 'Handling Allowed'

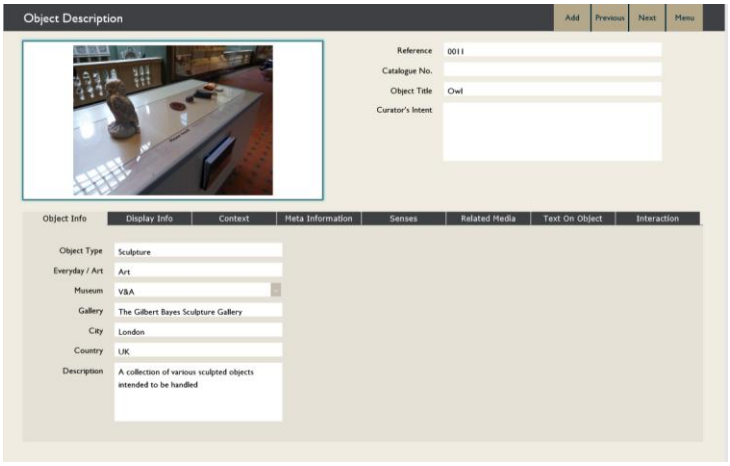


Figure 6 Object Description Form (Database Version 9)

The following changes were made to improve the readability and understanding of the data entry forms:

The field 'Designed Interaction' was renamed 'Interaction' and all options were changed to radio button sets with 'yes' and 'no' options'

The following options were renamed to improve readability of the data collection form:

The option 'Complete Interaction' was changed to 'Interaction Intended' in the field 'Interaction'

The following options were removed to improve readability of the data collection form:

The option 'None Intended' was removed from the field 'Interaction' as the radio button set made this redundant

The following options were added to ensure consistency of the data collection form:

The option 'Curator On Hand' was added to the 'Object Description' tab 'Meta Information' to match the option 'Asked Curator' in the field 'Verbal Information'

Table: Object Observation Data

The following options were added to ensure completeness of the data collection form:

The option 'Watched Audio-Visual' was added to the 'field 'Intrinsic Information'

Table: Gallery Details

No changes to database fields

Table: Results

The layout and table 'Results' were added to perform and store the calculations for each individual scale within FileMaker rather than export the raw data to another application.

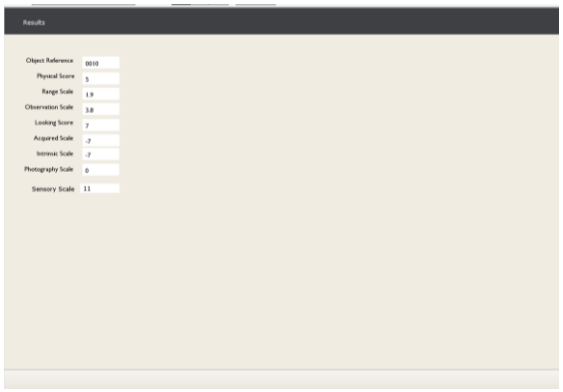


Figure 7 Results Form (Database Version 9)

Table: Weightings

The layout and table 'Weightings' were added to keep track of the weighting value for each individual factor for each individual scale. Dependent on certain criteria, these weightings could have a positive, negative or zero value and are defined, for example:

W_PHYSICAL_SLIGHT_POS (positive value)

The calculations and weightings are described fully in the data analysis section.

Figure 8 Weightings Form (Database Version 9)

18) Database Version 10

The fields, tables, layouts and variables were renamed to meet FileMaker conventions as closely as possible (FileMaker Development Conventions, 2005). They took the general format:

- Unstored variables, temporary variables used in calculation of results such as the factors used in the calculation of the various scales:

  unstored_Looking_Quick_Glance

- Global fields, fields which contain one value used for all records in the file such as the individual weightings values which were all prefixed with W_:

  W_LOOKING_QUICK_GLANCE

- Key fields, which are indexed fields and prefixed with id_:

  id_ObjectReference

- Data fields are written in CamelCase:

  lookingQuickGlance

- Tables are written as a single word in title case, although readability altered this
- Layouts are named according to function

Some renaming was done in order to maintain consistency. Appendix 1 contains list of all the above.

It was decided that there should be no negatively valued weightings as this would unnecessarily complicate the calculations which only need to show relative values. This functionality was kept in the database structure for future use and reference and just removed from the form.

A script was added to correct some data entry and ensure that fields StaticPoint and NoInteraction had correct values.

The layouts were also tidied up.

Table: Object Description

The following options were added to better describe objects:

The option 'Original / Reproduced' was added to the 'Original Context'

The following options were removed to simplify the description of the object:

The option 'Other Information' was removed from the field 'Text On Object' and the 'Handling Allowed' was removed from the field 'Interaction'.

19) Final versions of Database layouts

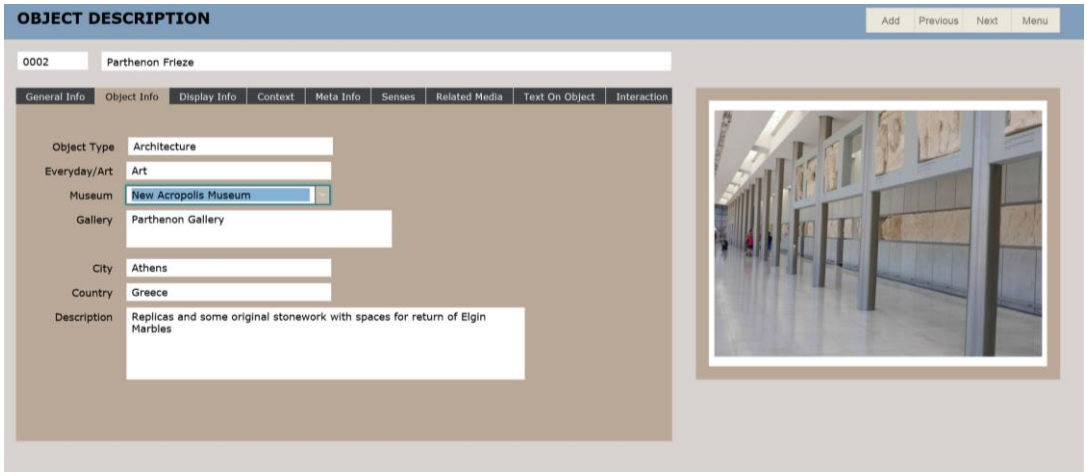


Figure 9 Object Description Data Entry Form (Database Version 10)

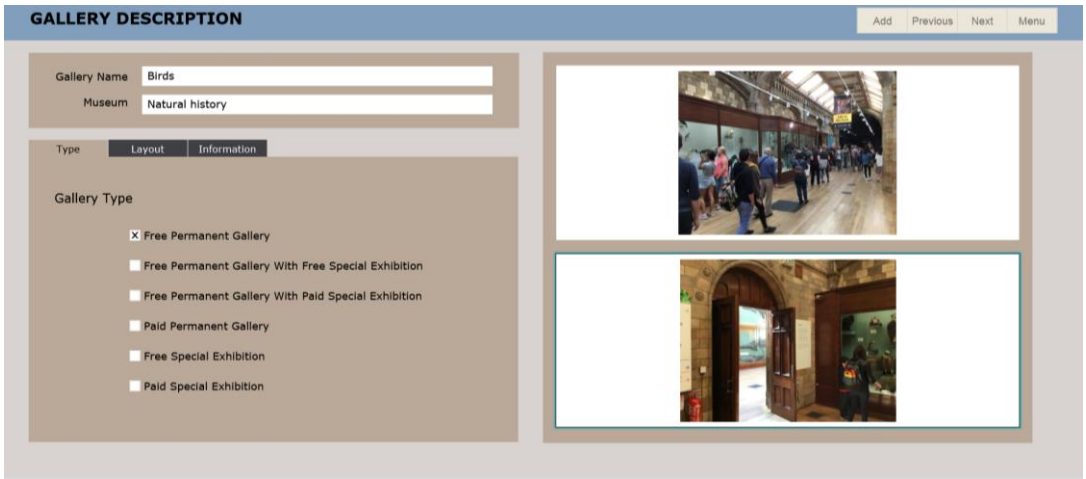


Figure 10 Gallery Description Data Entry Form (Database Version 10)

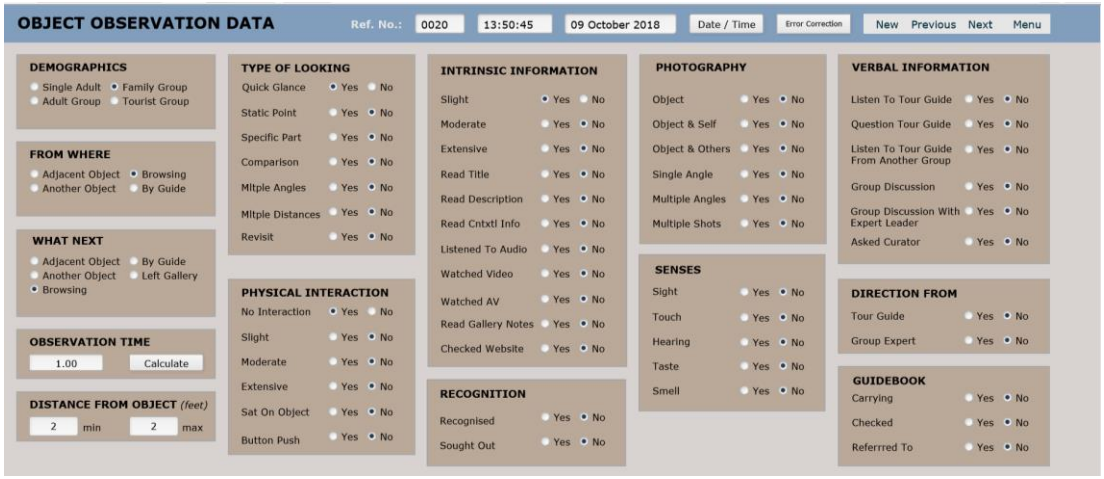


Figure 11 Object Observation Data Entry Form (Database Version 10)

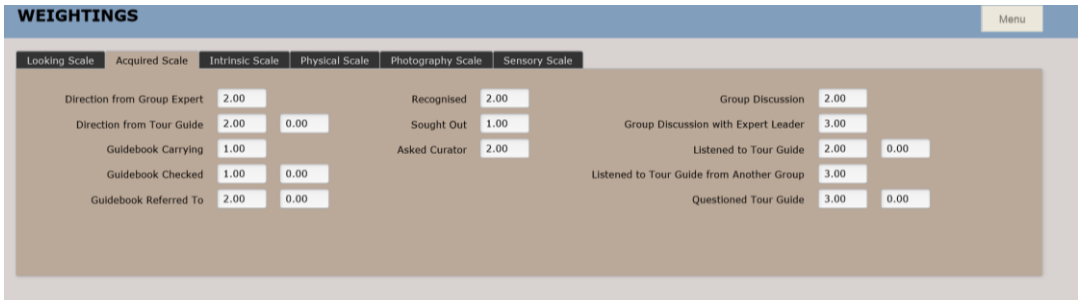


Figure 12 Weightings Form (Database Version 10)

Figure 13 Results Form (Database Version 10)

Chapter 8. DATA ANALYSIS

In order to be able to evaluate the largely qualitative data, a number of functions were developed to enable quantitative evaluations to be made. As this research concerns the comparison of various object displays it was felt that this deemed absolute values unnecessary.

Whilst this research is not primarily concerned with a measuring the differences between different demographic groupings it is acknowledged that these groupings will behave differently and that there will also be different individual behaviours within those groups. The three groups were 'adult', 'family' and 'tourist'. It was therefore decided to regard these groups as a whole rather than as the sum of their individual parts. So, for example, one member of a tourist group took a photograph of an object then this would count as a positive bias for the photography scale for that observation record.

1) Range Scale

i. Description

Sookhanaphibarn and Thawonmas (2009) developed 'visit maps' as a function of the gallery area and the number and location of stops made in this gallery by the visitor. Range scale is a simplified version of this and measures the range of distances, or single distance, from which the visitor observed the object.

ii. Justification

It was decided that more information was being noted when the visitor was observing the object from closer distance than from a greater distance. It was also decided that if object was being observed from a number of distances then more information was being noted than if observation was merely from one distance and that the smaller the minimum distance the greater the interest.

Range scale was therefore determined to be a function of the difference between the maximum and minimum distances of the visitor from the object (range) with a weighting factor based on the minimum distance. The divisor was set at 10 as this represented one greater than the maximum distance which was measurable and so would provide a percentage minimum value without causing negative values.

iii. Calculation

In general terms:

Range Scale = (Maximum Distance From Object – Minimum Distance From Object) + (10 – Minimum distance from object) * ((10 – minimum distance from object) / 10)

The actual coding is:

Scale_Range = (ObjectObservationData::distancefromobjectMaximum – ObjectObservationData::distancefromobjectMinimum)
+
(10 – ObjectObservationData::distancefromobjectMinimum) * ((10 – ObjectObservationData::distancefromobjectMinimum) / 10)

2) Observation Scale

i. Description

A measure of the attention a visitor pays to an object as a function of time and distance.

ii. Justification

As discussed in the database amendments above, both Sookhanaphibarn and Thawonmas (2009) and Nielsen (1946) indicate that the measure of a visitor's attendance to an object is a function of the time spent observing that object and the distance from which that object is observed. Dim and Kuflik (2014) measured velocity with the implication that both time and distance were important.

Sookhanaphibarn and Thawonmas (2009) defined observation distance as the visitor's fuzzy distance from the nearest exhibit and so it was felt that even the observed differences were not completely accurate they would at least give a relative measurement. They calculated visit time as the time a visitor stopped at a particular place; Dim and Kuflik (2014) measured time by placing beacons at the entrance and exit of the gallery so that they could calculate the time spent within a particular area.

The 'Range Scale' function was used instead of distance so that the minimum observation distance and range of distances could be taken into account. Kotler and Kotler (2000) note that the casual visitor to large museums divide their time between the restaurant and gift shop as well as looking at the exhibits so it was felt that this would provide more useful values than using the observation time alone. The Observation Scale function was therefore function of the Range Scale and the observation time which was also rounded to two decimal places.

iii. Calculation

In general terms:

Observation Scale = Observation Time in minutes * Range Scale

The actual coding is:

Insert Calculated Result

[

ObjectObservationData::observationTime;

Round ((Get (CurrentTime)-ObjectObservationData::TimeOfDay) / 60 ; 1)

]

3) Looking Scale

i. Description

The 'Looking Scale' gives a quantitative value to the different ways in which the object was observed by the visitor and their degree of attentiveness to the object. The field measurements taken into account are:

lookingQuickGlance
lookingStaticPoint
lookingSpecificPart
lookingComparison
lookingMultipleAngles
lookingMultipleDistances
lookingRevisit

ii. Calculation

Values of 'yes' were converted to 1 and values of 'no' to '0'. These were then multiplied by a weighting value determined by the complexity of looking, a higher weighting being given to the more complex types of looking and a lower weighting to the simpler types, and a total calculated from the sum of these values. These calculations were not dependent on values of fields from other tables.

In general terms:

Looking Scale = Sum (Weighting1…)

The actual coding is:

```
Sum (
ObjectObservationData::unstored_Looking_Quick_Glance        ;
ObjectObservationData::unstored_Looking_Static_Point        ;
ObjectObservationData::unstored_Looking_Specific_Part       ;
ObjectObservationData::unstored_Looking_Comparison          ;
ObjectObservationData::unstored_Looking_Multiple_Angles     ;
ObjectObservationData::unstored_Looking_Multiple_Distances  ;
ObjectObservationData::unstored_Looking_Revisit
)
```

The values are determined by:

unstored_Looking_Quick_Glance

This has positive weighting if the field ObjectObservationData::lookingQuickGlance has a value of 'Yes' otherwise it has a zero value.

unstored_Looking_Static_Point

This has positive weighting if the field ObjectObservationData::lookingStaticPoint is 'Yes' otherwise it has a zero value.

unstored_lookingSpecificPart

This has positive weighting if the field ObjectObservationData::lookingSpecificPart is 'Yes' otherwise it has a zero value.

unstored_lookingComparison

This has positive weighting if the field ObjectObservationData::lookingComparison is 'Yes' otherwise it has a zero value.

unstored_lookingMultipleAngles

This has positive weighting if the field ObjectObservationData::lookingMultipleAngles is 'Yes' otherwise it has a zero value.

unstored_lookingMultipleDistances

This has positive weighting if the field ObjectObservationData::lookingMultipleDistances is 'Yes' otherwise it has a zero value.

unstored_lookingRevisit

This has positive weighting if the field ObjectObservationData::lookingRevisit is 'Yes' otherwise it has a zero value.

iii. Justification for weighting values

Yalowitz and Bronnenkant (2009) raised the question of how long a visitor needs to be engaged with the object for it to count, particularly when the object is too large to be able to take it in by just viewing it from one point. It is possible to engage with such objects without physically stopping in front of the object to look at it.

Peart (1984) developed a value which he called 'holding power' which is a ratio of the actual viewing time divided by required minimum viewing time, that is the time required to look at an object, read the label, physically cover the exhibit area and listen to and/or watch each audio-visual. At the same time museums also acknowledge that as well as the visitor who will spend considerable time looking at an object there are also those who will just be browsing without stopping and that displays have to allow for both these types of visitor. (Bryony Shepherd, 2018

Judd (2018) discussed setting up displays which would encourage visitors to compare two objects, with a system of clues and questions, and so to look more closely at the objects.

The values given to the weightings reflect the differing level of interest in looking that the object. This is directly evident in the values for QUICK_GLANCE, STATIC_POINT and SPECIFIC_PART. A minimum value was given to QUICK_GLANCE as it shows the visitor has at least acknowledged the object; STATIC_POINT was given a slightly higher value as it indicates that the visitor has stopped, however briefly, to look at the object and that the object could be too large to take in by stopping at one point; SPECIFIC_PART was given the highest value of the three as it is indicative of the visitor stopping to pause to look more closely at one part of the object and take more interest in it. COMPARISON, MULTIPLE_ANGLES and MULTIPLE_DISTANCES were given the same higher value as they all in their own way show that this visitor an even greater level of interest. REVISIT has the

highest value as this indicates the greatest level of interest with the visitor coming back to look at the object again, although this is only within the time period of a single observation.

iv. Weighting Values

Type Of Looking	Weighting Value
W_TYPE_OF_LOOKING_QUICK_GLANCE	1.0
W_TYPE_OF_LOOKING_STATIC_POINT	1.5
W_TYPE_OF_LOOKING_SPECIFIC_ PART	2.0
W_TYPE_OF_LOOKING_COMPARISON	3.0
W_TYPE_OF_LOOKING_MULTIPLE_ANGLES	3.0
W_TYPE_OF_LOOKING_MULTIPLE_DISTANCES	3.0
W_TYPE_OF_LOOKING_REVISIT	4.0

Table 4 Weighting Values For Looking Scale

4) Physical Scale

i. Description

The 'Physical Scale' gives a quantitative value to the degree of physical interaction with an object by the visitor. The field measurements taken into account are:

PhysicalSlight
PhysicalModerate
PhysicalExtensive
PhysicalSatOnObject
PhysicalNoInteraction
PhysicalButtonPush

ii. Justification for Weighting Values

Peart (1984) defines interaction as any movement associated with gaining better comprehension of an exhibit whether that is through some kind of physical interaction, discussion or by using one's senses. Melton (1972) records interaction being used in research in Museum of Science and Industry, New York with the operation of small electrical objects either being operated automatically or manually with crank handle which showed that manually objects were examined for almost twice as long and in the interview (Gardner & Agerman Ross, 2018) with Corinna Gardner she notes the difficulties of understanding digital objects from their housing alone and, if in order to interact with them, they need to be switched on by a curator.

David Judd (2018) spoke about the handling collections in the V&A. In particular, he mentioned a gallery in which the visitors could try on the some of their historic garments to discover what it would be like. In another gallery the visitor could experience what it was like to construct a chair by presenting them with various constituent parts of that chair. As people tend to be removed from the process of manufacturing, he said, this helps with their understanding of the object. In her interview (2018) Corinna Gardner highlighted the need to encourage visitors to think differently and creatively about familiar objects by imagining the visitor using the object.

In a difference that follows Melton's (1972) crank handle and automatic operation, Johanna Agersson noted in her interview (2018) that the Design Museum has one collection with a table and a number of chairs on which it is possible to sit. This meant, though that for her, the only real information she got about those chairs was whether they were comfortable to sit on.

The curators in their interviews expressed views supporting the need for visitor to be able to touch the objects. Corinna Gardner (Gardner & Agerman Ross, 2018) would like visitors to be able to touch and handle everything as the V&A displays objects whose original intent was to be used in some way. Johanna Agersson (Gardner & Agerman Ross, 2018) also agreed with David Judd (2018) saying that he thought visitors would generally like to see objects without the glass but that the [fragile] nature of the objects did not always allow this.

Alex Fairhead (Richardson, 2014), the exhibition developer of 'Volcanoes and Earthquakes' at the Natural History Museum has 'littered with mechanical interactions' and where possible the visitor is allowed to touch the exhibit. However, as he points out:

> *"In this gallery there's a lot of rocks, and because they're pretty tough - we're not afraid that they're going to break! So it works well.*"

The values given to the weightings reflect the differing level of interaction with the object, whether or not interaction is intended. This is directly evident in the values for SLIGHT, MODERATE and EXTENSIVE.

BUTTON_PUSH and SAT_ON_OBJECT both have positive, but low, values as it was considered that is only the equivalent of SLIGHT_INTERACTION

It was decided that the factor NO_INTERACTION designed to measure if any interaction with an object had taken place was not currently needed and had only been used as a check for the SLIGHT, MODERATE and EXTENSIVE factors. The weighting factor for this was therefore changed to zero so that it could be included at a later date if required.

iii. Calculation

In general terms:

Physical Scale = Sum (Weighting1….

The actual coding is:

```
Sum (
ObjectObservationData::unstored_Physical_Slight          ;
ObjectObservationData::unstored_Physical_Moderate        ;
ObjectObservationData::unstored_Physical_Extensive       ;
ObjectObservationData::unstored_Physical_Sat_On_Object   ;
ObjectObservationData::unstored_Physical_No_Interaction  ;
ObjectObservationData::unstored_Physical_Button_Push
)
```

The values are determined by:

unstored_Physical_Slight

This has positive weighting if the field ObjectObservationData::physicalSlight has a value of 'Yes' otherwise it has a zero value.

unstored_Physical_Moderate

This has positive weighting if the field ObjectObservationData::physicalModerate has a value of 'Yes' otherwise it has a zero value.

unstored_Physical_Extensive

This has positive weighting if the field ObjectObservationData::physicalExtensive has a value of 'Yes' otherwise it has a zero value.

unstored_Sat_On_Object

This has positive weighting if the field ObjectObservationData::physicalSatOnObject has a value of 'Yes' otherwise it has a zero value.

unstored_No_Interaction

This has positive weighting if the field ObjectObservationData::physicalNoInteraction has a value of 'Yes' otherwise it has a zero value.

unstored_Button_Push

This has positive weighting if the field ObjectObservationData::physicalButtonPush has a value of 'Yes' otherwise it has a zero value.

iv. Weighting Values

Type Of Physical Interaction	Positive Weighting Values
W_PHYSICAL_SLIGHT	1
W_PHYSICAL_MODERATE	2
W_PHYSICAL_EXTENSIVE	3
W_PHYSICAL_SAT_ON_OBJECT	1
W_PHYSICAL_NO_INTERACTION	0
W_PHYSICAL_BUTTON_PUSH	1

Table 5 Weighting Values For Physical Scale

5) Acquired Scale

i. Description

This is a measure of information which is directly about the object and immediately available within the vicinity the object but not a direct part of the object display. The field measurements taken into account are:

DirectionFromGroupExpert

DirectionFromTourGuide

GuidebookCarrying

GuidebookChecked

GuidebookReferredTo

RecognitionRecognised

RecognitionSoughtOut

VerbalAskedCurator

VerbalGroupDiscussion

VerbalGroupDiscussionExpertLeader

VerbalListenToTourGuide

ListenedToTourGuideAnotherGroup

VerbalQuestionedTourGuide

ii. Justification for Weighting Values

Lanir et al (2013) noted that visitors who used some sort of mobile guide tended to spend longer in front of exhibits. However, Casey (2003) suggests that whilst they are good for providing contextual information the prescribed curatorial meaning can distance the visitor from the object. David Judd (2018) in his interview also noted that the disadvantage with audio guides is that they take away the experience of discussing the object with someone else. At the same time, though, they can create an atmosphere, they are very good for communicating information, save the visitor from having to read labels and as Lanir (2013) points out may be more suitable for people with different learning styles. David Judd (2018) also notes that they can also make the visitor look at an object although Lanir (2013) believes the opposite may happen with the visitor concentrating on the device.

Falk and Dierking (2000) point out that many visitors go to museums to look at what they are interested in and to build a relationship with those objects rather than to read labels. They arrive with preconceived ideas and this manifests itself in what they look at (Schreiber et al 2013). This prior knowledge correlates with the pleasure of the visit with those who had some interest in the object were able to understand the display better although the content did need to be made accessible (Dahl et al, 2013).

Shepherd (2018) confirmed this when she spoke about the use 'gateway' objects which sum up the theme of the gallery and grab the visitors' attention so they can then use that object as a starting point to the rest of the gallery.

At the same time, it is possible for visitors to go to a museum looking for objects they recognise without actually wanting to be in that museum. They may not go to look at the objects but rather just to see them (Ballantyne and Uzzell, 2011). In her interview, Leela

Meinertas (2018) believed that this was not important and that if visitors saw an object as part of their checklist without reading the label it did not matter.

The social context of a museum visit also adds to the experience. Those who came in small groups, or pairs, were able to discuss and reflect about what they were seeing (Dim and Kuflik, 2014). Group experience adds another perspective and group members can take advantage of others' prior knowledge (Packer & Ballantyne, 2005) and engage in behaviour more likely to improve their visit (McManus, 1991). Discussion increases group members' thought, interest and motivation as well as enhances their informal learning and reducing museum fatigue (Falk, 2009). This interaction between the members of the group not only enhances the group experience but also the experience of the individuals within that group (Falk & Dierking, 2000).

Research shows that those who visit museums alone spend more time reading labels than those who visit in some sort of group and that this almost entirely due to the time spent in social interaction (Packer & Ballantyne 2005) and David Judd (2018) noted that at the V&A they had looked at the different learning styles and audited interpretive devices of objects.

Tour groups can also make a difference to the learning experience of the individual and the group but it is dependent on whether the group is treated as a collective unit or allows for individuals and whether the tour takes the form of a lecture or allows for visitor engagement through questions and answers (Best, 2012). This engagement may also take the form of storytelling about the object with object as the backdrop. If these stories call attention to particular aspects of the object and not just stick to the information already provided by museum it can trigger visitor interest. It may be that the object by itself is not sufficient to do this (Dahl et al, 2013) although some curators may feel that the information provided by the tour guide is 'disturbing' the original intention of gallery staff (Eisner and Dobbs,1986: pp. 20-22).

The values given to the weightings reflect the level of effort made by the visitor to elicit this acquired information. It was felt that carrying a guidebook and checking it briefly did not require a great deal of effort as these are general easily obtainable at the entrance to the museum with a free, smaller version often being available as well. Referring to a guidebook for further information, though, did require more effort than this and the results bore this out. GUIDEBOOK_CARRYING and GUIDEBOOK_CHECKED were therefore given low and equal values and GUIDEBOOK_CHECKED a higher value.

Group discussion also required a degree of involvement which went further than looking at an object as a group and discussion with an expert leader required even more active participation. VERBAL_GROUP_DISCUSSION and VERBAL_GROUP_DISCUSSION_WITH_ EXPERT_LEADER were given high values with the latter having a higher value.

In the case of tour groups, whilst if a group is not listening to the guide this more of an issue with the guide than the group and group members may have a limited choice as to whether or not to be part of the group, it does require considerable effort to pay attention to what the guide is saying; questioning the tour guide, or listening to a tour guide from another group even more so. The three weighting factors were therefore given appropriately high values with VERBAL_LISTENED_TO_TOUR_GUIDE_ FROM_ANOTHER_GROUP and VERBAL_QUESTIONED_TOUR_GUIDE higher than VERBAL_ LISTENED_TO_TOUR_GUIDE

It was felt that simply seeking an object out, whilst demonstrating some interest, might be no more than a tick-box operation but, recognising an object when seen, demonstrated some prior knowledge. RECOGNITION_RECOGNISED was therefore given a higher value than RECOGNITION_SOUGHT_OUT.

The three remaining factors DIRECTION_FROM_GROUP_EXPERT, DIRECTION_FROM_TOUR_GUIDE and W_VERBAL_ASKED_CURATOR were considered to require a reasonable, and equal, degree of effort on the part of the visitor. In each case the means for discovering information was readily on hand and in the case of the first two factors it was passive information being received by the visitor and in the case of the third it was observed that it was a non-expert curator on hand they were given equal values.

iii. Calculation

In general terms:

Acquired Scale = Sum (Weighting1….

The actual coding is:

Scale_Acquired =

Sum (
unstored_Direction_From_Group_Expert ;
unstored_Direction_From_Tour_Guide ;
unstored_Guidebook_Carrying ;
unstored_Guidebook_Checked ;
unstored_Guidebook_Referred_To ;
unstored_Recognition_Recognised ;
unstored_Recognition_Sought_Out ;
unstored_Verbal_Asked_Curator ;
unstored_Verbal_Group_Discussion ;
unstored_Verbal_Group_Discussion_Expert_Leader ;
unstored_Verbal_Listen_To_Tour_Guide ;
unstored_Listened_To_Tour_Guide_Another_Group ;
unstored_Verbal_Questioned_Tour_Guide
)

The values are determined by:

unstored_Direction_From_Group_Expert

If ObjectObservationData::Demographics is 'Family Group' or 'Adult Group' and ObjectObservationData::DirectionFromGroupExpert has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Direction_From_Tour_Guide

If ObjectObservationData::Demographics is 'Tourist Group' and ObjectObservationData::DirectionFromTourGuide has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Guidebook_Carrying

If ObjectObservationData::GuidebookCarrying has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Guidebook_Checked

If ObjectObservationData::GuidebookCarrying has a value of "Yes" and ObjectObservationData::GuidebookChecked has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Guidebook_Referred_To

If ObjectObservationData::GuidebookCarrying has a value of "Yes" and ObjectObservationData::GuidebookReferredTo has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Recognition_Recognised

If ObjectObservationData::RecognitionRecognised has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Recognition_Sought_Out

If ObjectObservationData::RecognitionSoughtOut has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Verbal_Asked_Curator

If ObjectDescription::metainformationCuratorOnHand has a value of "Yes" and ObjectObservationData::VerbalAskedCurator has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Verbal_Group_Discussion

If ObjectObservationData::Demographics is 'Family Group' or 'Adult Group' and ObjectObservationData::VerbalGroupDiscussion has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Verbal_Group_Discussion_With_Expert_Leader

If ObjectObservationData::Demographics is 'Family Group' or 'Adult Group' and ObjectObservationData::VerbalGroupDiscussionWithExpertLeader has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Verbal_Listen_To_Tour_Guide

If ObjectObservationData::Demographics is 'Tourist Group' and ObjectObservationData::VerbalListenToTourGuide has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Verbal_Listen_To_Tour_Guide_Another_Group

If ObjectObservationData::VerbalListenToTourGuideAnotherGroup has a value of "Yes" then this has a positive weighting otherwise it has zero value.

unstored_Verbal_Question_Tour_Guide

If ObjectObservationData::Demographics is 'Tourist Group' and ObjectObservationData::VerbalQuestionTourGuide has a value of "Yes" then this has a positive weighting otherwise it has zero value.

iv. Weighting Values

Type of Acquired Information	Weighting Values
W_DIRECTION_FROM_GROUP_EXPERT	2
W_DIRECTION_FROM_TOUR_GUIDE	2
W_GUIDEBOOK_CARRYING	1
W_GUIDEBOOK_CHECKED	1
W_GUIDEBOOK_REFERRED_TO	2
W_RECOGNITION_RECOGNISED	2
W_RECOGNITION_SOUGHT_OUT	1
W_VERBAL_ASKED_CURATOR	2
W_VERBAL_GROUP_DISCUSSION	2
W_VERBAL_GROUP_DISCUSSION_WITH_ EXPERT_LEADER	3
W_VERBAL_ LISTENED_TO_TOUR_GUIDE	2
W_VERBAL_LISTENED_TO_TOUR_GUIDE_ FROM_ANOTHER_GROUP	3
W_VERBAL_QUESTIONED_TOUR_GUIDE	3

Table 6 Weighting Values For Acquired Scale

6) Intrinsic Scale

i. Description

This is a measure of to what degree, and how, there was engagement with the information that was an intrinsic part of the object display rather than the object itself. The field measurements taken into account are:

SlightModerateExtensive

ReadTitle

ReadDescription

ListenedToAudio

WatchedVideo

ReadGalleryNotes

CheckedWebsite

WatchedAudioVisual

ReadContextualInformation

ii. Justification for Weighting Values

Labels not only help to affirm objects as special (Berns, 2015) but make then into museum objects (Teryukova, 2014.) and ensure that they are understood in the way that curators want them to be understood (Alberti, 2005). In the Cast Courts in the V&A labelling was important so that the visitors understood they were looking at copies of objects (Bryony Shepherd, 2018). They also direct the visitor's attention to the object and produce higher stopping and stopping times than the same object without a label (Peart, 1984).

On the other hand, in research involving the Sydney Technology Museum it was discerned many of the interviewees felt that there was too much to read and the museum was too instructive (Hicks, 2005), a point also picked by Yung (2010b) who notes that, in the case if art museums, curators can often overcomplicate labels with too much jargon.

Nonetheless, there is a certain agreement that there is a certain 'dumbing down' with labels. In her interview, Leila Meinertas (2018) noted that if you mention a name such as 'Robert Adam' then you have to qualify this with 'architect'. Jane Portal from the British Museum's Asia department was criticised on social media for noting that Asian names can be confusing but also spoke how label text is limited and that they aim to make the label understood by sixteen- year olds. (BBC News, 2017). In her interview, Bryony Shepherd (2018) notes that '*we can't put the book on the wall*' and that labels need to grab the visitors from the outset.

Research has also showed that it was the size of the information chunk and its proximity to the object that made a difference to the people reading it rather than any other factor such as the size of the font or background (Bitgood & Patterson, 1993). Leila Meinertas (2018) noted that when they were doing the Furniture Gallery they were told by the Education

Department that they would not be putting information panels on the walls as these would not be read by visitors. This in contrast to the 1905 edition of the *Guide to the Gallery of Birds In The Department of Zoology of the British Museum (Natural History)* telling the visitor that they 'should notice that at the side of each recess in the gallery the common names of the kinds of birds there exhibited are displayed in large capitals' with a reference number indicating the location of further information in the guide.

At around the same time in municipal museums, writes Snape (2010), were categorising items industrial items as objects of economic utility, manufacture and commerce. Despite these objects not having an inherent meaning in themselves curators were defining them by their function and making their context clear that way. For example, cotton bolls were not intended to be regarded as examples of objects of natural history but of the cotton industry.

Bryony Shepherd (2018) discussed the importance of setting the object in the context of the story that need to be told about it. This was done not just from the label but by the environment in which it was placed which also needs to communicate a meaning. Such external clues are also helpful to those visitors who at the initial phase of their interest and looking for something to catch their attention (Hidi & Renninger, 2006). Bryony Shepherd (2018) also noted that one of the main interpretative aims of the Europe Galleries in the V&A was to explain the social and historical background as that was one way of getting the visitors 'in'. She continued by explaining how the colour of the walls changed from a very dark purple which gradually get lighter as the visitor approaches the exit where they are a light grey, representing the change towards the Enlightenment.

In a different take on context, an exhibition commemorating the bicentenary of abolition visitors were guided through a history of slavery and abolition and then shown the effects of contemporary slavery which forced the visitor question their moral and ethical stance (Wilson 2010).

The importance of having historical contextual information available is also borne out by the research of Kravchyna and Hastings (2002) who also found that some 63% of online visitors would like more than the available marketing information.

David Judd (2018) also spoke about how creating such an atmosphere can also help to stop museum fatigue and Lachaud and Passebois (2008) suggest that immersive information communication technologies can also facilitate learning and knowledge by pricking the

visitor's curiosity.

The use of online searching for information is highlighted by Skov and Ingwersen (2014) who found that 29.5% of respondents were not looking for any specific information or trying to solve any sort of information problems by are looking purely out of interest,

David Judd (2018) also notes the importance of visual and audio media. Even captioned visual media, without audio, were able to explain, for example, the production process of William Morris wallpaper. Audio information also saves the museum visitor from having to read labels and is another easy way for conveying any contextual information. This extends to audio guides as well and because the personal experiences of each visitor are different their experience of listening will also be different (Dirsehan, 2011). These visitors are more likely to spend more time in front of the object.

As with the Acquired Scale the factors for the Intrinsic Scale reflect the effort made by the visitor in seeking information. It was felt that, particularly after the curator interviews, that reading the label and description of an object was not necessarily the most important way of determining information about that object and so READ_LABEL and READ_DESCRIPTION were given equal and low values. Similarly, using any form of contextual information about the object required slightly more effort and was a more effective way of determining information. The factors READ_CONTEXTUAL_INFORMATION, LISTENED_TO_AUDIO, WATCHED_VIDEO, READ_GALLERY_NOTES and WATCHED_AUDIO_VISUAL were an given equal but higher value than for reading the title or description. The factors INTRINSIC_SLIGHT, INTRINSIC_MODERATE and INTRINSIC_EXTENSIVE were given values to represent their equivalent information seeking effort.

iii. Calculation

In general terms:

Acquired Scale = Sum (Weighting1….

The actual coding is:

```
Scale_Intrinsic =
Sum (
unstored_Slight                    ;
unstored_Slight_Moderate           ;
unstored_Slight Extensive          ;
unstored_Read_Title                ;
unstored_Read_Description          ;
unstored_Listened_To_Audio         ;
unstored_Watched_Video             ;
unstored_Read_Gallery_Notes        ;
unstored_Checked_Website           ;
unstored_Watched_Audio_Visual      ;
unstored_Read_Contextual_Information
)
```

The values are determined by:

unstored_Slight

If ObjectObservationData::IntrinsicSlight has a value of "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Moderate

If ObjectObservationData::IntrinsicModerate has a value of "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Extensive

If ObjectObservationData::IntrinsicExtensive has a value of "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Read_Title

If ObjectDescription::textonobjectTitle = "Yes" and ObjectObservationData:intrinsicReadTitle = "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Read_Description

If ObjectDescription::textonobjectDescription = “Yes” and ObjectObservationData:intrinsicReadDescription = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Read_Contextual_Information

If ObjectDescription::textonobjectContextualInformation = “Yes” and ObjectObservationData:intrinsicReadContextualInformation = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Listened_To_Audio

If ObjectDescription::relatedmediaAudio = “Yes” and ObjectObservationData:intrinsicListenedToAudio = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Watched_Video

If ObjectDescription::relatedmediaVisual = “Yes” and ObjectObservationData:intrinsicWatchedVideo = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Watched_Audio_Visual

If ObjectDescription::relatedmediaAudioVisual = “Yes” and ObjectObservationData:intrinsicWatchedAudioVisual = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Checked_Website

If ObjectDescription::relatedmediaWebsite = “Yes” and ObjectObservationData:intrinsicCheckedWebsite = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Read_Gallery_Notes

If GalleryDescription::galleryinformationInformationDisplayed = “Yes” or GalleryDescription::galleryinformationNamedGallery = “Yes” and ObjectObservationData:intrinsicReadGalleryNotes = “Yes” then this has a positive weighting otherwise it has a zero value.

iv. Weighting Values

Type of Intrinsic Information	Positive Weighting Values
W_INTRINSIC_SLIGHT W_INTRINSIC_MODERATE W_INTRINSIC_EXTENSIVE	1 2 3
W_INTRINSIC_READ_TITLE	1
W_INTRINSIC_READ_DESCRIPTION	1
W_INTRINSIC_READ_CONTEXTUAL_INFORMATION	2
W_INTRINSIC_LISTENED_TO_AUDIO	2
W_INTRINSIC_WATCHED_VIDEO	2
W_INTRINSIC_READ_GALLERY_NOTES	2
W_INTRINSIC_CHECKED_WEBSITE	3
W_INTRINSIC_WATCHED_AUDIO_VISUAL	2

Table 7 Weighting Values For Intrinsic Scale

7) Photography Scale

i. Description

This is a measure of how, there was engagement with the object information by photographing the object. The field measurements taken into account are:

PhotoObject

PhotoObjectSelf

PhotoObjectOthers

PhotoSingleAngle

PhotoMultipleAngles

PhotoMultipleShots

ii. Justification for Weighting Values

Chalfen (1987) notes that there are three functions of photography, namely, documentation, memory support, and definition of cultural membership. Barthes (2000:82, 2000:88-9) further notes that the photograph is not recall the past and what has been abolished by time and distance but to attest to the fact that, what the photographer has seen, has existed. Their power of authentication exceeds the power of representation. The photographs which are preferred are liked not because of their superior quality but because of the role they play in relationships and in highlighting the connections between them (van House et al, 2004)

The sharing of photographs is an important part of public engagement. Banning photography prevents the visitor from documenting a particular part of their cultural heritage and sharing it with family and friends (Tan, 2012).

However, museums have different attitudes to taking photographs. At the V&A, according to Leila Meinertas (2018) photography has always been allowed, if not positively encouraged. A letter to the Museums Journal (Khan, 2014) complained about being told off for taking a photograph at the Jameel Art Prize.

Taking a photograph of an object can come about from inspiration which compels some sort of action, either a smaller or bigger, with this being a bigger action (Latham et al, 2018). The first visit might just involve taking a photograph of the object whilst later visits may include photographs of the text as well to gain more understanding about the object (Vartiainen & Enkenberg, 2014).

Taking a photograph of oneself in front of an object is a means of self-expression intended to reveal the authentic self, but it can also be about influencing others' views of oneself (Vartiainen & Enkenberg, 2014). Leila Meinertas (2018) recalls seeing one mother visit one of the furniture galleries, placing her children on every chair, taking a picture and putting the photographs on Instagram. There is a danger that the photograph of the object becomes more important than looking at the object. Nevertheless, in research at the Finnish Forest Museum in Lusto students were photographing other students in front of the trees simply in order to be able to understand proportions and get things in easily relatable terms (Vartiainen & Enkenberg, 2014).

Given the omnipresence of the selfie in these times it was determined that whilst some value could be given to taking a photograph of an object with the visitor and/or other people this should be lower than for either a photograph taken of just the object, which implies a greater interest in the object itself rather than being about the visitor. W_PHOTO_OBJECT_SELF, W_PHOTO_OBJECT_OTHERS and W_PHOTO_SINGLE_ANGLE were therefore given low, but equal, weighting and W_PHOTO_OBJECT and higher weighting. W_PHOTO_MULTIPLE_ANGLES and W_PHOTO_MULTIPLE_SHOTS were given the same weighting as W_PHOTO_OBJECT as it was felt this implied a strong interest in the object.

iii. Calculation

In general terms:

Photography Scale = Sum (Weighting1….

The actual coding is:

```
Scale_Photography = Sum (

unstored_Photo_Object               ;
unstored_Photo_Object_Self          ;
unstored_Photo_Object_Others        ;
unstored_Photo_Single_Angle         ;
unstored_Photo_Multiple_Angles      ;
unstored_Photo_Multiple_Shots
)
```

The values are determined by:

unstored_Photo_Object

If ObjectObservationData::PhotoObject = "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Photo_Photo_Object_Self

If ObjectObservationData::PhotoObjectSelf = "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Photo_Object_Others

If ObjectObservationData::PhotoObjectOthers = "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Photo_Single_Angle

If ObjectObservationData::PhotoSingleAngle = "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Photo_Multiple_Angles

If ObjectObservationData::PhotoMultipleAngles = "Yes" then this has a positive weighting otherwise it has a zero value.

unstored_Photo_Multiple_Shots

If ObjectObservationData::PhotoMultipleShots = "Yes" then this has a positive weighting otherwise it has a zero value.

iv. Weighting Values

Type of Photography	Positive Weighting Values
W_PHOTO_OBJECT	2
W_PHOTO_OBJECT_SELF	1
W_PHOTO_OBJECT_OTHERS	1
W_PHOTO_SINGLE_ANGLE	1
W_PHOTO_MULTIPLE_ANGLES	2
W_PHOTO_MULTIPLE_SHOTS	2

Table 8 Weighting Values For Photography Scale

8) Sensory Scale

i. Description

This is a measure of how, there was engagement with the object information by engaging the senses. These measurements are an overall measurement of what senses were used when the visitor engaged in some way with an object other than just looking at the object itself. For example, if the visitor is listening to a tour guide then SensesHearing will reflect that. This measurement has a degree of overlapping with other measurement scales, particularly Intrinsic Scale and Acquired Scale.

The field measurements taken into account are:

SensesSight

SensesTouch

SensesHearing

SensesTaste

SensesSmell

The factors were allocated to each sense as follows:

Sight:	Read Gallery Notes
	Read Title
	Read Description
	Read Contextual Information
	Checked Website
	Guidebook Checked
	Guidebook Referred To
	Watched Audio-Visual
Touch:	No Interaction (if Yes)
	Sat On Object
	Push Button
Hearing:	Listen To Tour Guide
	Question Tour Guide
	Listen To Tour Guide From Another Group
	Group Discussion
	Group Discussion With Expert Leader
	Asked Curator
	Watched Audio-Visual
	Listened To Audio

There were no objects observed which the option to use the senses of taste or smell.

ii. Justification for Weighting Values

There has to be a recognition that learn from all senses and that the materiality of an object, which is much more than just the object itself, helps to establish relationships between people, things and spaces (Welsh, 2005). Informal learning within museums also benefits from close contact with museum artefacts (McCarthy & Ciolfi, 2008). In researching the use of Twitter to enhance museum visits Charitonos (2011) found that in recalling a school museum visit one participant described it:

"It was boring, really boring...we didn't have much freedom, we had to be with a teacher, you were not allowed to go anywhere, to touch anything, to interact..."

David Judd (2018) noted that to explain how Morris wallpaper is made with just words or text would take too long but to show the visitor how the painting blocks were handled and how the paints were mixed made the explanation a lot more straightforward.

The desire to interact most easily manifests itself in touch and visitors enjoy handling objects in order to feel their weight and explore the materials out of which they are made. They are surprised when the traditional rules of museums are not applied and they can open drawers and touch objects (Ciolfi and Bannon, 2002). The importance of touch also emphasised by the resistance to it by curators who could be protecting territory and expertise rather than preservation of object (Barr, 2005).

In her interview, Leila Meinertas (2018) noted that the V&A had removed all their 'Do not touch' signs (although the researcher noted there were one or two still remaining, notably with the object 'The Tower of Babel'). She did acknowledge, that in these times, with visitors more likely to touch objects, there are some fragile objects which do need protection and do need to have an alarm. She mentioned that in an average month there are some 365 occasions in the British Galleries when visitors will sit on the beds and the alarm sounds.

Particularly in biographical exhibitions the ability "*to touch something that has been in bodily contact with one of our heroes can be a moving experience and an intimate and tangible link with the past*" (Majer, 1995). The field of museopathy, which uses museum objects as part of a healing process, also emphasises the interaction between object and patient through touch. One such patient picked up ancient Egyptian figurine of the goddess Bastet and said, 'I've been there by proxy!' (Chatterjee et al, 2009),

It should also be noted that putting an object in a glass case does not always remove the ability to touch or interact with that object. In an exhibition of religious icons and artefacts visitors touching cases in reverence as they would touch the outside of a reliquary, when touching a reliquary is regarded as effective as touching the relic itself (Bern, 2015).

Other senses can be used as well, even in ways that are both intended and unintended by the museum. One participant in research at Indiana University Art Museum used magnifying glass to look at each coin from the Greek world very carefully (Hsu, 2012) and a replica

WWI trench in Cavan County Museum includes sound and visual effect (BBC News, 2014b).

Kotler and Kotler (2000) note that improving the experience of visiting museums should go beyond the emphases on objects and education. They should involve experiences in which can directly participate and have an immersive sensory experience so that they go beyond being mere spectators.

Lanir (2013) noted that the use of a mobile guide caused visitors to spend more time at exhibits in order to get more information from the guide.

As the use of all senses was considered equally important each of the factors, W_SENSES_SIGHT, W_SENSES_TOUCH, W_SENSES_HEARING, W_SENSES_TASTE and W_SENSES_SMELL were given the same weighting.

iii. Calculation

In general terms:

Sensory Scale = Sum (Weighting1….

The actual coding is:

Scale_Sensory =

Sum (
unstored_Senses_Sight ;
unstored_Senses_Touch ;
unstored_Senses_Hearing ;
unstored_Senses_Taste ;
unstored_Senses_Smell
)

The values are determined by:

unstored_Senses_Sight

If ObjectObservationData::Sight = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Senses_Touch

If ObjectObservationData::Touch = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Senses_Hearing

If ObjectObservationData::Sight = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Senses_Taste

If ObjectObservationData::Sight = “Yes” then this has a positive weighting otherwise it has a zero value.

unstored_Senses_Smell

If ObjectObservationData::Sight = “Yes” then this has a positive weighting otherwise it has a zero value.

iv. Weighting Values

Type of Sense	Positive Weighting Values
W_SENSES_SIGHT	1
W_SENSES_TOUCH	1
W_SENSES_HEARING	1
W_SENSES_TASTE	1
W_SENSES_SMELL	1

Table 9 Weighting Values For Sensory Scale

Chapter 9. RESULTS

1) List Of Examined Objects

A total of 20 objects from 17 different galleries, from 6 different museums and 514 individual observations recorded.

The objects examined were:

Ref. No.	Object Name	How Displayed	No. of Observed Records
1	Balustrade from Temple of Athena Nike	Freestanding - Single Object	9
2	Parthenon Frieze	Freestanding - Single Object	23
3	Neptune and Triton	Freestanding - Single Object	37
4	A Collection of Sculpted Busts	Freestanding - Themed Objects	38
5	Samson Slaying a Philistine	Freestanding - Single Object	32
6	British Rainwear 1910 – 2015	Glass Case - Themed Objects	23
7	Radical Fashion 1990 -	Glass Case - Themed Objects	38
8	The Ardabil Carpet	Glass Case - Single Object	40
9	Panelled Room from a House at Bromley-by-Bow 1606	Freestanding – Inhabited	36
10	The Tower of Babel	Freestanding - Unrelated Objects	41
11	Owl	Freestanding - Themed Objects	34
12	Crick and Wilson's DNA Model	Glass Case - Single Object	16
13	Aerial Tuning Collector from Rugby Radio Station	Freestanding - Single Object	19
14	Human Headed Winged Lion, Assyrian, from Nimrud	Freestanding - Single Object	16
15	Rosetta Stone	Glass Case – Single Object	31
16	Mummy Coffins	Glass Case – Themed Objects	14
17	Dodo	Glass Case – Themed Objects	16
18	Sitatunga	Glass Case – Themed Objects	12
19	Parthenon Frieze xlvii	Freestanding – Themed Objects	24
20	Electric Trains	Glass Case – Themed Objects	15

Table 10 List Of Examined Objects

2) Categorisation of Observation Records

How Displayed	Category	Records
	Glass Case Object	205
	Freestanding Object	309
	Single Object	264
	Multiple Objects	250
Type of Display Case	Freestanding - Inhabited	36
	Freestanding - Single	136
	Freestanding - Themed	96
	Freestanding - Unrelated	41
	Glass Case - Single	87
	Glass Case - Themed	118
Gallery Layout	Exploration Encouraged	68
	Taken On A Journey	77
	Intended To Get An Overview	119
	Led Around In A Particular Way	39
	Drawn To A Particular Object	40
	Specified Theme	171
Context	Made Clear By Written Information	184
	Made Clear By Display And Written Information	128
	Not Made Clear By Display Or Written Information	202

Table 11 Categorisation of Observation Records

3) Summary Of Results

The results were summarised by scale type and object.

OBJECT	RANGE SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**3.60**	**2.88**	**5.00**	**1.60**	**11.10**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	3.60	2.88		1.60	11.10
Freestanding - Single	**6.40**	**3.27**	**5.77**	**0.10**	**15.10**
0001 (Ballustrade from Temple of Athena Nike)	6.40	2.05		4.90	10.40
0002 (Parthenon Frieze)	6.40	2.47		0.10	8.90
0003 (Neptune and Triton)	6.40	3.09		0.40	12.10
0005 (Samson Slaying a Philistine)	6.40	4.05		0.10	15.10
0013 (Aerial Tuning Collector from Rugby Radio Station)	3.60	2.71		0.40	8.10
0014 (Human Headed Winged Lion from Nimrud)	6.40	3.18		0.40	11.40
Freestanding - Themed	**4.90**	**2.06**	**6.41**	**0.10**	**11.10**
0004 (A Collection of Sculpted Busts)	6.40	1.78		3.60	9.10
0011 (Owl)	8.10	1.86		3.60	11.10
0019 (Parthenon Frieze xlvii)	4.90	1.28		0.10	4.90
Freestanding - Unrelated	**6.90**	**3.00**	**7.53**	**2.50**	**13.40**
0010 (The Tower of Babel)	6.90	3.00		2.50	13.40
Glass Case - Single	**8.10**	**2.43**	**7.43**	**2.50**	**13.10**
0008 (The Ardabil Carpet)	4.90	2.01		3.60	11.10
0012 (Crick and Wilson's DNA Model)	8.10	0.00		8.10	8.10
0015 (The Rosetta Stone)	8.10	2.66		2.50	13.10
Glass Case - Themed	**6.40**	**1.89**	**7.22**	**3.60**	**12.10**
0006 (British Rainwear 1910 - 2015)	6.65	1.73		4.90	11.10
0007 (Radical Fashion 1990 -)	6.40	2.13		3.60	12.10
0016 (Mummy Coffins)	8.10	2.00		3.60	11.10
0017 (Dodo)	6.40	1.00		4.90	9.40
0018 (Sitatunga)	6.40	1.02		4.60	7.40
0020 (Electric Trains)	9.10	1.87		4.90	12.10
All Freestanding Objects	**6.40**	**2.92**	**6.05**	**0.10**	**15.10**
All Glass Case Objects	**6.40**	**2.12**	**7.31**	**2.50**	**13.10**
All Multiple Objects	**6.40**	**2.26**	**6.49**	**0.10**	**12.10**
All Single Objects	**6.40**	**3.07**	**6.65**	**0.10**	**15.10**
Context					
All objects with context made clear by display and written information	**4.90**	**2.78**	**5.63**	**0.10**	**12.10**
All objects with context made clear by written information	**6.40**	**2.66**	**6.85**	**0.40**	**13.40**
All objects where context is not made clear by display or written information	**6.40**	**2.52**	**6.90**	**0.10**	**15.10**
Interaction					
All objects where interaction is intended	**8.10**	**1.92**	**7.31**	**3.60**	**12.10**
All objects where interaction is not intended	**6.40**	**2.77**	**6.46**	**0.10**	**15.10**

Table 12 Range Scale Summary

OBJECT	OBSERVATION SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**3.60**	**6.49**	**6.66**	**1.60**	**30.30**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	3.60			1.60	30.30
Freestanding - Single	**6.40**	**7.37**	**8.38**	**0.10**	**34.40**
0001 (Ballustrade from Temple of Athena Nike)	6.40	10.12		4.90	31.20
0002 (Parthenon Frieze)	7.20	8.97		0.30	34.40
0003 (Neptune and Triton)	6.40	6.51		0.40	30.30
0005 (Samson Slaying a Philistine)	6.40	8.81		0.10	30.30
0013 (Aerial Tuning Collector from Rugby Radio Station)	3.60	4.56		0.40	16.20
0014 (Human Headed Winged Lion from Nimrud)	6.40	4.02		0.40	12.80
Freestanding - Themed	**6.40**	**6.80**	**8.60**	**0.10**	**32.40**
0004 (A Collection of Sculpted Busts)	6.40	7.93		3.60	32.40
0011 (Owl)	8.10	6.42		3.60	32.40
0019 (Parthenon Frieze xlvii)	4.90	5.05		0.10	25.48
Freestanding - Unrelated	**10.80**	**19.02**	**19.14**	**2.50**	**80.80**
0010 (The Tower of Babel)	10.80	19.02		2.50	80.80
Glass Case - Single	**8.10**	**10.49**	**10.94**	**2.50**	**60.50**
0008 (The Ardabil Carpet)	8.10	11.54		2.50	24.30
0012 (Crick and Wilson's DNA Model)	8.10	4.41		8.10	24.30
0015 (The Rosetta Stone)	5.90	11.52		3.60	57.60
Glass Case - Themed	**7.40**	**12.01**	**12.32**	**3.60**	**70.70**
0006 (British Rainwear 1910 - 2015)	9.60	18.44		4.90	70.70
0007 (Radical Fashion 1990 -)	6.40	11.23		3.60	48.40
0016 (Mummy Coffins)	8.10	5.35		3.60	22.20
0017 (Dodo)	6.40	4.80		6.40	19.20
0018 (Sitatunga)	6.40	3.29		4.60	14.80
0020 (Electric Trains)	8.10	15.20		4.55	55.66
All Freestanding Objects	**6.40**	**10.34**	**9.76**	**0.10**	**80.80**
All Glass Case Objects	**8.10**	**11.40**	**11.76**	**2.50**	**70.70**
All Multiple Objects	**6.40**	**9.86**	**10.12**	**0.10**	**70.70**
All Single Objects	**7.40**	**11.71**	**11.04**	**0.10**	**80.80**
Context					
All objects with context made clear by display and written information	**6.40**	**8.28**	**8.57**	**0.10**	**55.66**
All objects with context made clear by written information	**7.40**	**12.66**	**11.68**	**0.40**	**80.80**
All objects where context is not made clear by display or written information	**7.40**	**10.25**	**10.90**	**0.10**	**70.70**
Interaction					
All objects where interaction is intended	**8.10**	**9.25**	**10.36**	**3.60**	**55.66**
All objects where interaction is not intended	**6.40**	**11.05**	**10.61**	**0.10**	**80.80**

Table 13 Observation Scale Summary

OBJECT	LOOKING SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**2.50**	**1.79**	**3.35**	**1.50**	**8.00**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	2.50			1.50	8.00
Freestanding - Single	**2.50**	**1.81**	**2.89**	**0.00**	**8.00**
0001 (Ballustrade from Temple of Athena Nike)	2.75	2.61		1.50	8.00
0002 (Parthenon Frieze)	3.50	1.86		0.00	8.00
0003 (Neptune and Triton)	2.50	1.54		0.00	8.00
0005 (Samson Slaying a Philistine)	2.50	1.74		1.50	7.00
0013 (Aerial Tuning Collector from Rugby Radio Station)	1.50	0.86		0.00	2.50
0014 (Human Headed Winged Lion from Nimrud)	2.00	2.02		1.50	7.00
Freestanding - Themed	**2.50**	**1.56**	**3.12**	**1.50**	**8.00**
0004 (A Collection of Sculpted Busts)	2.50	1.89		1.50	8.00
0011 (Owl)	2.50	1.49		1.50	6.00
0019 (Parthenon Frieze xlvii)	3.50	1.18		1.50	6.50
Freestanding - Unrelated	**5.50**	**2.69**	**5.13**	**1.50**	**12.00**
0010 (The Tower of Babel)	5.50	2.69		1.50	12.00
Glass Case - Single	**2.50**	**2.09**	**3.28**	**0.00**	**10.00**
0008 (The Ardabil Carpet)	3.50	1.95		1.50	10.00
0012 (Crick and Wilson's DNA Model)	2.50	1.63		1.50	6.50
0015 (The Rosetta Stone)	1.50	2.37		0.00	6.00
Glass Case - Themed	**2.50**	**2.38**	**3.33**	**0.00**	**12.00**
0006 (British Rainwear 1910 - 2015)	3.00	1.51		1.50	6.00
0007 (Radical Fashion 1990 -)	4.50	2.49		1.50	12.00
0016 (Mummy Coffins)	2.50	1.74		0.00	6.50
0017 (Dodo)	1.50	1.34		0.00	4.50
0018 (Sitatunga)	1.50	0.84		0.00	2.50
0020 (Electric Trains)	3.00	2.80		1.00	10.00
All Freestanding Objects	**2.50**	**2.02**	**3.34**	**0.00**	**12.00**
All Glass Case Objects	**2.50**	**2.26**	**3.31**	**0.00**	**12.00**
All Multiple Objects	**2.50**	**2.02**	**3.25**	**0.00**	**12.00**
All Single Objects	**2.50**	**2.22**	**3.39**	**0.00**	**12.00**
Context					
All objects with context made clear by display and written information	**2.75**	**1.94**	**3.38**	**0.00**	**10.00**
All objects with context made clear by written information	**2.50**	**2.38**	**3.28**	**0.00**	**12.00**
All objects where context is not made clear by display or written information	**2.50**	**1.97**	**3.33**	**0.00**	**12.00**
Interaction					
All objects where interaction is intended	**2.50**	**2.05**	**3.04**	**0.00**	**10.00**
All objects where interaction is not intended	**2.50**	**2.13**	**3.36**	**0.00**	**12.00**

Table 14 Looking Scale Summary

OBJECT	ACQUIRED SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**1.00**	**1.49**	**0.94**	**0.00**	**8.00**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	1.00	1.49		0.00	8.00
Freestanding - Single	**0.00**	**1.68**	**0.99**	**0.00**	**8.00**
0001 (Ballustrade from Temple of Athena Nike)	1.00	2.35		0.00	5.00
0002 (Parthenon Frieze)	0.00	2.57		0.00	8.00
0003 (Neptune and Triton)	0.00	1.02		0.00	4.00
0005 (Samson Slaying a Philistine)	0.00	1.29		0.00	5.00
0013 (Aerial Tuning Collector from Rugby Radio Station)	0.00	1.00		0.00	3.00
0014 (Human Headed Winged Lion from Nimrud)	0.50	1.78		0.00	5.00
Freestanding - Themed	**0.00**	**1.48**	**0.88**	**0.00**	**5.00**
0004 (A Collection of Sculpted Busts)	0.00	0.95		0.00	3.00
0011 (Owl)	0.00	0.82		0.00	3.00
0019 (Parthenon Frieze xlvii)	2.50	2.08		0.00	5.00
Freestanding - Unrelated	**1.00**	**1.76**	**1.34**	**0.00**	**7.00**
0010 (The Tower of Babel)	1.00	1.76		0.00	7.00
Glass Case - Single	**0.00**	**1.76**	**1.15**	**0.00**	**11.00**
0008 (The Ardabil Carpet)	0.00	2.04		0.00	11.00
0012 (Crick and Wilson's DNA Model)	0.00	0.63		0.00	2.00
0015 (The Rosetta Stone)	1.00	1.69		0.00	6.00
Glass Case - Themed	**0.00**	**1.25**	**0.75**	**0.00**	**5.00**
0006 (British Rainwear 1910 - 2015)	0.00	1.27		0.00	5.00
0007 (Radical Fashion 1990 -)	0.00	1.56		0.00	5.00
0016 (Mummy Coffins)	0.00	0.99		0.00	3.00
0017 (Dodo)	0.00	0.89		0.00	3.00
0018 (Sitatunga)	0.00	0.90		0.00	2.00
0020 (Electric Trains)	0.00	0.90		0.00	3.00
Freestanding	**0.00**	**1.61**	**0.99**	**0.00**	**8.00**
Glass Case	**0.00**	**1.49**	**0.92**	**0.00**	**11.00**
Multiple Objects	**0.00**	**1.37**	**0.83**	**0.00**	**8.00**
Single Object	**0.00**	**1.72**	**1.09**	**0.00**	**11.00**
Context					
Made clear by display and written information	**0.00**	**1.86**	**1.27**	**0.00**	**8.00**
Made clear by written information	**0.00**	**1.65**	**1.08**	**0.00**	**11.00**
Not made clear by display or written information	**0.00**	**1.19**	**0.67**	**0.00**	**5.00**
Interaction					
All objects where interaction is intended	**0.00**	**0.84**	**0.41**	**0.00**	**3.00**
All objects where interaction is not intended	**0.00**	**1.62**	**1.04**	**0.00**	**11.00**

Table 15 Acquired Scale Summary

OBJECT	INTRINSIC SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**0.00**	**1.05**	**0.86**	**0.00**	**3.00**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	0.00	1.05		0.00	3.00
Freestanding - Single	**1.00**	**1.17**	**1.05**	**0.00**	**5.00**
0001 (Ballustrade from Temple of Athena Nike)	0.00	1.41		0.00	4.00
0002 (Parthenon Frieze)	2.00	1.41		0.00	5.00
0003 (Neptune and Triton)	1.00	1.18		0.00	3.00
0005 (Samson Slaying a Philistine)	0.50	0.93		0.00	3.00
0013 (Aerial Tuning Collector from Rugby Radio Station)	0.00	0.77		0.00	2.00
0014 (Human Headed Winged Lion from Nimrud)	0.00	0.81		0.00	2.00
Freestanding - Themed	**1.00**	**1.23**	**1.19**	**0.00**	**5.00**
0004 (A Collection of Sculpted Busts)	1.00	1.24		0.00	4.00
0011 (Owl)	1.00	0.99		0.00	3.00
0019 (Parthenon Frieze xlvii)	1.50	1.34		0.00	5.00
Freestanding - Unrelated	**0.00**	**1.41**	**1.10**	**0.00**	**5.00**
0010 (The Tower of Babel)	0.00	1.41		0.00	5.00
Glass Case - Single	**0.00**	**1.14**	**0.84**	**0.00**	**4.00**
0008 (The Ardabil Carpet)	0.00	1.11		0.00	4.00
0012 (Crick and Wilson's DNA Model)	1.00	1.17		0.00	3.00
0015 (The Rosetta Stone)	1.00	1.09		0.00	3.00
Glass Case - Themed	**1.00**	**1.17**	**1.50**	**0.00**	**5.00**
0006 (British Rainwear 1910 - 2015)	2.00	1.22		0.00	5.00
0007 (Radical Fashion 1990 -)	2.00	1.03		0.00	3.00
0016 (Mummy Coffins)	1.00	1.00		0.00	3.00
0017 (Dodo)	1.00	0.85		0.00	2.00
0018 (Sitatunga)	1.00	0.60		0.00	2.00
0020 (Electric Trains)	1.00	1.69		0.00	5.00
Freestanding	**1.00**	**1.21**	**1.08**	**0.00**	**5.00**
Glass Case	**1.00**	**1.20**	**1.22**	**0.00**	**5.00**
Multiple Objects	**1.00**	**1.19**	**1.29**	**0.00**	**5.00**
Single Object	**0.00**	**1.20**	**0.99**	**0.00**	**5.00**
Context					
Made clear by display and written information	**1.00**	**1.33**	**1.32**	**0.00**	**5.00**
Made clear by written information	**0.00**	**1.14**	**0.89**	**0.00**	**5.00**
Not made clear by display or written information	**1.00**	**1.15**	**1.24**	**0.00**	**5.00**
Interaction					
All objects where interaction is intended	**1.00**	**1.23**	**1.16**	**0.00**	**5.00**
All objects where interaction is not intended	**1.00**	**1.20**	**1.13**	**0.00**	**5.00**

Table 16 Intrinsic Scale Summary

OBJECT	PHOTOGRAPHY SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**0.00**	**0.81**	**0.25**	**0.00**	**4.00**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	0.00	0.81		0.00	4.00
Freestanding - Single	**0.00**	**1.27**	**0.70**	**0.00**	**6.00**
0001 (Ballustrade from Temple of Athena Nike)	0.00	1.05		0.00	2.00
0002 (Parthenon Frieze)	0.00	0.90		0.00	2.00
0003 (Neptune and Triton)	0.00	1.42		0.00	6.00
0005 (Samson Slaying a Philistine)	0.00	1.41		0.00	5.00
0013 (Aerial Tuning Collector from Rugby Radio Station)	0.00	0.81		0.00	3.00
0014 (Human Headed Winged Lion from Nimrud)	0.00	1.61		0.00	6.00
Freestanding - Themed	**0.00**	**0.79**	**0.32**	**0.00**	**4.00**
0004 (A Collection of Sculpted Busts)	0.00	0.47		0.00	2.00
0011 (Owl)	0.00	0.82		0.00	4.00
0019 (Parthenon Frieze xlvii)	0.00	0.99		0.00	2.00
Freestanding - Unrelated	**0.00**	**1.52**	**0.73**	**0.00**	**6.00**
0010 (The Tower of Babel)	0.00	1.52		0.00	6.00
Glass Case - Single	**0.00**	**1.19**	**0.54**	**0.00**	**6.00**
0008 (The Ardabil Carpet)	0.00	0.53		0.00	2.00
0012 (Crick and Wilson's DNA Model)	0.00	1.02		0.00	3.00
0015 (The Rosetta Stone)	0.00	1.61		0.00	6.00
Glass Case - Themed	**0.00**	**1.44**	**0.68**	**0.00**	**7.00**
0006 (British Rainwear 1910 - 2015)	0.00	1.12		0.00	4.00
0007 (Radical Fashion 1990 -)	0.00	1.46		0.00	6.00
0016 (Mummy Coffins)	0.00	2.07		0.00	7.00
0017 (Dodo)	0.00	1.45		0.00	4.00
0018 (Sitatunga)	0.00	0.58		0.00	2.00
0020 (Electric Trains)	0.00	1.55		0.00	6.00
Freestanding	**0.00**	**1.15**	**0.53**	**0.00**	**6.00**
Glass Case	**0.00**	**1.34**	**0.62**	**0.00**	**7.00**
Multiple Objects	**0.00**	**1.16**	**0.48**	**0.00**	**7.00**
Single Object	**0.00**	**1.28**	**0.65**	**0.00**	**6.00**
Context					
Made clear by display and written information	**0.00**	**1.27**	**0.61**	**0.00**	**7.00**
Made clear by written information	**0.00**	**1.24**	**0.60**	**0.00**	**6.00**
Not made clear by display or written information	**0.00**	**1.19**	**0.51**	**0.00**	**6.00**
Interaction					
All objects where interaction is intended	**0.00**	**1.00**	**0.26**	**0.00**	**6.00**
All objects where interaction is not intended	**0.00**	**1.25**	**0.61**	**0.00**	**7.00**

Table 17 Photography Scale Summary

OBJECT	SENSORY SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**0.00**	**0.61**	**0.44**	**0.00**	**2.00**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	0.00			0.00	2.00
Freestanding - Single	**0.00**	**0.88**	**0.56**	**0.00**	**3.00**
0001 (Ballustrade from Temple of Athena Nike)	1.00	0.71		0.00	2.00
0002 (Parthenon Frieze)	1.00	1.15		0.00	3.00
0003 (Neptune and Triton)	0.00	0.93		0.00	3.00
0005 (Samson Slaying a Philistine)	0.00	0.64		0.00	2.00
0013 (Aerial Tuning Collector from Rugby Radio Station)	0.00	0.77		0.00	2.00
0014 (Human Headed Winged Lion from Nimrud)	1.00	0.70		0.00	2.00
Freestanding - Themed	**0.00**	**0.80**	**0.64**	**0.00**	**3.00**
0004 (A Collection of Sculpted Busts)	0.00	0.86		0.00	3.00
0011 (Owl)	1.00	0.78		0.00	3.00
0019 (Parthenon Frieze xlvii)	1.00	0.64		0.00	2.00
Freestanding - Unrelated	**1.00**	**0.82**	**0.85**	**0.00**	**3.00**
0010 (The Tower of Babel)	1.00	0.82		0.00	3.00
Glass Case - Single	**0.00**	**0.59**	**0.51**	**0.00**	**2.00**
0008 (The Ardabil Carpet)	0.00	0.55		0.00	2.00
0012 (Crick and Wilson's DNA Model)	0.00	0.48		0.00	1.00
0015 (The Rosetta Stone)	1.00	0.63		0.00	2.00
Glass Case - Themed	**0.00**	**0.66**	**0.42**	**0.00**	**3.00**
0006 (British Rainwear 1910 - 2015)	0.00	0.57		0.00	2.00
0007 (Radical Fashion 1990 -)	0.00	0.53		0.00	2.00
0016 (Mummy Coffins)	0.00	0.65		0.00	2.00
0017 (Dodo)	0.00	0.48		0.00	1.00
0018 (Sitatunga)	0.00	1.14		0.00	3.00
0020 (Electric Trains)	0.00	0.74		0.00	2.00
Freestanding	**0.00**	**0.82**	**0.61**	**0.00**	**3.00**
Glass Case	**0.00**	**0.63**	**0.46**	**0.00**	**3.00**
Multiple Objects	**0.00**	**0.71**	**0.51**	**0.00**	**3.00**
Single Object	**0.00**	**0.79**	**0.59**	**0.00**	**3.00**
Context					
Made clear by display and written information	**0.00**	**0.78**	**0.64**	**0.00**	**3.00**
Made clear by written information	**0.00**	**0.72**	**0.59**	**0.00**	**3.00**
Not made clear by display or written information	**0.00**	**0.76**	**0.46**	**0.00**	**3.00**
Interaction					
All objects where interaction is intended	**1.00**	**0.85**	**0.75**	**0.00**	**3.00**
All objects where interaction is not intended	**0.00**	**0.74**	**0.52**	**0.00**	**3.00**

Table 18 Sensory Scale Summary

OBJECT	PHYSICAL SCALE				
	Median	StDev	Average	Min	Max
Freestanding - Inhabited	**0.00**	**0.23**	**0.06**	**0.00**	**1.00**
0009 (Panelled Room from a House at Bromley-By-Bow 1606)	0.00	0.23		0.00	1.00
Freestanding - Single	**0.00**	**0.31**	**0.11**	**0.00**	**1.00**
0001 (Ballustrade from Temple of Athena Nike)	0.00	0.00		0.00	0.00
0002 (Parthenon Frieze)	0.00	0.39		0.00	1.00
0003 (Neptune and Triton)	0.00	0.31		0.00	1.00
0005 (Samson Slaying a Philistine)	0.00	0.37		0.00	1.00
0013 (Aerial Tuning Collector from Rugby Radio Station)	0.00	0.32		0.00	1.00
0014 (Human Headed Winged Lion from Nimrud)	0.00	0.00		0.00	0.00
Freestanding - Themed	**0.00**	**0.50**	**0.24**	**0.00**	**2.00**
0004 (A Collection of Sculpted Busts)	0.00	0.39		0.00	1.00
0011 (Owl)	0.00	0.66		0.00	2.00
0019 (Parthenon Frieze xlvii)	0.00	0.00		0.00	0.00
Freestanding - Unrelated	**0.00**	**0.62**	**0.37**	**0.00**	**2.00**
0010 (The Tower of Babel)	0.00	0.62		0.00	2.00
Glass Case - Single	**0.00**	**0.11**	**0.01**	**0.00**	**1.00**
0008 (The Ardabil Carpet)	0.00	0.00		0.00	0.00
0012 (Crick and Wilson's DNA Model)	0.00	0.25		0.00	1.00
0015 (The Rosetta Stone)	0.00	0.00		0.00	0.00
Glass Case - Themed	**0.00**	**0.67**	**0.19**	**0.00**	**4.00**
0006 (British Rainwear 1910 - 2015)	0.00	0.00		0.00	0.00
0007 (Radical Fashion 1990 -)	0.00	0.00		0.00	0.00
0016 (Mummy Coffins)	0.00	0.00		0.00	0.00
0017 (Dodo)	0.00	0.62		0.00	2.00
0018 (Sitatunga)	0.00	0.98		0.00	2.00
0020 (Electric Trains)	0.00	1.41		0.00	4.00
All Freestanding Objects	**0.00**	**0.43**	**0.18**	**0.00**	**2.00**
All Glass Case Objects	**0.00**	**0.52**	**0.11**	**0.00**	**4.00**
All Multiple Objects	**0.00**	**0.56**	**0.19**	**0.00**	**4.00**
All Single Objects	**0.00**	**0.36**	**0.12**	**0.00**	**2.00**
Context					
Made clear by display and written information	**0.00**	**0.54**	**0.11**	**0.00**	**4.00**
Made clear by written information	**0.00**	**0.48**	**0.17**	**0.00**	**2.00**
Not made clear by display or written information	**0.00**	**0.40**	**0.16**	**0.00**	**2.00**
Interaction					
All objects where interaction is intended	**0.00**	**0.94**	**0.52**	**0.00**	**4.00**
All objects where interaction is not intended	**0.00**	**0.33**	**0.10**	**0.00**	**2.00**

Table 19 Physical Scale Summary

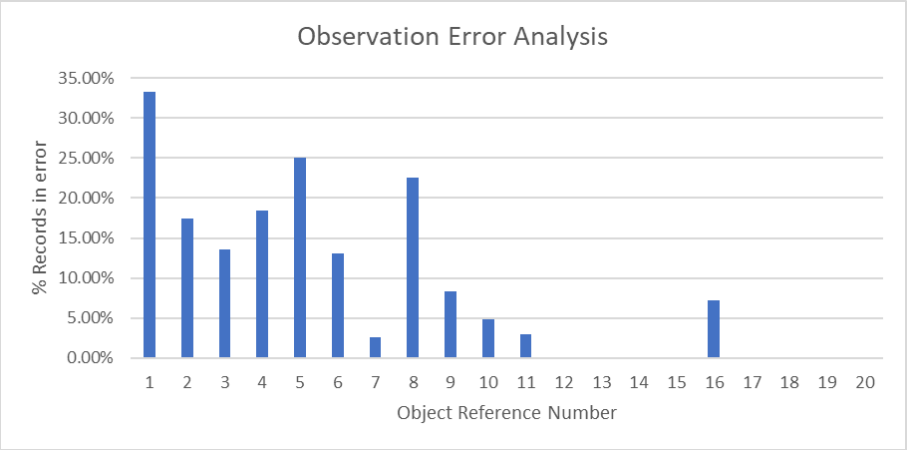
		Median	StDev	Average	Min	Max
	GALLERY TYPE					
RANGE SCALE	Exploration	8.10	2.83	6.53	0.40	12.10
	Journey	7.40	1.80	7.42	3.60	12.10
	Particular Way	6.40	1.99	6.11	0.10	9.40
	Overview	6.90	2.89	7.11	0.10	13.40
	Particular Object	4.90	2.01	5.93	3.60	11.10
	Theme	6.40	2.94	5.99	0.10	15.10
OBSERVATION SCALE	Exploration	8.10	9.34	9.28	0.40	55.66
	Journey	8.10	12.83	13.24	3.60	70.70
	Particular Way	6.40	7.23	10.18	0.30	34.40
	Overview	9.80	14.06	13.10	0.10	80.80
	Particular Object	5.90	11.54	9.59	3.60	57.60
	Theme	6.40	8.23	8.23	0.10	32.40
LOOKING SCALE	Exploration	2.50	2.00	2.94	0.00	10.00
	Journey	3.50	2.26	3.83	1.50	12.00
	Particular Way	2.50	1.95	2.96	0.00	8.00
	Overview	3.00	2.46	3.61	0.00	12.00
	Particular Object	3.50	1.95	3.96	1.50	10.00
	Theme	2.50	2.94	2.93	0.00	10.00
ACQUIRED SCALE	Exploration	0.00	0.89	0.47	0.00	3.00
	Journey	0.00	1.34	0.90	0.00	5.00
	Particular Way	0.00	2.17	1.24	0.00	8.00
	Overview	1.00	1.81	1.52	0.00	7.00
	Particular Object	0.00	2.02	1.15	0.00	11.00
	Theme	0.00	1.26	0.70	0.00	11.00
INTRINSIC SCALE	Exploration	1.00	1.25	0.99	0.00	5.00
	Journey	2.00	1.14	1.61	0.00	5.00
	Particular Way	1.50	1.27	1.47	0.00	5.00
	Overview	1.00	1.29	1.21	0.00	5.00
	Particular Object	0.00	1.12	0.56	0.00	4.00
	Theme	1.00	1.07	0.99	0.00	4.00
PHOTOGRAPHY SCALE	Exploration	0.00	1.01	0.28	0.00	6.00
	Journey	0.00	1.27	0.57	0.00	6.00
	Particular Way	0.00	1.18	0.74	0.00	4.00
	Overview	0.00	1.49	0.90	0.00	7.00
	Particular Object	0.00	0.60	0.20	0.00	2.00
	Theme	0.00	1.15	0.50	0.00	6.00
SENSORY SCALE	Exploration	0.00	1.01	0.38	0.00	2.00
	Journey	0.00	1.27	0.13	0.00	1.00
	Particular Way	0.00	1.18	0.58	0.00	3.00
	Overview	0.00	1.49	0.20	0.00	2.00
	Particular Object	0.00	0.60	0.24	0.00	1.00
	Theme	0.00	1.15	0.20	0.00	2.00

Table 20 Gallery Layout Summary

4) Data Collection Error Analysis

Some data for minimum observation distance and maximum observation distance were not collected and so these observation records have not been included in calculating Range Scale and, consequently, Observation Scale and also the Looking Scale when the factor 'Static Point' could not be determined. This affects all results where these scales are analysed and in these cases 'observed records' refers to only those not in error. This does not affect results for the other calculations.

There were a total of 47 records with this missing information representing 9.14% of the total observed records.



Graph 1 Observation Error Analysis

This analysis shows that errors reduced as observational recording skills and database entry improved. The numerical value of the reference number correlates to time, with the lowest numbers being observed first. The zero values for errors are due in part to addition of the 'Error Correction' button introduced in version ten of the database and the researcher's improving ability in capturing more data.

5) Normal Distribution

As it was comparative results rather than actual values which were important for this research the normal distribution for each set of results was calculated. This enabled these results to be easily displayed as graphs. In order to smooth out these graphs the values of figures used was rounded to give an even distribution and values extrapolated as necessary.

For example, there were measurements of 1.75, 2.5 and 3.1, then the normal distribution was calculated using a range of values from 0 to 3.5 with increments of 0.5.

Normal distribution was calculated using Microsoft Excel as follows:

For value X in a range R_n to R_m

NORMDIST (X, mean (R_n:R_m), standard deviation (R_n:R_m), cumulative)

The variable 'cumulative' was set to 'FALSE' so that the probability that X will occur in the range is returned.

6) Comparison of Results for Freestanding and Glass Case Displays

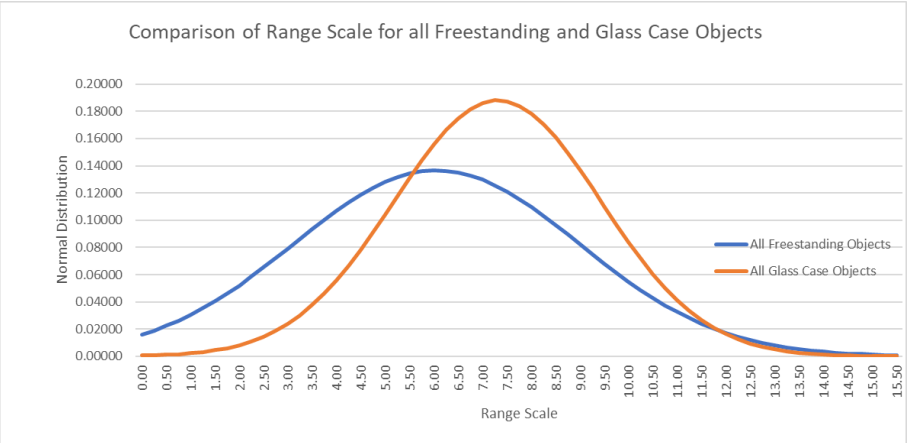
The Freestanding Objects comprised the following:

0001 Balustrade from Temple of Athena Nike
0002 Parthenon Frieze
0003 Neptune and Triton
0004 A Collection of Sculpted Busts
0005 Samson Slaying a Philistine
0009 Panelled Room from a House at Bromley-by-Bow 1606
0010 The Tower of Babel
0011 Owl
0013 Aerial Tuning Collector from Rugby radio station
0014 Human Headed Winged Lion, Assyrian, from Nimrud
0019 Parthenon Frieze xlvii

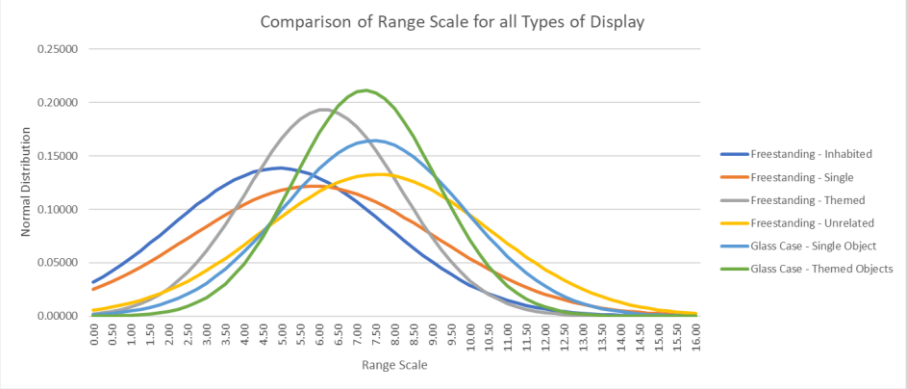
The Glass Case Objects comprised the following:

0006 British Rainwear 1910 – 2015
0007 Radical Fashion 1990 -
0008 The Ardabil Carpet
0012 Crick and Wilson's DNA Model
0015 Rosetta Stone
0016 Mummy Coffins
0017 Dodo
0018 Sitatunga
0020 Electric Trains

i. Range Scale



Graph 2 Comparison of Range Scale for all Freestanding and Glass Case Objects



Graph 3 Comparison of Range Scale for all Types of Display

The graphs depicting all freestanding and Glass Case Objects are very similar with both graphs showing an obvious peak and tail-off. The peak for Glass Case Objects is higher than that for Freestanding Objects with an average of 7.31 compared with 6.05 and has a steeper curve. The standard deviation for Freestanding Objects (2.92) is noticeably higher than that for Glass Case Objects (2.12) although the median range scale for both types of objects is the same, 6.40. This suggests that there is an optimal viewing distance for all museum object and that that the glass case is not a significant barrier. However, there were six Freestanding Objects which had a minimum range scale of less than 1.0 and only one Glass Case Object, 0015, with a minimum range scale of less than 3.0. With the Glass Case Objects that were observed there was very little 'pressing noses against the glass' as, for example, has been discussed in regard to religious icons. It further suggests that with Freestanding Object there are visitors trying to determine that optimal viewing distance or they do not perceive a need to get closer to the object.

This is supported by the values for the overall minimum and maximum values. For Glass Case Objects these were 2.50 and 13.10 respectively; for Freestanding Objects these were 0.10 and 15.10. The actual viewing distances bear this out as well. Some 40.31% (77/191) of visitors looked at Glass Case Objects from a minimum distance of one foot which compares with 27.17% (75/276) for Freestanding Objects. For Glass Case Objects 17.80% (34/191) visitors moved no further away from the object one foot; for Freestanding Objects this figure was 12.32% (34/276). Some 6.48% (19/276) of visitors looked at Freestanding Objects from no closer than 7 feet whilst there were no visitors who looked at Glass Case Objects from a distance greater than five feet.

The highest value for the median range scale for any object was 9.10 for object 0020. This object also had the highest percentage of non-static observations that is, the object was observed from a range of distances at 60.00% (9/15). It was displayed in a table-top style glass case with plenty of space to walk all the way around and this facilitated viewing the object from multiple distances. It was also an object that invited both an overall view from further away and a closer inspection of individual detail as some parts were very small but provided interest. One relevant factor for this might be that it was necessary to pay in order to set the trains in motion and so, even though this charge was only nominal, visitors wanted to get value for money.

The other two objects with non-static observations of greater than 50% were 0015, with a percentage of 58.06% (18/31) and 0010 at 53.85% (21/39). Like object 0020 the placement of the object slightly distant from other objects in the gallery, leaving plenty of space to walk around[2], could have been a relevant factor.

In the case of object 0015 there were large numbers of visitors crowding around the display and it was difficult to determine if they were waiting to get a closer view of the object or if they were looking at it from a variety of distances. In this instance, though, with the object being of such international renown it would seem more likely that the visitors wanted to get closer, either to take a photograph or to look at the contextual information which could only be read when nearer the object. Observation records show that of the non-static observations some 77.77% (14/18) visitors at some point viewed the object from the minimum measured distance of one foot, with a maximum distance of between three feet

[2] A former tutor a of mine relates how she and a colleague visited the British Museum and finding the Rosetta Stone danced around it.

and six feet. All static observations were from a distance of five feet or less and 46.15% (6/13) were from one foot. Some 83.33% (15/18) of visitors who viewed the object from a non-static viewpoint also took note of at least some intrinsic information such as the object's title.

Object 0010 was set in a similar context and it was also an object where the details and context became more apparent the closer the observation distance, but which also needed to be viewed from further away to get an overall impression of what it looked like. It was a modern sculpture, on temporary display, set amongst the more usual medieval and renaissance works which matched the gallery's theme. It comprised bone china models of real and identifiable London shops from every postcode which could be purchased to take home. This required visitors to move close to the object to identify a particular model shop that they recognised or felt some relationship to. It was also possible to walk right around the object to get different unique views.

Of those visitors who observed the object from a non-static distance 63.16% (12/19) had a minimum viewing distance of one foot and 52.63% (10/19) observed the object from between one and three feet. Most visitors who viewed the object from a static distance viewed it from a distance of three feet. This figure was 61.11% (11/18). No visitor who viewed the object from a static distance viewed it from less than two feet. This might be due to its placement on a circular plinth and its conical shape which meant that it would have been necessary to bend over to get a closer look.

There were two objects which were only viewed from a static viewpoint. These were object 0012 and object 0019. All observation records for object 0012 had a minimum viewing distance of one foot and a maximum viewing distance of one foot. Again, this may simply be due to the design of the display, a tall prism-shaped glass case with the object set right in the centre. It was another object that was easy to walk all the way round but it was set in a gallery (Making the Modern World) which was crowded with a vast number of other objects many of which would have been instantly recognisable to the visitor. The gallery was also crowded with people. Visitors who did spend time looking at the object generally read the title, or other included information, but looked only from that viewpoint. Many other visitors walked by without looking at any of the information at all. A photograph shows visitors looking carefully at the object but not from a close distance.

Object 0019 is discussed further in section 10.1 of this chapter.

The highest maximum range scale for a Freestanding Object, 15.10 was object 0005 closely followed by that for object 0010, 13.40.

Object 0005 was placed in gallery of themed medieval and renaissance objects and once again there was plenty of space around the object which was in keeping with the rest of the gallery. Visitors were able to view the object from a range of distances and angles which was necessary as the two figures which comprised the object were facing different directions. Its size also meant that there was a need to be slightly further away to get an optimal view, especially in order to take photographs. The visitor then to get closer in order to read the label which was placed on the object itself. It also had the advantage of being in close proximity to the unusually placed object 0010.

The normal distribution graphs for individual display types also show some differences and similarities.

The two types of themed object display have the highest peaks which have a similarly steep rise and fall and the lowest values for standard deviation with 2.06 for 'Freestanding – Themed' and 1.89 for 'Glass Case – Themed'. However, the displays for two of the 'Freestanding – Themed' objects, 0004 and 0011, were of a table-top design and, like objects displayed in glass cases, required the visitor to get reasonably close in order to see them. This was especially true for object 0011 which was relatively small in comparison to its method of display.

The peak for all freestanding themed objects is lower than that for all glass case themed objects with a median of 4.90 compared with 6.40. This is due to object 0019 which has the lowest maximum median range scale of any themed object (4.90). This is discussed further in section 10.1 of this chapter.

For 'Freestanding – Themed' object displays only 12.50% (11/88) of observation records had non-static observations and all except one record had a minimum observation distance of one foot and a maximum observation distance of two feet. For 'Glass Case – Themed' object displays 34.51% (39/113) of observation records had non-static observations with 66.67% (26/39) of these having a minimum observation distance of one foot.

In the case of 'Glass Case – Themed' objects some 65.49% (74/113) observations were from a static point and of these 59.46% (44/72) were from a distance of two feet. For freestanding themed objects 87.50% (77/88) were from a static point with 46.75% (36/77) from a distance of three feet. This difference in observation distance is in large due to object 0019 which is

discussed in section 10.1 of this chapter but the size and nature of the display was more conducive to looking at the object from a single point.

The graph with the lowest peak and most gradual peak is that for freestanding Single Objects with the highest standard deviation of 3.27. This type of display has the greatest difference in minimum and maximum range scales, from 0.10 to 15.10, and all objects except 0013, which had a median of 3.60, had a median of 6.40. This could be accounted for by the fact the display for object 0013 was of such a size that, on at least two sides, it was not possible to view it from the maximum measurable distance. The board with this object's information about was placed at slight distance and not immediately obvious unless the visitor approached from one particular direction. It was not possible for the researcher to see the remaining side with any clarity and complete observations may have been missed. Object 0005 which had the largest maximum range scale of any observed object (15.10) was also a very large object. This may also be due to its proximity to object 0010 and visitors viewing this object were easily observed by the researcher.

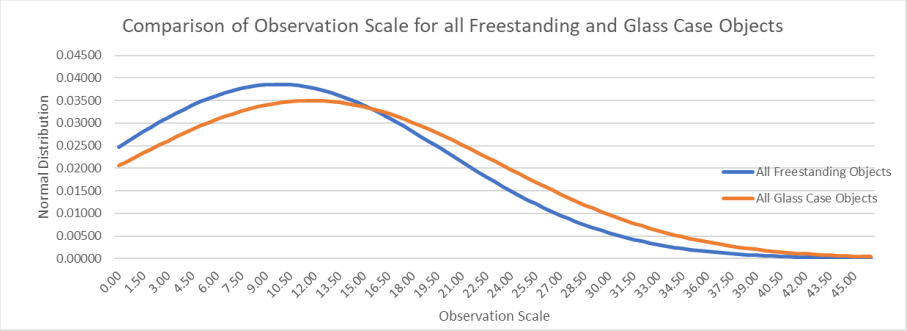
The similarity in results for the other objects may be accounted for by the similarity of the objects themselves, particularly their size. Some 55.17% (64/116) of observations, whether static or non-static, had a minimum distance of one or two feet. 15.52% (18/116) of such observations had a minimum observation distance of six feet or more, all of which were static.

The graph for 'Freestanding – Inhabited' is also similar to that 'Freestanding – Single', although only one object of this display type was observed which may have affected the results. The standard deviation for 'Freestanding – Inhabited' is 2.88, slightly lower than that for 'Freestanding – Single' which is 3.27. As with object 0013, information for object 0009 was only in one location and the object was essentially one complete side of a small gallery and could in one sense be regarded as a 'Freestanding – Single' object as well. This may account for it having the same median range scale (3.60) as object 0009.

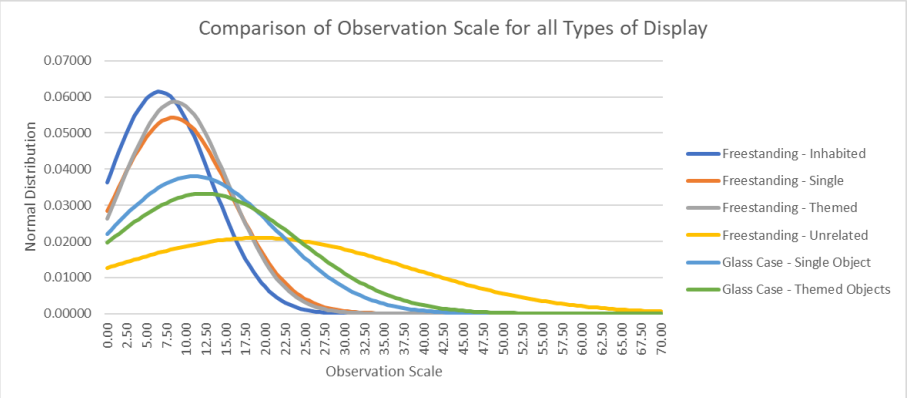
The graphs for 'Freestanding – Unrelated' objects and 'Glass Case – Single' objects are also similar with 'Freestanding – Unrelated' having a slightly lower peak and more gradual rise and fall. The respective standard deviations are 3.00 and 2.43. The median for 'Freestanding – Unrelated' is lower, 6.90 compared with 8.10 but the maximum values are very close – 13.40 for 'Freestanding – Unrelated' and 13.10 for 'Glass Case – Single'. It needs to be noted that both these groups contained somewhat striking objects with 'Freestanding – Unrelated'

including object 0010 and 'Glass Case – Single' including object 0015. Only one object of display type 'Freestanding – Unrelated' was observed.

ii. Observation Scale



Graph 4 Comparison of Observation Scale for all Freestanding and Glass Case Objects



Graph 5 Comparison of Observation Scale for all Types of Display

As the observation scale is a function of range scale similarities in the shapes of graphs would be expected. In fact, the graphs for all Freestanding Objects and all Glass Case Objects show differences which can only be accounted for by differences in observation time.

The graphs comparing all freestanding and Glass Case Objects have similar peaks although, unlike the graph for Range Scale, that for Freestanding Objects is slightly higher and the tail-off for Glass Case Objects is lot longer. The standard deviation for Glass Case Objects is 11.40 and that for Freestanding Objects is 10.34. These differences can be explained by the fact 89.53% (171/191) of observations for Glass Case Objects were either one or two minutes with the figure for Freestanding Objects for the same observation periods is 87.68% (242/276). This is combined with the fact that Glass Case Objects had fewer recorded static observations which would lower the value of the observation scale. For Glass Case Objects

this figure is 65.45% (125/191) and for Freestanding Objects this figure is 75.72% (209/276). This means that, whilst the highest value of the maximum observation scale for Freestanding Objects was greater than that for Glass Case Objects (80.80 compared with 70.70) and the lowest values of the minimum observation scale are (0.10 and 2.50), the median observation scale for Glass Case Objects was greater than that for Freestanding Objects (8.10 compared with 6.40). This was due to object 0010 which the highest observation time of 2.21 minutes and a median observation time of 2.00 minutes. Only two other objects had average observation times of 2.00 minutes or greater. These were object 0002 which had an average observation time of 2.16 minutes, and a median of 2.15 minutes, and object 0006 which also had an average observation time of 2.00 minutes, although with a lower median observation time of 1.00 minutes.

In general, those objects which had the largest range scale also had the largest observation scale and those objects with the smallest range scale also had the smallest observation scale. The parallels in distance were matched by those of time.

There were a few exceptions.

Whilst the median and maximum range scales for object 0006 were at the top end for 'Glass Case – Themed' objects, 9.60 and 70.70 respectively, not only was the maximum observation scale the highest for this type of display but was also the highest for all Glass Case Objects and the second highest of all objects of any type. The median observation scale was also the second highest value of all objects of any type (9.60). This is entirely to a number of higher observation times (four observation records were longer than 4 minutes). In comparing these values to those of object 0007, a similar object displayed adjacent to 0006, there were some differences noted. It had the highest equal value maximum Range Scale for 'Glass Case – Themed' (12.10) and the lowest equal median value for that display category (6.40). It had no recorded observation times longer than four minutes and a greater percentage of observation times of one minute (60.00%) compared with 65.00% for 0007.

Object 0010 had the highest median score of all objects (10.80) and the highest difference between minimum and maximum, 2.50 to 80.80, with a standard deviation of 19.02.

The graph separating the objects by display type shows three distinct groupings – Freestanding Objects (inhabited, single and themed), both categories of Glass Case Objects and freestanding unrelated objects.

The display type 'Freestanding - Unrelated' only consists of one object, object 0010, and this perhaps unduly affects the results for this type. However, no other object was seen displayed in this way and so these results must be regarded as being representative. The graph has a very flat curve, with a discernible peak much lower than the other two groups and a much higher standard deviation than any other category of 19.02. It has a median observation scale of 10.80 with a difference between maximum and minimum of 78.30. The shape of the graph can be explained by the fact that this type of display has a low percentage of recorded observation times of one minute, 46.15% (18/39), which affects the rise of the curve and a high percentage of recorded observation times greater than two minutes, 30.77% (12/39) which affects its fall. As previously discussed, the unusual nature and display of this object affects these results.

The graphs for the other three types of freestanding display all have graphs which both peak and fall away very quickly. Both 'Freestanding – Single' and 'Freestanding – Themed' have values of 0.10 for minimum observation scale and 6.40 for median observation scale, with 'Freestanding – Single' having a higher maximum observation scale of 34.40 compared with that of 32.40 for 'Freestanding – Themed'. The highest standard deviation for this grouping is for the category 'Freestanding – Single' (7.37), the lowest for 'Freestanding – Inhabited' (6.49) and that for 'Freestanding – Themed' is 6.80.

There was greater variation in the maximum values for 'Freestanding – Single' which ranged from 12.80 to 34.40. The low value for object 0014 can be accounted for the fact that 75% (12/16) of observation records were one minute and 87.5% (14/16) were from a static viewpoint. Its large size and placement at the entrance to a smaller gallery of similarly themed objects meant that it was possible to look at the object, and get a quick overview of it, without paying too much attention to it.

The freestanding displays 'Freestanding – Themed' had two objects which do not the fit general mould of the other objects examined. The first of these was 0011 which was one of a set of objects set on a plinth which were specifically intended to be handled. Handling the object immediately set the minimum observation to one minute but the object was also attached to the plinth by a chain so that even with continuous handling for the observation period an immediate boundary was placed on the maximum observation distance. It should be noted that some observation records included periods of the object being handled and not being handled which also affected the maximum observation distance. Some 66.66% (22/33) viewed the object from a minimum distance of one foot but all bar two records

indicated that this object was only viewed from a static point. These two observation records only moved to a maximum of two feet away.

The 'Please Touch' sign inviting visitors to handle the object was rather small and unobtrusive and not obvious until the visitor was close to the object, deliberately stopping to look. The plinth was very large compared with the object and set amongst a gallery comprising glass cases. The only other interaction in the gallery was a video recording and so the permission to handle this object might be unexpected. This gallery was also set along a walkway above another gallery with good viewing points to that gallery on either side of this object.

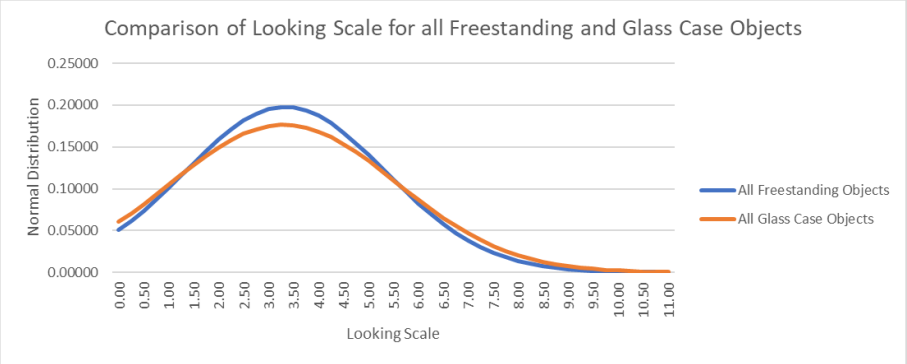
The second object was 0019, an individually named metope. It was set among a number of other metopes and was not necessarily intended to be specifically interesting in its own right to the general visitor but more as an example of its type. Visitors looking at the other metopes on display might regard as not being sufficiently different to the others and not look at this one.

There were a number of factors regarding its display which affected these results. Firstly, there was a metal barrier which prevented getting closer than three feet; secondly it was situated next to the entrance of the gallery so, dependent on which way the visitor travelled around the gallery, it could be the first object to be seen, or the last; thirdly, most importantly, it was an object described in the audio tour.

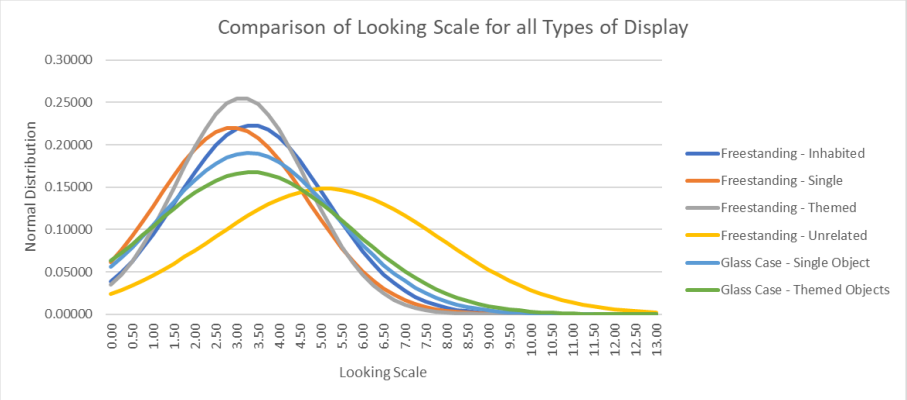
These three factors all affected observation time, particularly for those using the audio tour which set a definite maximum limit. Only one visitor appeared to take much longer than this allocated time. It also affected the observation distance with all visitors who listened to this guide and they all observed the object from a static viewpoint.

The graphs for the two categories of glass case display are very similar with themed displays having a slightly lower peak and longer tail off. The standard deviation for 'Glass Case – Themed' is 12.01 and for 'Glass Case – Single' this is 10.49. Three 'Glass Case – Themed' objects had a median observation two minutes. These were objects 0006, object 0007 and object 0020. No 'Glass Case – Single' object had a median observation time of greater than one minute and of this display category only object 0015 had an average time of greater than one minute. Overall, 'Glass Case – Themed' objects had a slightly higher average observation time of 1.60 minutes compared with that of 1.41 minutes for 'Glass Case – Single' objects which is the result that one would probably expect.

iii. Looking Scale



Graph 6 Comparison Of Looking Scale for all Freestanding Objects and Glass Case Objects



Graph 7 Comparison Of Looking Scale for all Types of Display

The graphs for all Freestanding Objects and all Glass Case Objects are very similar, with that for all Glass Case Objects having a slightly lower peak and longer shallower tail-off. The values of the standard deviation for each are very close with that for Freestanding Objects being 2.02 and for Glass Case Objects being 2.26. The maximum, minimum and median values are the same for each, 12.00, 0.00 and 2.50 respectively, although the average value for Freestanding Objects is slightly higher, 3.34 compared with 3.31.

The greatest maximum value for all Freestanding Objects was achieved by object 0010 (12.00) and for all Glass Case Objects this by object 0007, also 12.00. The reasons for both of these high results are as described in range scale and observation scale. In the case of object 0007 this is emphasised by the fact that the adjacent object, object 0006, displayed in an identical way had a maximum value of 6.00. This, again, suggesting that it is the object not the method of display creates the greater interest particularly as the researcher's observation showed many of the adult groups who looked at this object appeared to be students who might have more than a general interest in the object.

A direct comparison between objects 0006 and 0007 makes this clear with object 0007 scoring higher in all the measurable categories for Looking Score except for looking at object from a static viewpoint. Notable differences are for looking at object from multiple angles which was 43.24% (16/37) of recorded observations for object 0007 and 15.00% (3/20) for object 0006 and for looking at object from multiple distances where the figures were 39.47% (15/38) for object 0007 and 26.09% (6/23) for object 0006. However, object 0007 scored much higher for 'Quick Glance' with a value of 24.32% (9/37) compared with 5.00% (1/20) for object 0006, suggestive of the type of visitor describe above.

An examination of the various individual factors which comprise the looking score shows that, overall, Freestanding Objects scored more than Glass Case Objects in the factors which were weighted lower (Quick Glance, Static Point and Specific Part) and less in those which were weighted higher (Comparison, Multiple Angles, Multiple Distances and Revisit).

There were exceptions within each of these factors. Glass case object 0008 had the highest value for 'Quick Glance' with 54.84% (17/31) of observation records. This object was displayed slightly differently from the other observed Glass Case Objects in that it was displayed in a horizontal glass case, approximately 10 metres by 5.3 metres and only lit for 10 minutes on the hour and half-hour. Without sufficient lighting the colours were difficult to see with the consequence that it might have been regarded as less interesting than other objects in the same gallery. Although the timing of light was not noted at the time of recording the observational data, the data shows that, allowing for a one minute discrepancy between the museum's and the observer's timing, only 16.13% (5/31) of observation records, which recorded 'Quick Glance' fell within this period when the light was on. One interesting observation record showed that this object had the longest observation time of any object (nine minutes). This was for a tourist group at a time when the light was on.

There were two objects where the factor 'Static Point' was 100%. These were for Glass Case Object 0012 and Freestanding Object 0019. Object 0019 was placed on a wall, slightly above the average person's eyeline and a had a very definite ideal viewpoint. Object 0012 was a rather complicated model and better suited to getting an overall view rather than looking at individual detail. This was borne out by the fact that there were no recorded observations of visitors looking at a specific part of this object. Interestingly, object 0012 had the second highest score for 'Revisit', 12.50% (2/12). This could be on account of either the fact that it was not an object to be quickly appreciated and that more information could be gained by a second look or that the gallery was very crowded with objects and that visitors were looking at the object as they walked past from another direction.

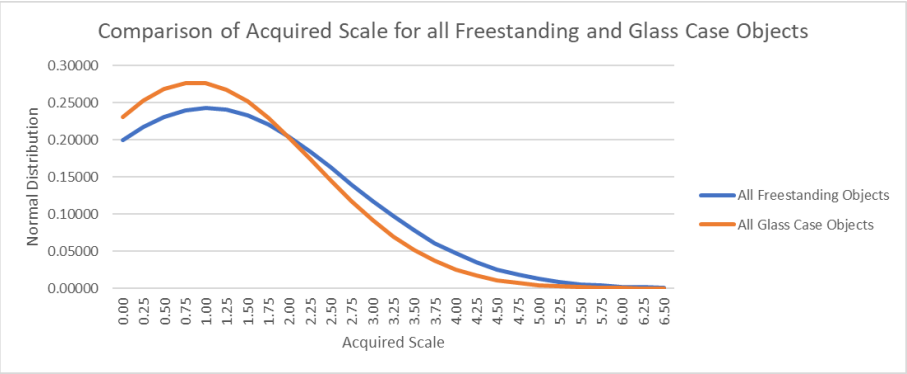
The two objects which scored highest for 'Multiple Angles' and 'Multiple Distances' also had high values for 'Revisit' were objects 0020 and 0010. As previously discussed, the nature of the display of these objects invited such observations, particularly with the 'Revisit' for object 0020 where at least one such observation record was on account of the visitor looking at the object and then going to get change in order to operate the display. These two objects also scored low values for looking from a static viewpoint although the value for 'Quick Glance' for 0010 was relatively high with all observed records for this showing a lack of interest in any intrinsic information and that all these visitors were browsing the gallery.

The value for the element which measures if visitors compare one object with another was small for both all Freestanding Objects and all glass objects. It was slightly higher for all glass objects, 1.05% (2/191) than for all Freestanding Objects, 0.36% (1/276). There were only two objects which scored above zero. These were Glass Case Object 0017 with 12.50% (2/16) of observation records and Freestanding Object 0019 with 4.17% (1/24). Both these objects were displayed amongst very similar objects which made comparison very easy. The single observation record taken for 0019 indicates that the visitor was not using an audio guide.

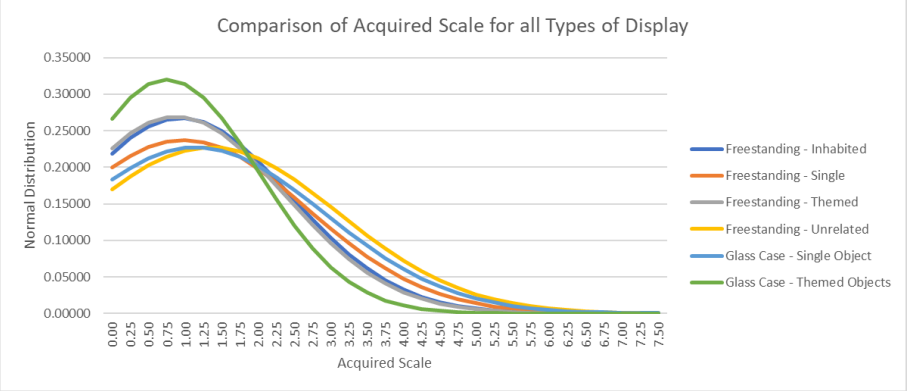
The graph separating the objects by display category show two distinct groupings. 'Freestanding – Unrelated is in a group by itself with the lowest peak and smoothest tail-off and the highest standard deviation of 2.69. It also has the highest median value (5.50) which can be attributed to the relatively high values in all the individual measurement factors except for 'Comparison'.

The second group comprises the remaining categories which are essentially only differentiated by the rise and fall of the peak with the value of all standard deviations lying between 1.56 and 2.38 and all categories having the same median value of 2.50.

iv. Acquired Scale



Graph 8 Comparison Of Acquired Scale for all Freestanding Objects and Glass Case Objects



Graph 9 Comparison Of Acquired Scale for all Types of Display

The graphs showing the normal distribution of all freestanding and Glass Case Objects are very similar. They both tail off in a similar way, although the graph for all Glass Case Objects has a slightly higher peak. The values for standard deviation are close with that for Glass Case Objects being 1.61 and that for Freestanding Objects being 1.49. The median and minimum values are the same for both graphs (0.00 and 0.00), although the maximum value for Glass Case Objects is higher (11.00) than for Freestanding Objects (8.00).

The results for the individual types of display are also similar, although there are three distinct groupings. Firstly, 'Glass Case – Themed' has both the highest peak and the greatest drop, with a standard deviation of 1.25. This category included objects 0006 and 0007 which both have high values for 'Group Discussion' accounting for a maximum Acquired Scale of 5.00 for each. Secondly, 'Freestanding - Themed' and 'Freestanding - Inhabited', which have very similar standard deviations of 1.48 and 1.49 respectively with the three remaining display types forming the third group with standard deviations ranging from 1.68 to 1.76.

Only six objects had a median greater than 0.00 and only one, object 0019, with a median greater than 1.00. Only one of these was a Glass Case Object, 0015, which had a median value of 2.50 but this is more about high scoring individual factors overall rather than any one particularly high-scoring factor.

In general, the individual values for the factors which comprise the Acquired Scale are not dissimilar but there some exceptions.

For 'Group Discussion' and 'Group Discussion With Expert Leader' only observation records which comprised groups, that is 'tourist', 'family' and 'adult' were used in the calculation of these values. There was a total of 320 observation records made of 137 records for Glass Case Objects and 183 for Freestanding Objects.

There was a higher percentage of records for 'Group Discussion' for Glass Case Objects, 21.17% (29/137) than for Freestanding Objects which had a value of 19.67% (36/183). Object 0006 had the highest value for any Glass Case Object, 53.85% (7/13) which was perhaps in part due to its location adjacent to object 0007, 24.62% (9/26). It was difficult for the researcher to always tell whether this might have been a continuation of discussion about object 0007. The highest value for a Freestanding Object was for object 0009, 37.50% (6/16), which might be because this object comprised many individual smaller objects each demanding the attention of the visitor.

For 'Group Discussion With Expert Leader', Glass Case Objects again had the highest value overall, 8.03% (11/137), with Freestanding Objects having a value of 4.92% (9/183) but each category had one high scoring object. For Glass Case Objects this was object 0015, 33.33% (7/21) and for Freestanding Objects this was object 0019, 30% (10/30). In both cases these discussions could be seen starting from some distance away and this was especially noticeable for object 0015 where the large numbers of visitors made it difficult to approach the object with any great speed.

Out of the total of 514 observation records, 115 (22.37%) were seen to be carrying a guidebook with a higher percentage for Freestanding Objects, 23.62% (72/309), than for Glass Case Objects, 20.98% (43/205). The object for which there were most observation records for carrying a guidebook was object 0016, 42.86% (5/11). There were no observations recorded for objects 0018 or 0020 for carrying a guidebook.

An examination of how the guidebook was used shows that out of the 115 observation records where carrying a guidebook was noted only 23 (19.83%) checked this guidebook and 15 (12.93%) referred to it in any deeper way. For all Freestanding Objects the number checked was 17.81% (13/73) and for Glass Case Objects this was 23.26% (10/43). For referring to a guidebook these values were 13.70% (10/73) for Freestanding Objects and 11.63% (5/43) for Glass Case Objects.

The object for the which the guidebook was most checked was 0015, 53.85% (7/13), which might again be on account of the crowding, although only 7.69% (1/13) referred to it any deeper way.

The object for which there were most recorded observations of the guidebook being referred to was object 0019, 66.67% (6/9), which may have been related to the fact that this object was part of an audio tour. The Glass Case Object with the greatest number of recorded observations for checking the guidebook, object 0010, 45.45% (5/11), had no recorded observations for referring to the guidebook. Of those observations where carrying a guidebook was recorded there were eight objects where the guidebook was neither checked nor referred to - 0001, 0002, 0006, 0007, 0009, 0011, 0012, 0017.

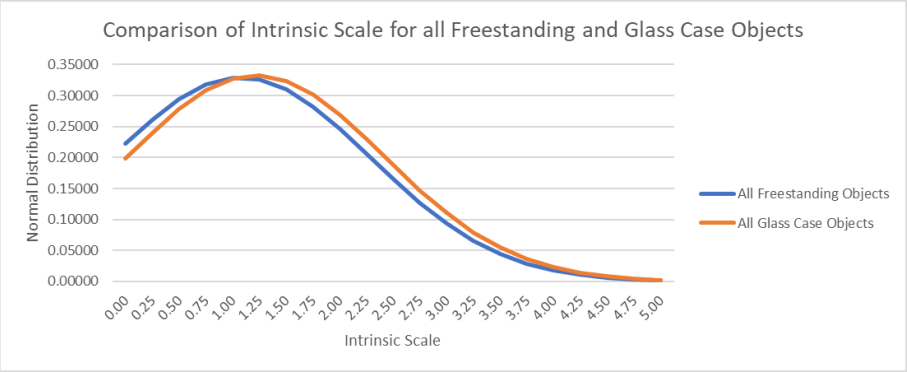
Of the nineteen observation records where the demographic was a tourist group there were only 4 occasions where a member of the group questioned the tour guide. This was once each for objects 0002, 0008, 0009 and 0010. The other objects visited by a tour group were 0001, 0005, 0014 and 0019. Only one person questioned a guide from another tourist group with this particular group spending some 9 minutes at object 0008

Only two objects had a curator on hand, 0002 and 0010, and out of the 65 recorded observations for these objects these curators were questioned only 4 times (4.35%). Three of these occasions were for object 0010 which accounted for 7.32% of recorded observations for this object.

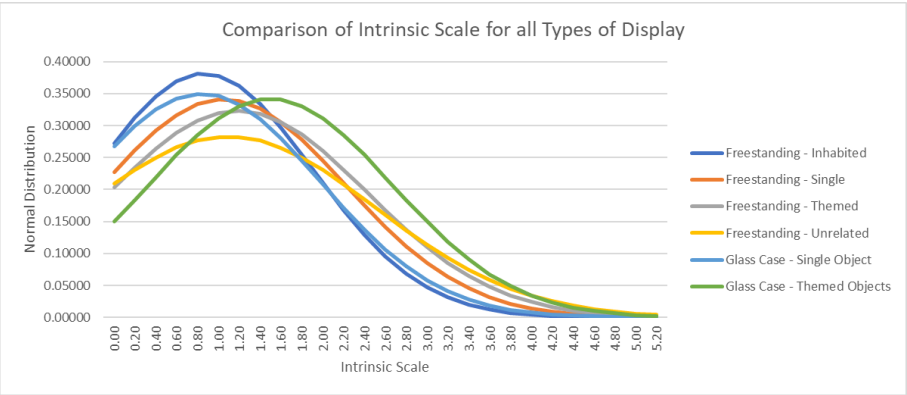
The three most sought out objects were all related to the Parthenon. These were object 0001, 33.33% (3/9), object 0002, 30.43% (7/23) and object 0019, 29.17% (7/24). However, in each case the gallery, and in the case objects 0001 and 0002, the museum was dedicated to these objects. Object 0002 occupied one entire floor of the museum and object 0019 was part of an audio tour.

Only five objects recorded any values for being recognised, the most recognised being 0007, 18.42% (7/38) but the high value for 'Group Discussion With Expert Leader' may account for this. Object 0006 which was adjacent to object 0007 only had a value of 4.35% (1/13) for being recognised.

v. Intrinsic Scale



Graph 10 Comparison of Intrinsic Scale for all Freestanding Objects and Glass Case Objects



Graph 11 Comparison of Intrinsic Scale for all Types of Display

The graphs showing the normal distribution of all freestanding and Glass Case Objects are again very similar. The Freestanding Objects graph has a slightly steeper peak at a lower value and that for Glass Case Object has a longer tail off and the values of the standard deviations are almost identical at 1.21 and 1.20 respectively. The maximum, minimum and median values are the same for both, 1.00, 0.00 and 5.00 respectively, although the average for Glass Case Objects is higher with a value for 1.22 as opposed to 1.08.

The overall results show that more people took a general notice of the intrinsic information for Glass Case Objects, the total for 'Slight', 'Moderate' and 'Extensive', which was 62.44% (128/205) compared with 51.78% (160/309) for Freestanding Objects. This was mainly due to objects 0018 and 0020 which both scored very highly for 'Slight' and object 0006 which had high scores for all three factors. The overall results also show that there are higher percentages for both 'Read Title' and 'Read Description' for Freestanding Objects. For 'Read Title' this is 21.95% (45/205) for Glass Case Objects compared with 11.65% (36/309) for Freestanding Objects although for 'Read Description' these values are much closer with Glass Case Objects at 14.15% (29/205) and Freestanding Objects at 11.65% (36/309). There seems to be little correlation between these results, and this might simply be down to factors such as the (apparent) obvious nature of object or the positioning of label. An examination of the results for individual objects might explain this.

The graphs for the individual display types demonstrates differences which are due to the nature of the objects themselves. 'Glass Case – Themed' is again standing obviously by itself with a relatively low standard deviation of 1.17 but the highest average value of 1.50. The high average was due to objects 0006 and 0020 which both had maximum values of 5.00. All minimum values were 0.00. Nevertheless, there were some interesting results. Object 0007 had a few people, 10.53% (4/38), who read the title whereas the adjacent object, object 0006, had none. Results for Acquired Scale, though, show that object 0006 had a very high result for 'Group Discussion' which could have affected this. The adult student groups perhaps preferring to talk about the object rather than read about it. There were four other objects with no observation records for either 'Read Title' or 'Read Description'. These were objects 0002, 0006, 0008 and 0019. In the case of object 0019 there was an audio guide; in the case object 0002 the whole gallery was dedicated to a Single Object. Object 0002 had no observed records for 'Read Contextual Information' or 'Read Gallery Notes' either.

Object 0018 had the highest value of all objects for 'Read Title', 66.67% (8/12), but included as part of the information board with the title and description was a handle which allowed some physical operation of the object. Only 16.67% (2/12) of visitors were observed reading the description so perhaps the visitors were maybe jumped from reading the title to operating the handle. In fact, all visitors who read the description operated the handle but only half of those who read the title did so.

Other objects which scored highly for 'Read Title' were 0012, 43.75% (7/16), and 0020, 40.00% (6/15). In the case of object 0012 this might have been because it was recognised, at least in a general sense, and visitors wanted to check what they thought they knew or at the

opposite end of the spectrum they had no idea what it was and it was so unusual they wanted to find out. There were no recorded observations for the object being recognised. For object 0020, as with object 0018, the instructions on how to operate the exhibit were displayed on the same panel as the title. However, both objects 0012 and 0020 had high value for 'Read Description', 25.00% (4/16) and 26.67% (4/15) respectively.

The highest percentage for 'Read Description' was for object 0016, 35.71% (5/14) and was also one of two objects for which there was a value for 'Read Contextual Information', 7.14% (1/14). The other being object 0015, 25.81% (8/31). These two objects were both of a wider and well-known historical interest.

An examination of the total values for 'Slight', 'Moderate' and 'Extensive', which gives a general indication of the visitor's interest in the object, shows that the object with the highest score was 0019, 91.67% (11/12). This could, again, be on account of the fact that it was part of an audio tour as well its location close to the gallery door. The lowest score was for object 0008, 20.00%, (8/40), although it did have a relatively high value for group discussion.

Two objects had audio available. Object 0002 had a unit with headphones adjacent to it. One record was observed of this being used which accounted for 4.35% of the total; object 0019 had three observed records which accounted for 12.50% of the total.

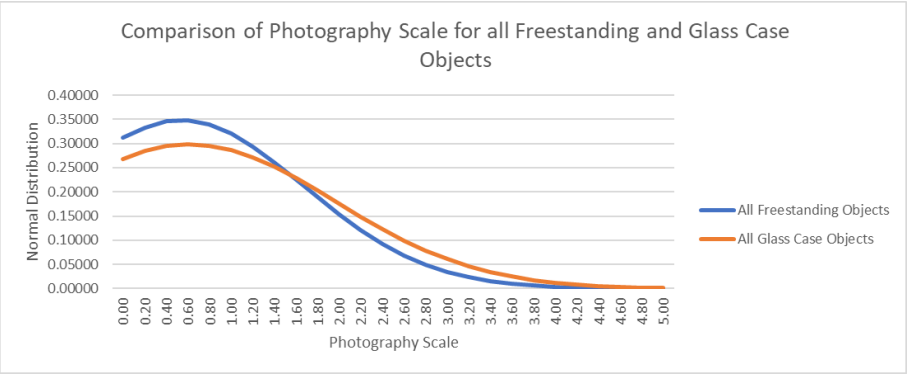
Object 0002 was the only object with additional available visual material available which was used and had a score of 43.48% (10/23). Objects 0008, 0010 and 0020 had additional visual material which was not observed to be used.

Only one object, 0010 had related media on website but there was only one observed record of this being used representing 2.44% of total.

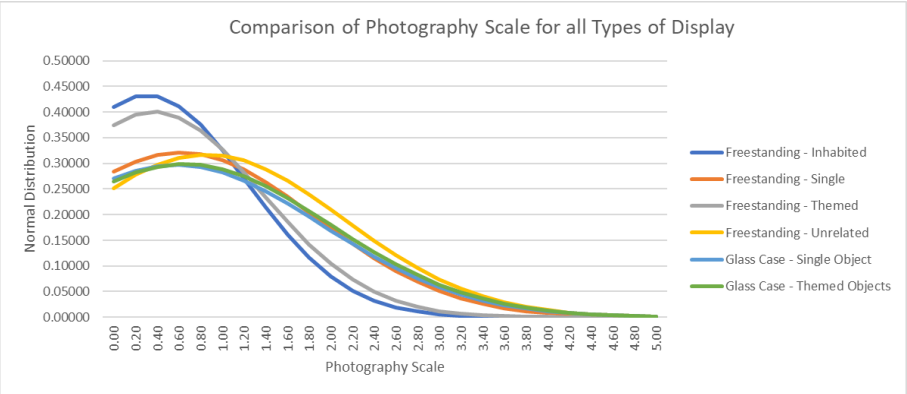
Object 001 had highest score for 'Read Gallery Notes', 22.22% (2/9) but this might be more about the limited number of observed records. Five other objects registered a positive score for this. These were 0004, 0006, 0008, 0014 and 0020 with each having only a single record.

There were no observed objects which had related audio-visual material.

vi. Photography Scale



Graph 12 Comparison of Photography Scale for all Freestanding Objects and Glass Case Objects



Graph 13 Comparison of Photography Scale for all Types of Display

The normal distribution curves for all Glass Case Objects and all Freestanding Objects are similar with that for Glass Case Objects having a lower peak and a longer tail off. They both have same median and minimum values, 0.0 and 0.0 respectively with freestanding having lower maximum value and a lower average. These are 6.00 and 0.53 compared with 7.00 and 0.62 for Glass Case Objects. The standard deviation for Freestanding Objects is 0.53 and for Glass Case Objects this is 0.62.

Overall, there were 113 observation records where a photograph of some description was taken which was 21.98% of all observation records. This comprised 68 observation records for Freestanding Objects, 59.65%, and 47 observation records for Glass Case Objects, 40.87%. This ratio was not unexpected as, even with modern cameras which are likely to have 'through glass' option it is still a lot easier to take a photograph of Freestanding Objects. There were no objects which were not photographed at all.

A comparison of the individual types of display shows that two types of freestanding display, themed and inhabited, have a much greater peak and tail off than the other types of display. They have distinctly lower averages, 0.32 and 0.25 respectively and the lowest maximum value, 4.0. The values for the standard deviations for these categories were 0.79 and 0.81 respectively. The other types have an average which ranged from 0.54 to 0.73, a maximum value of 6.0 or 7.0 and standard deviations ranging from 1.19 to 1.44.

The most photographed type of display for any observation record where at least one photograph was taken was 'Freestanding – Single' with a value of 28.68% (39/136). with the second being 'Freestanding – Unrelated' with a value of 24.39% (10/41).

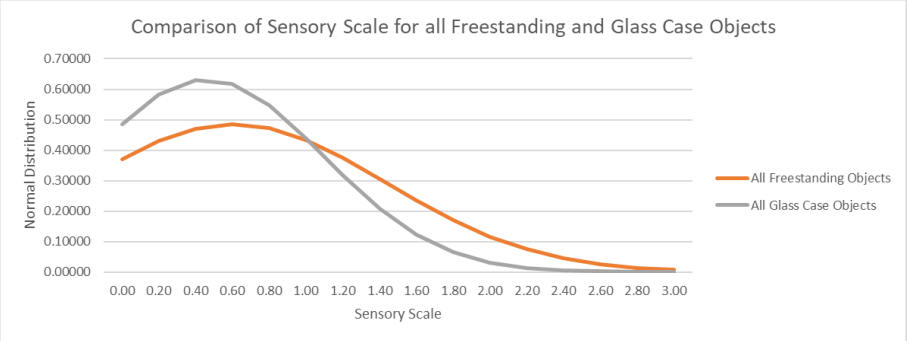
The least photographed type of display for any type of photograph taken was 'Freestanding – Inhabited' with a value of 11.11% (4/36). It should be taken into account that in the interview with Leela Meinertas (2018) she said that the lights for this exhibit were not working properly with the consequence that it was too dark to take a good photograph. Only one visitor was recorded taking more than one photograph.

The display type 'Freestanding – Themed' was also not greatly photographed, 15.63% (15/96), but this could be due to the nature of objects, 0004 and 0011, which had values of had 7.89% (3/38) and 8.82% (3/34) respectively. They were similarly displayed in a way not overly conducive to photography. The third 'Freestanding – Themed' object, 0019, however, had a value of 37.50% (9/24) but this comprised entirely of these visitors taking one photograph each per observation.

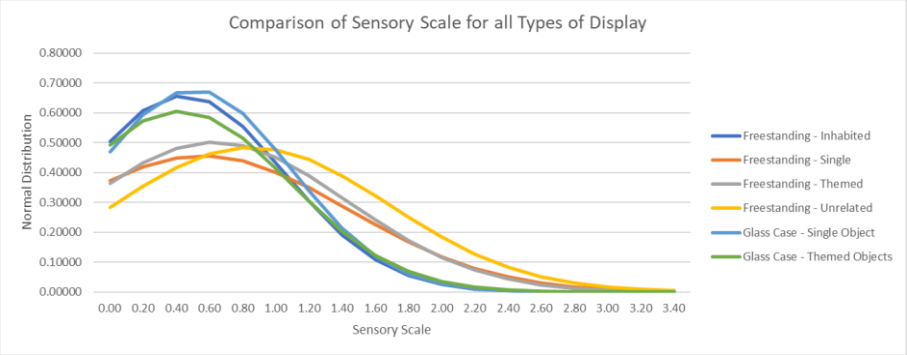
The least photographed object was 0020 6.67% (1/15). This was another object displayed in a way not very conducive to photography. It was laid out in a low flat display case designed to be viewed from above and difficult to photograph more than only detail in one shot. The other object displayed in a low flat display case and with similar photographic difficulties was object 0008 which had a value of 7.50% (3/40). No photographs of object 0008 were taken at a time when the display lighting was switched on.

The most interesting figure was the low value for the number of 'selfies. The overall value for all objects was 2.53% (13/514) with a negligible difference between freestanding and Glass Case Objects. The highest value for any object was for object 0016 where 18.75% (3/16) took a selfie with or without others.

vii. Sensory Scale



Graph 14 Comparison of Sensory Scale for all Freestanding Objects and Glass Case Objects



Graph 15 Comparison of Sensory Scale for all Types of Display

These results take no account of whether sensory interaction was intended or not. This is analysed separately in section 9 of this chapter. There were no observations for either 'Smell' or 'Taste'.

The normal distribution graphs for all freestanding and Glass Case Objects show some differences with glass case having a slightly higher peak and a quicker tail-off. The standard deviation for Freestanding Objects is 0.82 and for Glass Case Objects this is 0.63.

The median, minimum and maximum values are the same for both, 0.00, 0.00 and 3.00 respectively, although the average value shows some difference with that for Freestanding Objects slightly higher than that for Glass Case Objects - 0.61 compared with 0.46.

Overall, some 41.44% (213/514) of observation records indicated some degree of sensory interaction with a sensory scale of at least 1.00. For Freestanding Objects this was 42.07% (130/309) and for Glass Case Objects this was 40.49% (83/205).

Freestanding objects had the higher percentage of observation records where visitors engaged with three senses used, 3.24% (10/309) with the value for glass objects at 0.98% (2/205), both of which were for object 0018.

The values for 'Sight' and 'Hearing' are similar for both freestanding and Glass Case Objects. For 'Sight', Freestanding Objects has a value of 22.01% (68/309) with Glass Case Objects at 23.41% (48/205); for 'Hearing', Freestanding Objects has a value of 22.01% (68/309) with Glass Case Objects at 21.46% (44/205).

As would be expected, the figures for 'Touch' are very different, with visitors enjoying the surreptitious 'touch.: for Freestanding Objects the value is 15.53% (48/309) whilst for Glass Case Object this value is 3.41% (7/205).

Glass case objects had two objects, 0018 and 0020, which were specifically designed to operate but these only had low recorded values: object 0018 had a value of 33.33% (4/12) and object 0020 a value of 13.33% (2/15). There were no records for 'Touch' for any other Glass Case Objects and the 'touching an icon' effect did not come into play.

Freestanding objects had one object, 0011, which was specifically intended to be touched and had a value of 67.65% (23/34) which was the also highest value for 'Touch' for any object. The V&A, where it was displayed, had generally removed all 'Do Not Touch' signs (LM interview). The researcher did not note any alarms being sounded. Object 0010 had a sign requesting visitors not to touch. Despite this, and the presence of curators and other staff, this object still recorded a value of 4.88% (2/41).

All except for three Freestanding Objects were also touched. These were object 0001, which had very attentive museum staff, object 0019 which had a rope barrier and object 0014 which was surrounded by a Perspex barrier. It appeared that most of these visitors wanted to feel the material out of which the object was made.

The normal distribution graphs for the individual types of display fall into two groups. The first comprises 'Freestanding – Inhabited', 'Glass Case – Single' and 'Glass Case – Themed' which have higher peak and faster drop off than the group comprising 'Freestanding – Themed', 'Freestanding – Unrelated' and 'Freestanding – Single'. For the first group the standard deviations range between 0.59 and 0.66; for the second group this range is between 0.80 and 0.88.

The display with the highest percentage of visitors having some degree of sensory interaction, that is a sensory scale of greater than one, is 'Freestanding – Unrelated' at 60.98% (25/41).

This type of display also has the highest average sensory scale 0.85 and only the only median greater than zero with a value of 1.00.

The display with the highest value for three senses being used is 'Freestanding – Themed', 4.17% (4/96); 'Freestanding – Inhabited' and 'Glass Case – Single' have no recorded observations for three senses being used. The type of display with highest value for no senses being used is 'Freestanding – Single', 66.18% (90/136). However, it scored the second highest value for three senses being used 3.68% (5/136) with objects 0005, 0006, 0007, 0008 and 0009 each having one observed record.

The type of display with the highest value for 'Touch' was 'Freestanding -Themed, 30.21% (29/96), although this included object 0011 which was intended to be touched; the lowest was 'Glass Case – Single' with 0.00%. 'Freestanding – Themed' also had the lowest value for 'Hearing', 17.71% (17/96) and the lowest value for 'Sight', 15.63% (15/96).

'Freestanding – Unrelated' had the highest value for 'Hearing', 36.59% (15/41) as well as for 'Sight', 39.02%, (16/41) although the object which had the highest value for 'Sight' was 0015, 51.61% (16/31), a 'Glass Case – Single' object.

7) Comparison of Single Object and Multiple Objects Displays

A Single Object display is defined as any display comprising one object. These are:

0001 Balustrade from Temple of Athena Nike

0002 Parthenon Frieze

0003 Neptune and Triton

0005 Samson Slaying a Philistine

0008 The Ardabil Carpet

0010 The Tower of Babel

0012 Crick and Wilson's DNA Model

0013 Aerial Tuning Collector from Rugby Radio Station

0014 Human Headed Winged Lion, Assyrian, from Nimrud

0015 Rosetta Stone

A Multiple Object display is defined as any display which comprises more than one object. These are:

0004 A Collection of Sculpted Busts

0006 British Rainwear 1910 – 2015

0007 Radical Fashion 1990 -

0009 Panelled Room from a House at Bromley-by-Bow 1606

0011 Owl

0016 Mummy Coffins

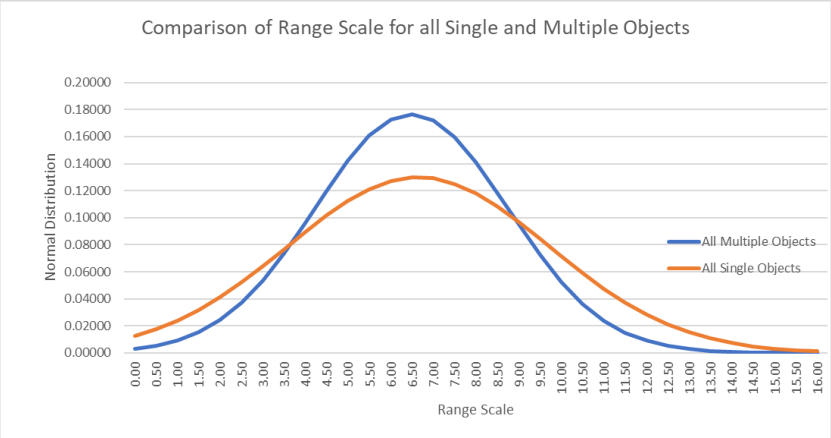
0017 Dodo

0018 Sitatunga

0019 Parthenon Frieze xlvii

0020 Electric Trains

i. Range Scale



Graph 16 Comparison Of Range Scale for all Single Objects and Multiple Objects

The normal distribution graphs are very similar for both single and Multiple Objects although with a similar rise and fall. The graph for Multiple Objects has a much higher peak and the standard deviation is 2.26 compared with 3.07 for Single Objects. Whilst the minimum and median values are the same for both, 0.10 and 6.40, the maximum values are different with that for Single Objects being 15.10 and that for Multiple Objects being 12.10. The average for Single Objects is 6.65, the average for Multiple Objects is 6.49.

The results for Single Objects appear to be mainly affected by objects 0010 and 0005 both of which have a much higher maximum Range Scale than any other Single Objects, 13.40 and 15.10 respectively. This compares with the maximum value for Multiple Objects, 12

Single objects also have a much wider spread of viewing distances, the distance between the minimum and maximum viewing distances. For Single Objects this ranges between zero and seven whilst for Multiple Objects this is between zero and four feet. For movement of less than three feet the figures are similar for both with Single Objects at 19.74% (46/233) and Multiple Objects 20.51% (48/234). However, the observed Single Objects were generally in a much more spacious setting and some of the Multiple Objects were in glass cases placed on a wall which would limit the possible viewing distance.

Multiple objects had a higher percentage of static observations, 75.21% (176/234), than Single Objects, 67.81% (158/233), but Single Objects had a higher percentage of static observations from a distance of further than 4 feet, 15.82% (25/158) compared with 7.39% (13/176). The Single Objects at the two extremes can account for this. Objects 0012 and 0013 are both

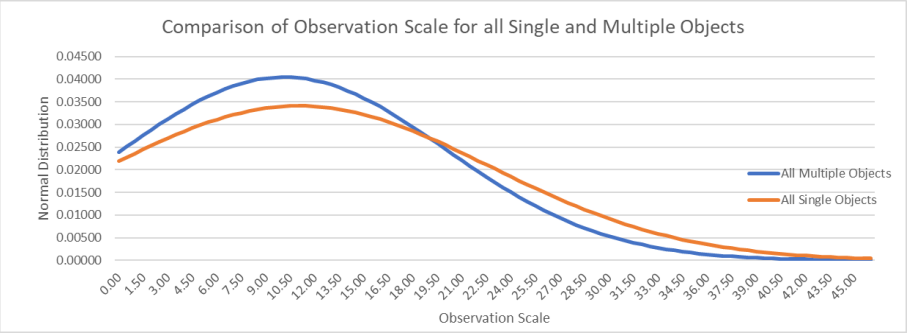
complex structures largely consisting of repeating patterns of this structure. Object 0012, which is displayed in a glass case and is smaller than 0013 was only observed from a static distance of one foot and had median, minimum and maximum values all of 8.10. Object 0013, which was much larger and freestanding, had 78.95% (15/19) static observations of which 42.12% were from a distance of greater than four feet and 26.32% (5/19) from eight feet. However, there was a small barrier put in place to define its boundary.

Multiple object 0009 was also a large object with a large proportion of static observations, 75.76% (25/33) and of these non-static observations only one record showed a movement of greater than two feet. In essence, this object comprised a number of Single Objects of smaller size meaning that it was necessary to get close to the object. All information about the object was displayed in one location.

For non-static observations the number of recorded movements greater than three feet is much higher for Single Objects than it is for Multiple Objects. This value is 8.15% (19/233) as compared to 0.85% (2/234).

All Single Objects, except 0008 and 0012, had at least one observed record where the movement was greater than three; for Multiple Objects only objects 0007 and 0020 had any such observations. It was only possible to see more than one part of object 0020 without moving and the non-static observations had a value of 73.33% (11/15). Moving too far away from this object would prevent the object from being seen at all. It was the opposite situation with object 0007 and a close static point was the optimal viewing position. Some 60.53% (23/38) of observation records were of visitors viewing from a static point and of these 95.65% (22/23) looked from a distance of either two or three feet. The one record of a static point record of four feet could perhaps be put down to overcrowding and the visitor moving on to another object. The record shows that they were browsing. Of those who looked at object 0007 from non-static viewpoints, though, some 66.67% (10/15) came as close as one foot to the object.

ii. Observation Scale



Graph 17 Comparison of Observation Scale for all Single and Multiple Objects

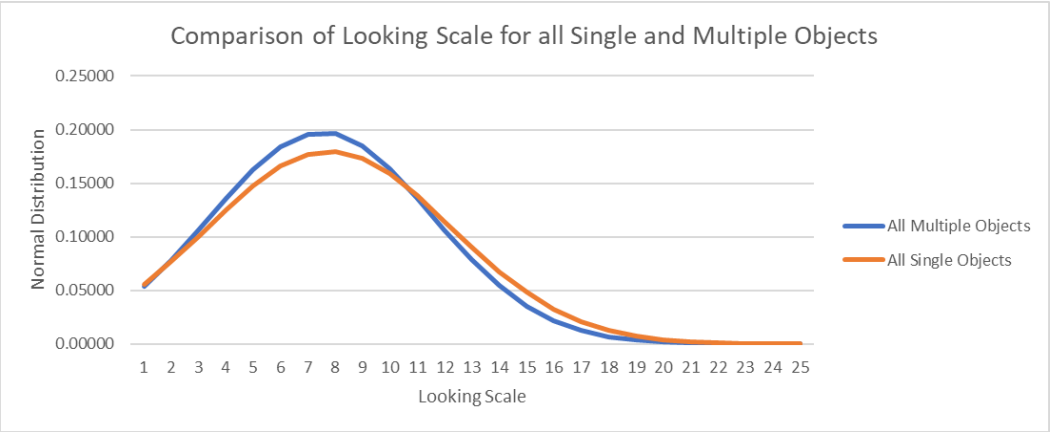
The normal distribution graphs are generally similar to those for Range Scale, as would be expected. With the time factor taken into account, however, Single Objects also has longer tail off. The values for the standard deviations are 9.86 for Multiple Objects and 11.71 for Single Objects. Some 70.82% (165/233) of Single Objects had an observation time of one minute with 12.88% (30/233) being greater than two minutes. For Multiple Objects these values are 74.79% (175/234) and 10.26% (24/234). The average observation time for Single Objects is 1.55 minutes and for Multiple Objects this is 1.45 minutes which ties in with the higher average for Range Scale for Single Objects and the greater distances used when viewing the object.

The maximum value for Single Objects is 80.80 compared with 70.70 for Multiple Objects and the median value was also higher for Single Objects, 7.40, than it was for Multiple Objects, 6.40. The minimum value was the same for both, 0.10.

Objects 0002, 0008 and 0010 account for the long tail-off for Single Objects as each have an observation time of eight minutes or greater and object 0010 also had recorded two observation times of six minutes. These three objects all had high values for looking at a specific part of the object. Objects 0002 and 0008, in particular, are large objects which might be regarded by the casual observer as being similar from several viewpoints and so not worth spending too much time. A comparison of the two shows this does not appear to be the case. Some 80.65% (25/31) spent only one minute or less looking at object 0008 from a static viewpoint but for object 0002 this value was only 47.37% (9/19).

Single Objects also had a much wider range for spending only minute observing the object. This ranged from 42.11% (8/19) for object 0002 to 89.47% (17/19) for object 0013. For Multiple Objects this range was from 60.00% (12/20) for object 0006 to 83.33% (10/12) for object 0018.

iii. Looking Scale



Graph 18 Comparison of Looking Scale for all Single and Multiple Objects

There is very little difference between the two normal distribution graphs, but Single Objects has a slightly longer tail-off with a standard deviation of 2.22 as opposed to that for Multiple Objects which is 2.02. There is also very little difference in the overall scores, although these values do show differences in the individual factors which average out when taken as a whole. The median, minimum and maximum values are the same for both, 2.50, 0.00 and 12.00 respectively, with the average slightly lower for Multiple Objects, 3.25, than for Single Objects, 3.39.

The percentage of Multiple Objects observation records for looking at a specific part of an object are much higher than for Single Objects, 22.65% (53/234) as opposed to 13.73% (32/233). Object 0002 had the highest value for 'Specific Part', 63.16% (14/19) of any object and it was perhaps the nature of the object display, in a specifically designed gallery and building, which invited this. The second highest value was for object 0019, 58.33% (14/24) and, again, the nature of the display invited this, but it was also part of an audio tour.

Nine objects had no observations for 'Specific Part' and this comprised five Single Objects and four Multiple Objects. For example, objects 0012 and 0013 were both complex models with individual details less interesting than the whole. They were also both easier to understand when observed in their entirety. The same was true with the two animal objects, 0017 and 0018, which were best appreciated by seeing the whole object at once.

The number of observation records which measure the number of visitors who gave an object a quick glance is similar for both types. Multiple objects had a value of 33.33% (78/234) and Single Objects a value of 36.05% (84/233). The object with the highest value was Single

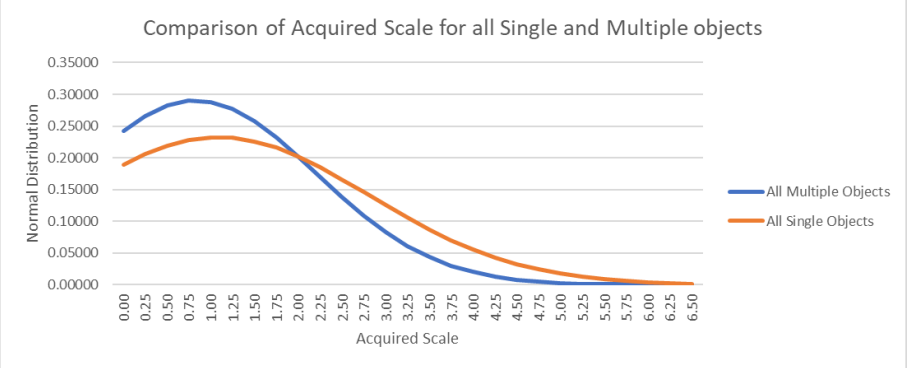
Object, 0008, with 54.84% (17/31) and the object with lowest value was Multiple Object, 0006, with only 5.00% (1/20). Object 0006 also had above an average value for 'Static Point' suggesting that a single viewing point can be a positive thing, depending on the type of display and the nature of the object. However, this object was also adjacent to a popular object, 0007, the first in a number of adjacent display cases in circular and chronologically arranged gallery.

Only two objects had any value for 'Comparison', and these were both Multiple Objects which made any comparison by visitors straightforward. These were objects 0017, 12.50% (2/16), which was set in a display amongst other varieties of dodo and extinct birds, and 0019, 4.17% (1/24) which was displayed as one individual metope in line of many.

Eight objects had a value for 'Revisit' with Single Objects slightly higher at 5.58% (13/233) than Multiple Objects 1.71% (4/234). Object 0001 had the highest value of any object, 16.67% (1/6) but this could be due to limited number of observation records. Object 0012 also had a value for this factor, 12.50% (2/16) but the only information about the object was on one side and in one case the visitor was certainly seeking this out as they read both the title and description. As previously discussed, it was also a gallery which was crowded with objects and the other 'Revisit' could have been the result of browsing or just an accidental revisit.

For looking at an object from multiple angles Single Objects had a higher value, 25.32% (59/233), than Multiple Objects, 21.79% (51/234). Four objects were not looked at from multiple angles at all. These were 0013, 0017, 0018 and 0019. Object 0019 was a large tile placed on a wall and so there was only one real ideal angle to observe the object; object 0018 was operated from one side of case and had a very definite front and back as the animals were all facing in one direction; object 0017 was in a display case on a straight wall and set amongst other similar display cases; object 13 was a very large object with no real advantage to looking at it from different angles and the information about the object was placed at the ideal angle to view the object. The highest value for 'Multiple Angles' was for object 0010, 61.54% (24/39). However, it very easy to walk all the way around this object and to see very different things from very different angles, particularly if the display had been operated and the train was running around the track. Object 0010 also had the second highest value for 'Multiple Distances', 46.15% (18/39).

iv. Acquired Scale



Graph 19 Comparison of Acquired Scale for all Single Objects and Multiple Objects

The two graphs are not that different although that for Multiple Objects has a higher peak and a slightly steeper tail-off than that for Single Objects with a standard deviation of 1.37 compared to 1.72.

The minimum and median values for both are the same, all 0.0, however the maximum value for Single Objects is higher, 11.00 than that for Multiple Objects which is 8.00. The average for Single Objects is also slightly higher, 1.09 compared with 0.83.

For the individual factors, the values for Single Objects are higher in every instance except for 'Group Discussion', 'Recognised', 'Guidebook – Carrying' and 'Guidebook – Referred To'.

The factor 'Group Discussion' was calculated only for recorded observations where the Demographics was a tourist group, a family group or an adult group. For Single Objects this comprised 175 records and for Multiple Objects, 145 records.

For Multiple Objects some 24.83% (36/145) participated in a level of group discussion, which compared with 15.43% (27/145) for Single Objects. This higher value was mostly due to the two fashion related objects, 0006 and 0007, which had very high relative values with 0006 the highest of all objects at 53.85% (7/13) and 0007 34.62% (9/26).

This was completely reversed for the factor 'Group Discussion With Expert Leader' where Single Objects was higher with 8.00% (14/175) and Multiple Objects had a value of 4.14% (6/145). The two fashion related objects, 0006 and 0007, both scored very low values. Object 0006 had a zero value and 0007 had a value of 3.85% (1/26) suggesting most visitors observed were from groups of students who might have regarded themselves on a more equal footing. In fact, some 63.16% (23/38) of observation records for object 0007 comprised adult groups.

The object with the highest value for this factor was 0015 with 33.33%, (7/21) and this also had a high percentage of adult groups, 54.84% (17/31). It was also observed that for this object such discussion could be seen to begin before these groups started to look at the object. As such it was difficult to determine whether these were small personalised tourist groups or just group of adults. There was only one observation record of a family group. The other object with a high score for this fact was 0019, 30% (3/10), and these all comprised family groups.

There were only five objects which had any value for 'Recognised. For Multiple Objects these objects were 0002 and 0008 and Single Objects these were objects 0006, 0007 and 0020. Object 0002 was a Parthenon objects in the New Parthenon Museum which would have made recognition easier; object 0008 was the most clearly labelled object of all observed objects; objects 0006 and 0007 were all recognised by adult groups, mostly the groups of students; object 0020, in the Museum of Childhood, was an 'I had one of those objects'. Multiple Objects had a higher value, 3.60% (9/250), compared with 1.14% (3/264) for Single Objects which was entirely due to object 0007 with a value of 18.42% (7/38).

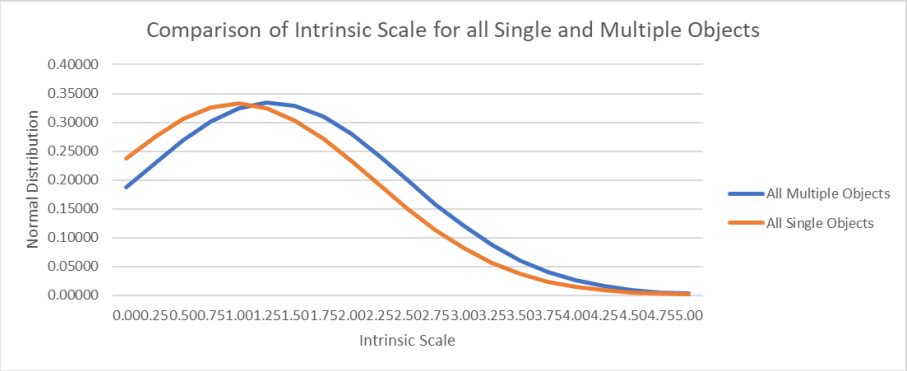
The values for 'Guidebook – Carrying' were similar although that for Single Objects was slightly higher, 23.11% (61/264), than for Multiple Objects 21.60% (54/250). However, the values for 'Guidebook – Checked', which were only calculated if a guidebook was being carried, were very different. The value for Single Objects was much higher, 27.42% (17/61), with that for Multiple Objects only 10.91% (6/54). There were only two Multiple Objects where the guidebook was checked. These were 0019 with a value of 44.44% (4/9). This might also be related to its location next to the gallery entrance as there was only one observation record which indicated both checking the guidebook and using the audio guide. The other object was 0016 with a value of 33.33% (2/6). Both these records showed that other available information was being read as well.

It was a different situation with 'Guidebook - Referred To' where the values were much closer. Single Objects had a value of 12.90% (8/62) and Multiple Objects a value of 12.96% (7/54). Object 0019, again, had the greatest value, 55.56% (5/9). There were some anomalies.

Object 0008 had a low value for 'Guidebook – Checked', 12.50% (1/8) but a much higher value for 'Guidebook - Referred To', 50.00% (4/8). The surrounding information made it very clear what the object was although the Intrinsic Scale does not suggest this was being read. Object 0015 had the highest value for 'Guidebook – Checked' 53.85% (7/13) but a very low value for 'Guidebook - Referred To', 7.69% (1/13). This could be due to the amount of

information displayed as part of the object and the high figure for 'Group Discussion With Expert Leader'.

v. Intrinsic Scale



Graph 20 Comparison of Intrinsic Scale for all Single and Multiple Objects

The two graphs have similar although that for Multiple Objects has a slightly slower rise and tail off. The standard variations for each are almost identical with that for Multiple Objects at 1.19 and that for Single Objects at 1.20. The maximum and minimum values are the same, 5.00 and 0.00, whilst the median value for Multiple Objects is higher, 1.00, than for Single Objects, 0.00. The average for Multiple Objects is also higher with a value of 1.29 as opposed to 0.99.

There are some differences in the individual factors. When the factors 'Slight', 'Moderate' and 'Extensive' are added together some 67.20% (168/250) of observation records show that there was a degree of engagement with the Intrinsic information for Multiple Objects, an engagement which was more across the board than for Single Objects. This compares with 45.45% (120/264) for Single Objects. The object with the greatest value of at least some engagement was 0019 with 91.67% (22/24); the object with the least engagement was 0008 with a value of 20% (8/40). This might be due to reasons already discussed.

The values for 'Read Title' were similar for both categories. Single Objects had a value of 15.53% (41/264) compared to 16.00% (40/250) for Multiple Objects. For 'Read Description' Single Objects had a value of 13.64% (36/264) and Multiple Objects had a value of 11.60% (29/250).

There were four objects with no recorded observations of either the title or the description being read and in these instances the contextual information was not read either. These objects were 0002, 0006, 0008, and 0019. Objects 0002 and 0019 are discussed in section 10.5 of this chapter. For object 0006 this might be on account of its adjacency to object 0007 and this object's own low values for 'Read Title', 10.53% (4/38) and 'Read Description', 7.89% (3/38) combined with a lack of further desire to find out more about the object except through looking at the object itself. Both these objects had high values for the total of 'Slight', 'Moderate' and 'Extensive' with object 0007 at 86.96% (20/23) and 0007 at 78.95% (30/38). Object 0008 may have been in the same situation with a low value for the total of 'Slight', 'Moderate' and 'Extensive' and a low value for looking up information in the guidebook as well.

Only two objects had recorded observations for 'Reading Contextual Information', with one each for single and Multiple Objects. These were Single Object 0015, 25.81% (8/31) and Multiple Object 0016, 7.14% (1/14). These values were in line with high values for 'Guidebook – Checked' in the Acquired Scale for these objects.

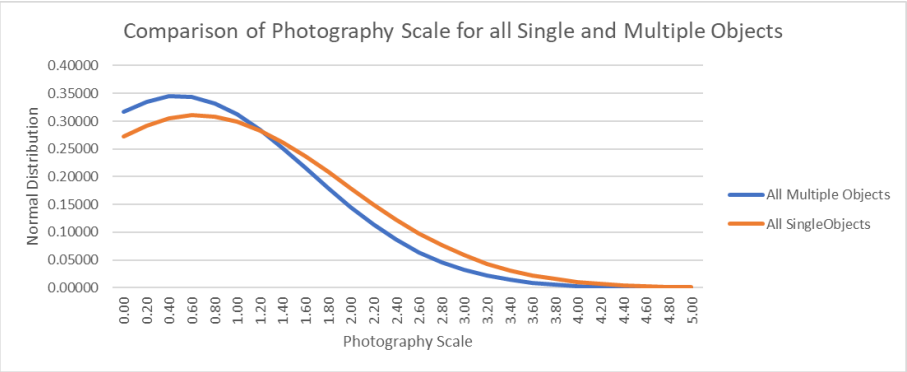
Only two objects had audio information available. Object 0002 had a console with a set of headphones and object 0019 was part of an audio tour. There were three instances for 0019 and one for 0002.

The values for 'Reading Gallery Notes' were also very low and very similar. For Single Objects this was 1.89% (5/264) and for Multiple Objects this was 1.20% (3/250). The highest value was for object 0001 with 22.22% (2/9), but again this value is skewed by the low number of observation records.

There was only one observed object which had available access to website (0010) and one recorded instance of this information being accessed.

There were no objects observed which had audio-visual information.

vi. Photography Scale



Graph 21 Comparison of Photography Scale for all Single Objects and Multiple Objects

The two graphs are very similar with Multiple Objects having a slightly higher peak and a slightly steeper fall off. The standard deviation for Multiple Objects is 1.16 and for Single Objects this is 1.28. The maximum value for Multiple Objects is slightly higher than that for Single Objects at 7.00 as opposed to 6.00 and the minimum and median values for both Multiple and Single objects are all zero. The average value is higher for Single Objects, 0.65, than for Multiple Objects, 0.48.

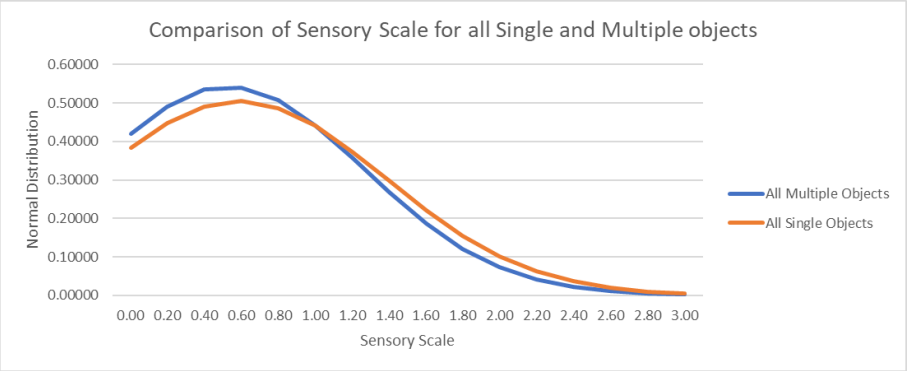
The values for having at least one photograph taken of any description is lower for Multiple Objects, 18.40% (46/250), than for Single Objects, 25.38% (67/264).

These higher values for the number of photographs taken of Single Objects was true for all categories except for taking multiple shots of an object. Whilst this may be partly due to the objects selected for observation the Single Objects tended to be easier to photograph.

For taking a photograph of the object only, whether any other type of photograph was taken or not, the value was higher for Single Objects, 23.11% (61/264) compared with Multiple Objects, 16.00% (40/250). Slightly more visitors took a selfie, either of just themselves or with others, in front of Multiple Objects, 2.80% (7/250) than in front of Single Objects, 2.65% (7/264), although this represents only 14 observation records in total. The number of visitors taking photographs from multiple angles was higher for Single Objects, 3.79% (10/264), compared with 1.20% (3/250) for Multiple Objects. The highest value 9.38% (3/32) for object 0005.

Similarly, slightly more visitors took multiple photographs of Multiple Objects, 4.80% (12/250), than of Single Objects, 3.79% (10/264). The highest value for multiple photographs was object 0016, with 28.57% (2/7) of unique shots being multiple ones.

vii. Sensory Scale



Graph 22 Comparison of Sensory Scale for all Single Objects and Multiple Objects

The graphs rise and fall at roughly the same rate with that for Multiple Object having a slightly higher peak and steeper fall. The standard deviation for Multiple Objects is 0.71 and for Single Objects this is 0.79. The values for the maximum, minimum and median are same for all (3.00, 0.00, 0.00) and the average for Multiple Objects is 0.51 and Single Objects 0.59.

Overall, there is a slightly greater engagement with the senses for Single Objects with 42.42% (112/264) having at least some sensory engagement, that is where the value for the Sensory Scale is greater than zero. For Multiple Objects this value is 40.80% (102/250). The values for engaging with all three measured senses was similar for both with Single Objects at 2.27% (6/264) and Multiple Objects at 2.40% (6/250).

Single Objects had a much higher value for 'Sight', 26.89% (71/264) compared with 17.60% (44/250) for Multiple Objects. This was mainly due to object 0015 which had a value of 48.39% (15/31) for 'Sight' made up of high values for the individual Intrinsic Scale factors 'Read title', 'Read description' and 'Read contextual information' and object 0016 with a value for 50.00% (0/16) with similarly high values for the same factors.

Single Objects also had a higher value for 'Hearing', 23.86% (63/264) compared with 19.60% (49/250) which was mainly due to the high scores for object 0002 ('Sought out') and object 0010 with its high values relating to the guidebook.

For 'Touch' the situation was reversed with Multiple Objects having a value of 14.80% (37/250) compared with Single Objects, 6.82% (18/264). However, all the objects which the museum had intended to be touched were Multiple Objects, namely 0011, 0018 and 0020. There were only two objects without this specific permission to be touched which were touched. These were Multiple Object 0009, 5.56% (2/36) and Single Object 0010, 4.88%

(2/41). Only object 0010 had a sign requesting visitors not to touch. The intentionality is further analysed in section 9 of this chapter.

8) Comparison of Objects by Levels of Contextual Information

Context of object made clear by display and written information comprises:

0002 Parthenon Frieze
0009 Panelled Room from a House at Bromley-by-Bow 1606
0014 Human Headed Winged Lion, Assyrian, from Nimrud
0016 Mummy Coffins
0019 Parthenon Frieze xlvii
0020 Electric Trains

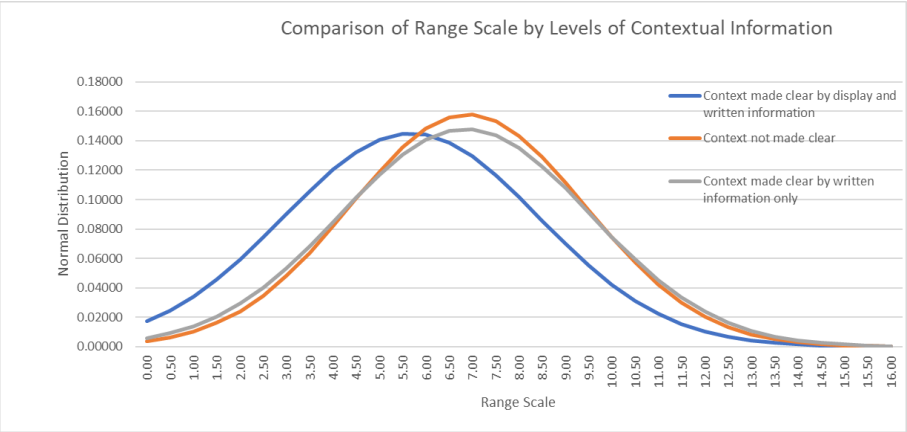
Context of object not made clear by either display or written information comprises:

0003 Neptune and Triton
0004 A Collection of Sculpted Busts
0005 Samson Slaying a Philistine
0006 British Rainwear 1910 – 2015
0007 Radical Fashion 1990 -
0011 Owl

Context of object made clear by written information only comprises:

0001 Balustrade from Temple of Athena Nike
0008 The Ardabil Carpet
0010 The Tower of Babel
0012 Crick and Wilson's DNA Model
0013 Aerial Tuning Collector from Rugby Radio Station
0015 Rosetta Stone
0017 Dodo
0018 Sitatunga

i. Range Scale



Graph 23 Comparison of Range Scale by Levels of Contextual Information

The three graphs are similar, but each still has a distinct peak and slope with 'Context made by clear by display and written information' having the lowest peak and most gradual rise and fall and the lowest standard deviation of 2.78. The other two graphs both have the same median value, 6.40 and very close average values and standard deviations with 'Context made clear by written information only' at 6.85 and 2.66 respectively and 'Context not made clear' at 6.90 and 2.52. 'Context not made clear' has a higher maximum and lower minimum value, 15.10 and 0.10, compared with 13.40 and 0.40 for 'Context made clear by written information only'.

'Context made by clear by display and written information' has lowest median, average and maximum values of all three graphs at 4.90, 5.63 and 12.10 respectively.

The measure of difference between the maximum and minimum range scale can measure the degree of information that can be obtained from the object. The implication being that the lower this figure the more information there is to be obtained from being closer to the object, or the more that the visitor is looking for this information. For 'Context made by clear by display and written information' and 'Context made clear by written information only' these differences in values are 12.00 and 13.00 whilst for 'Context not made clear' this figure is 15.00 suggesting that visitors are trying to take in an overall picture of these objects. The low values for the factors 'Read Title' and 'Read Description' in the Intrinsic Scale for 'Context not made clear' would support this. However, this category has the highest value of minimum and maximum observation distances of one foot, 22.60% (40/177). This is offset

by the value for those only looked from this distance and looked at a specific part of the object which accounted for 62.50% (5/8) of the total for these criteria.

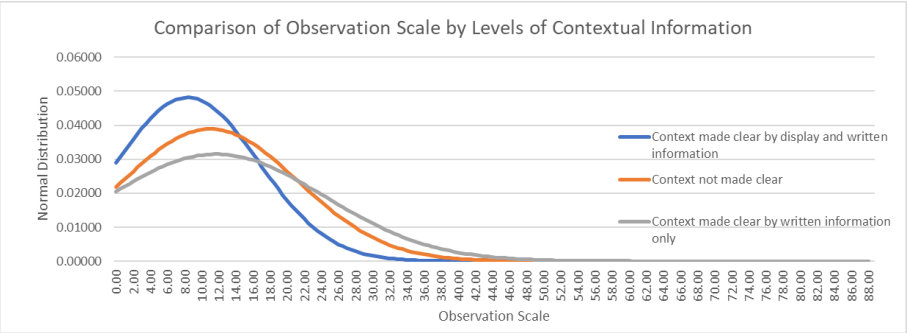
'Context made clear by written information only' had the lowest percentage of those who observed the object from a static viewpoint, 64.71% (110/170) and the most for those who moved more than three feet when looking at the object, 5.88% (10/170); for 'Context made by clear by display and written information' the value for static viewpoints was 77.50% (93/120) and for 'Context not made clear' this was 74.01% (131/177).

There is a suggestion that it is not only the information about the object itself which is important but the nature of the object itself can be equally as important. For some, looking at an object may be of more interest than reading too much information about it; for others it may be about the easiest way to find information.

Objects 0012 and 0018, both in the category 'Context made clear by written information only', have the lowest difference in Range Scale of any other object, 0.00 and 2.80 but information is only available in one specific place. Neither object gains anything from looking at it from further away and in both cases the space around the display is limited. Object 0013 is an object similar in complexity to 0012 but has a much wider variation in range scale of 7.70. The information regarding this is object is also only available in one location and separated from the object at a distance of eight feet. This meant that if the visitor approached the object from opposite side then in order to read this information they had to walk this distance to reach the display board. There were no observations recorded of this happening, although there was one observation a visitor reading the information and then approaching object. The majority of visitors 78.95% (15/19) did not read the title.

For 'Context made by clear by display and written information' all minimum observation distances greater than three feet were static apart from one record for object 0002; for 'Context not made clear' there was a total of four records for objects 0003, 0006 and 00007; for 'Context made clear by written information only' there were ten records.

ii. Observation Scale



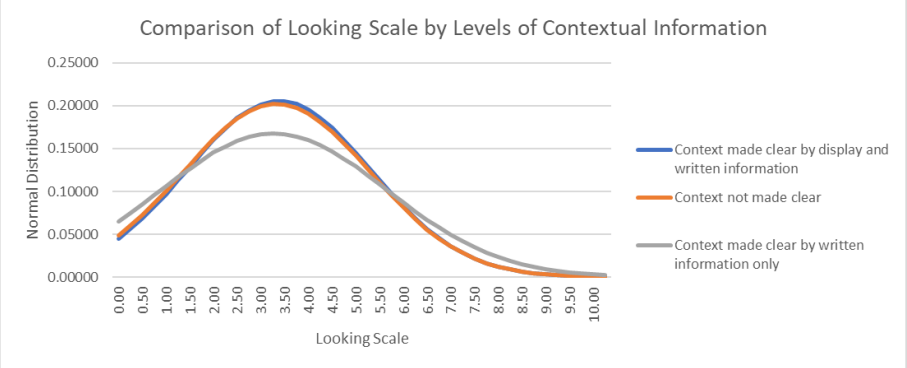
Graph 24 Comparison of Observation Scale by Levels of Contextual Information

The three graphs are noticeably different. That for 'Context made by clear by display and written information' has a higher peak and shorter tail-off with a median value of 6.40, an average of 8.57, a maximum of 55.66, a minimum of 0.10 and the lowest standard deviation of 8.28. The other two graphs both have similar values. 'Context made clear by written information only' has a median of 7.40, an average of 11.68, a maximum of 80.80, a minimum of 0.40 and a standard deviation of 12.66; 'Context not made clear' has scores of 7.40, 10.90, 70.70, 0.10 and 10.25.

The number of observations which were only one minute were almost identical. For 'Context made by clear by display and written information' this was 73.33% (88/120); for 'Context made clear by written information only' this was 72.35% (123/170) and for 'Context not made clear' this was 72.88% (129/177). This similarity continues for observations longer than two minutes where the respective values are 10.83% (13/120), 12.35% (21/170) and 11.86% (21/177).

The differing levels of contextual information do not appear to make very much difference although as 'Context made clear by written information only' has a very slightly higher average observation time, a slightly lower score for observation time of one minute and a slightly higher score for observation time of greater than two minutes this would suggest a small difference reading this contextual information if it is not otherwise available or not available at all. The lowest value of standard deviation 'Context made by clear by display and written information' would seem to indicate that less time is required to understand the object.

iii. Looking Scale



Graph 25 Comparison of Looking Scale by Levels of Contextual Information

The only real difference in these graphs is with 'Context made clear by written information only' which has a noticeably lower peak. The other two graphs are pretty much identical. The median, maximum and minimum values are all the same except that 'Context made clear by display and written information' has a lower maximum value, 10.00 compared with 12.00. The standard deviation for 'Context made clear by written information only' is 2.38 with the values for the other two categories being 1.94 and 1.97.

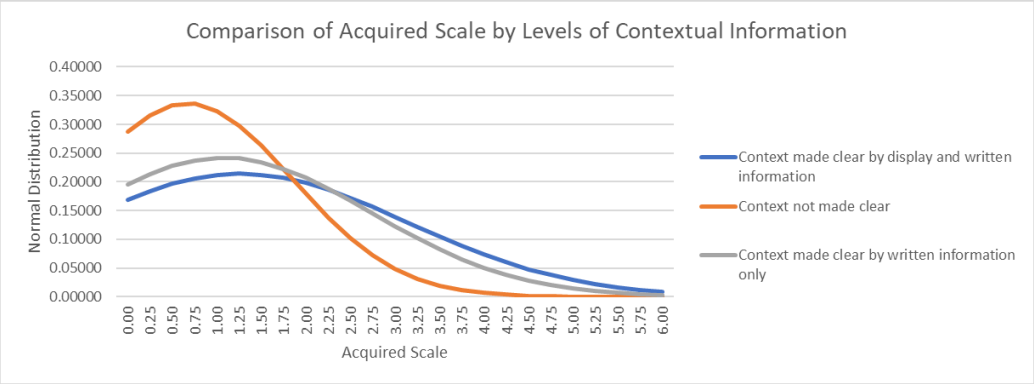
'Context not made clear' has the lowest percentage of values for Looking Scale greater or equal to seven, 5.08% (9/177). The other two categories had similar values. 'Context made clear by written information only' had a value of 6.47% (11/170) and 'Context made by clear by display and written information' a value of 6.67% (8/120). These results are noticeably different for a value of Looking Scale less than two, that is when there is one or less factor having a positive value with 'Context made clear by written information only' at 38.82% (66/170) and the other two categories much lower. 'Context not made clear' has a value of 27.68% (49/177) and 'Context made by clear by display and written information' with 23.33% (28/120). 'Context made clear by written information only' also has the highest score for a zero Looking Scale, 7.65% (13/170).

Whilst this suggests that if the context is made clear by written information visitors are interested in finding out what this is, it also suggests that visual clues from the object itself are just as important. The figures suggest that when the context is not made clear some visitors will try to determine this by looking the object.

The individual factors tend to support this. For each of the highest weighted factors 'Context made clear by written information only' scores either the highest value or very close to it. For 'Multiple Angles' and 'Multiple Distances' these values are 27.06% (46/170) and 23.53% (40/170) and for 'Comparison' and 'Revisit' these are 1.18% (2/170) and 5.29% (9/170). This category also scores lowest for the lowest weighted factors with 31.76% (54/170) for 'Quick Glance' and 64.71% (110/170) for 'Static Point'.

Figures for 'Comparison' were largely negligible with only three observations recorded. Two of these were for 'Context made clear by written information only' but this included object 00017.

iv. Acquired Scale



Graph 26 Comparison of Acquired Scale by Levels of Contextual Information

There are two obvious groupings with 'Context not made clear' having a much steeper rise and fall than the other two categories and a much lower standard deviation of 1.19. 'Context made by clear by display and written information' has a standard deviation of 1.86 and 'Context made clear by written information only' a value of 1.65.

All the median and minimum values are 2.50 and 0.00 respectively and the average scores range between 3.21 and 3.31. The maximum score for 'Context made clear by written information only' is 11.00; for 'Context made by clear by display and written information' this value is 8.00 and for 'Context not made clear' this is 5.00

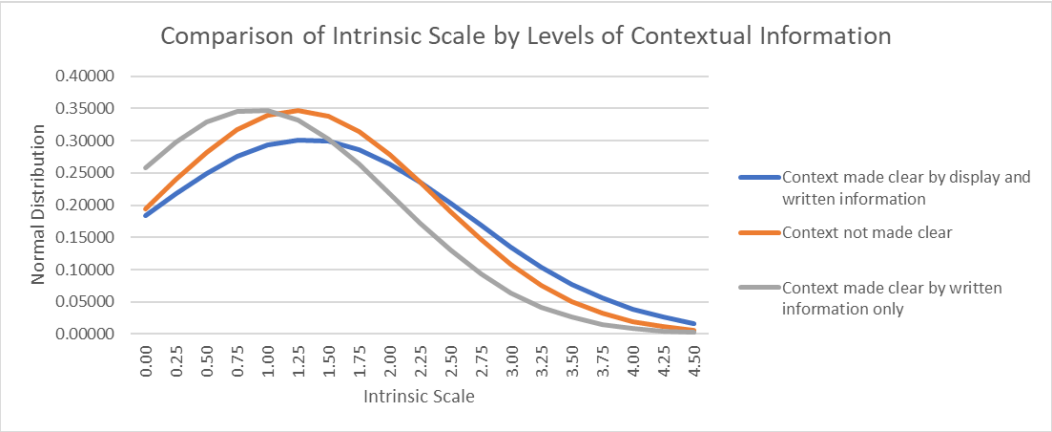
The individual factors, again, show some differences. 'Context not made clear' has the highest value for 'Group Discussion', 24.80% (31/125) but this category included objects 0006 and 0007. 'Context made clear by written information only' had a value of 19.33% (23/119) but

had a wide variation in scores. Objects 0001 and 0015 both had zero values and objects 0010 and 0018 scoring high values with 35.71% (10/28) and 33.33% (3/9) respectively.

For 'Group discussion with expert leader' the highest scoring category was 'Context made clear by written information only' at 9.24% (11/119). This category included object 0015, 33.33% (7/21), which was the highest score of all. This contrasts with the 'Group Discussion' for this object indicating that some objects are less easily understood than others and that visitors may seek the easiest way to gain required information with the knowledge of an expert providing this. 'Context made by clear by display and written information' had a score of 7.89% (6/76), but this category included object 0019 (3/10). There were only three observed records for 'Context not made clear' with one each for objects 0003, 0005 and 0007.

The category with the highest value for 'Guidebook - Carry' was 'Context made by clear by display and written information', 27.34% (35/128). It had several high scoring objects, notably object 0016 with 42.86% (6/16) suggesting that visitors are seeking out these particular objects. In fact, this category had the highest for 'Sought Out' by some way 12.50% (16/128) although the high Acquired Scale was more on account of the scores for objects 0002, 30.43% (7/23), and 0019, 29.17% (7/24). Object 0016 had a zero value for this factor. The category with the lowest score for 'Guidebook – Carry' was 'Context not made clear', 17.33% (35/202) which also had the lowest score for 'Sought Out', 0.99% 2/202. This category also had negligible scores for 'Guidebook – Checked' and 'Guidebook – Referred To'.
The highest score for 'Guidebook – Checked' was 'Context made by clear by written information only', 28.89% (13/45), but this category included object 0015 with 53.85% (7/13); the compares with the scores for 'Guidebook – Referred To' where 'Context made by clear by display and written information' had the highest score, 20.00% (7/35). This was mainly due to object 0019, 66.67% (6/9), which was part of an audio tour. 'Context not made clear' had the lowest values for 'Guidebook – Carrying', 'Guidebook – Checked' and 'Guidebook - Referred To' by a considerable way scoring 17.33% (35/202), 8.57% (3/35) and 5.71% (2/35) respectively and indicating that perhaps some starting point for taking notice of information is required.

v. Intrinsic Scale



Graph 27 Comparison of Intrinsic Scale by Levels of Contextual Information

The three graphs are fairly similar and although 'Context made by clear by display and written information' has a lower peak they all have similar tail off. The standard deviations for 'Context not made clear' and 'Context made clear by written information only' are 1.15 and 1.14 respectively with that for 'Context by clear by display and written information' with a higher value of 1.33.

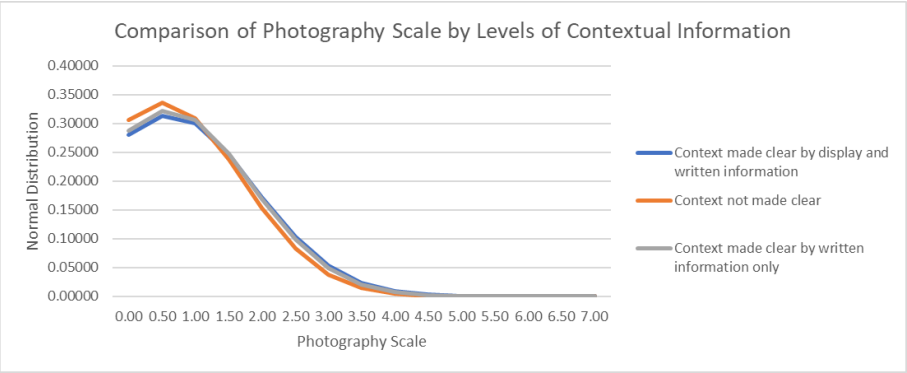
The minimum and maximum values are all the same, 0.0 and 5.0 respectively, whilst 'Context made clear by written information only' has a median of 0.0 with the other two categories having a median of 1.0.

The individual factors showed some marked differences. The highest values for 'Read Title', 'Read Description', 'Read Contextual Information' and 'Read Gallery Notes' are all for 'Context made clear by written information only' at 25.54% (47/184), 19.57% (36/184), 4.35% (8/184) and 2.17% (4/184) respectively; 'Context not made clear' has the lowest value in each case at 6.44% (13/202), 5.45% (11/202), 0.00% and 0.99% (2/202). There is a suggestion that some contextual information creates a degree of interest whilst visitors may be inclined to give up if there is no such information available.

The totals of 'Slight', 'Moderate' and 'Extensive' show a different story. 'Context not made clear' has the highest value, 63.37% (128/202) and 'Context made clear by written information only' has the lowest, 45.11% (83/184). This indicates visitors are looking for information from the object itself if no written information is available. The value for 'Context made clear by display and written information' was also very high, 60.16% (77/128) indicating that the object itself is more important than any written information. The higher value of

standard deviation indicates a wider spread of how visitors are getting intrinsic information and the values for individual factors seem to back this up with this category scoring highest in five of the eleven categories.

vi. Photography Scale



Graph 28 Comparison of Photography Scale by Levels of Contextual Information

There is very little difference between the three graphs although 'Context made clear by written information only' has the longest tail-off and 'Context not made clear' has a very slightly higher peak. The standard deviations range between 1.19 and 1.27.

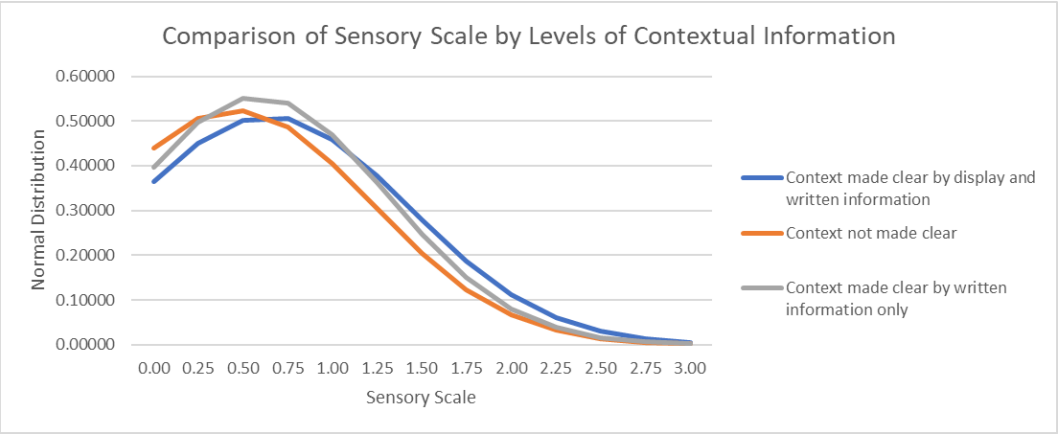
The category with the greatest number of unique photographs, 25% (32/128) and also the most photographed with 43 photographs from 128 records (33.59%) is 'Context made by clear by display and written information'. It also has the greatest number of 'selfies', either with just the object or with the object and others, 4.69% (6/128) but this was almost entirely due to object 0016 which had four records.

Nonetheless, although 'Context not made clear' was the least photographed category it still scored 19.31% (39/202) for unique shots. The least photographed objects in this category were the two 'Freestanding – Themed' objects, 0004 and 0011. The reasons for this relate to the way these objects are displayed, on a plinth, and has been discussed above.

For photographing just the object, the categories 'Context made by clear by display and written information' and 'Context made clear by written information only' had very close values of 21.09% (27/128) and 21.74% (40/184) respectively. 'Context not made clear' scored 16.83% (34/202). The visitors may want to have at least some idea of what they are

photographing even any information seeking goes no further than that. This category scored very values for both 'Read Title' and 'Read Description'.

vii. Sensory Scale



Graph 29 Comparison of Sensory Scale by Levels of Contextual Information

All three Graphs are very similar although 'Context made by clear by display and written information' has the highest peak and the values for standard deviation all range between 0.72 and 0.78. The median, minimum and maximum values for all three are the same, 0.00, 0.00 and 3.00 respectively; the average for 'Context made by clear by display and written information' is 0.64, for 'Context made clear by written information only' it is 0.59 and for 'Context not made clear' the average is 0.46.

The individual factors show some obvious differences. For 'Sight' 'Context made clear by written information only' and 'Context made by clear by display and written information' have much higher values, 29.89% (55/184) and 32.56% (42/129); 'Context not made clear' has a value of 8.96% (18/201). The same is true of 'Hearing' where 'Context made clear by written information only' has a value of 24.46% (45/184), 'Context made by clear by display and written information' a value of 24.81% (32/129) and 'Context not made clear' a value of 17.41% (35/201).

For 'Touch' these results are very much reversed with 'Context not made clear' having a much higher value, 19.40% (39/201), than the other two categories; 'Context made clear by written information only' has a value of 4.35% (8/184) and 'Context made by clear by display and written information' a value of 6.20% (8/129).

The category ‘Context made not made clear’ had the highest number of observed records for a visitor using all three senses 2.97% (6/202). However, ‘Context not made clear’ included object 0011 where touch was specifically encouraged, it had a value of 67.65% (23/34) for touch. It might be that visitors are using touch to make up for the lack of other information.

9) Comparison of Objects With and Without Intended Interaction

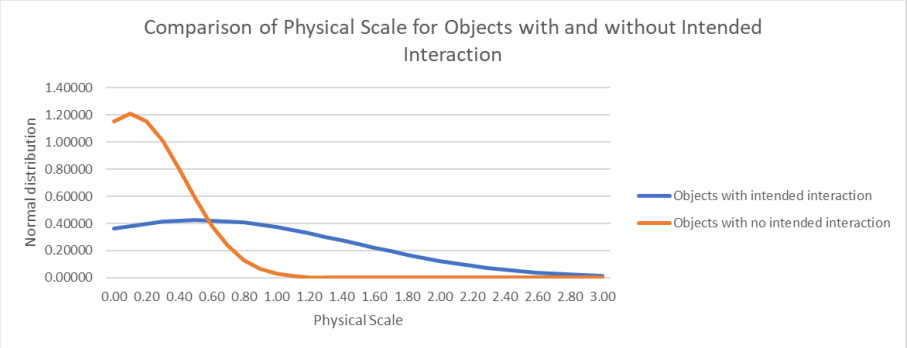
There were three objects which had intended interaction. Objects 0018 and 0020 were operated by pressing a handle or button and object 0011 was designed to be handled. No other objects had any specific interaction intended.

Objects where interaction was intended comprised:

0011 Owl
0018 Sitatunga
0020 Electric Trains

Objects where interaction was not intended comprised:

0001 Balustrade from Temple of Athena Nike
0002 Parthenon Frieze
0003 Neptune and Triton
0004 A Collection of Sculpted Busts
0005 Samson Slaying a Philistine
0006 British Rainwear 1910 – 2015
0007 Radical Fashion 1990 -
0008 The Ardabil Carpet
0009 Panelled Room from a House at Bromley-by-Bow 1606
0010 The Tower of Babel
0012 Crick and Wilson's DNA Model
0013 Aerial Tuning Collector from Rugby Radio Station
0014 Human Headed Winged Lion, Assyrian, from Nimrud
0015 Rosetta Stone
0016 Mummy Coffins
0017 Dodo
0019 Parthenon Frieze xlvii



Graph 30 Comparison of Physical Scale for Objects with and without intended interaction

These graphs are very different. 'No Intended Interaction' has a much higher peak and steeper tail-off than 'Intended Interaction' which has a much gentler and longer curve. The standard deviation for 'Intended Interaction' is 0.94 whilst for 'Interaction not intended' this is 0.33. The median and minimum values are the same for both (0.0). The maximum for 'Intended Interaction' is 4.00 but these are both for object 0020 with no other object having a higher maximum value than 2.00. The maximum value for 'No Intended Interaction' is 2.00. The average for 'Intended Interaction' is 0.52 and for 'No Intended Interaction' is 0.10.

These results are slightly skewed by the fact that there were very few objects observed for which interaction was intended.

There was a total of 61 observation records for objects intended to be handled and 27 (44.26%) had some form of appropriate interaction. Objects 0011 and 0018 both had high values for this, 67.65% (23/34) and 33.33% (4/12) respectively. The value for object 0020 was much lower, 13.33% (2/15) but it was coin-operated, and one visitor was observed going to get change so operating this display was not necessarily very convenient. It was also noted that some visitors were watching the display in action without having initiated its operation.

Although both objects 0018 and 0020 were operated by the push of button or turn of a handle, 0020 was very much a passive physical interaction. The coin was inserted, and the model train set was set in motion and observed. Object 0018 involved a slight degree of interaction with a question being posed about the Sitatunga and the answer being revealed when the handle was operated.

Values for objects where no interaction intended very small and had a value of only 6.18% (28/453). There were seven objects in which there was some interaction by a visitor with the object when no interaction was intended. There were five objects, 0003, 0004, 0005, 0009 and 0010 from the V&A, which had changed its policy and removed all the 'do not touch' signs (LM interview). Presumably because of its fragile nature and the fact that the

individual pieces comprising the object were going to be sold, object 0010 had a sign specifically forbidding visitors to touch it. Neither object 0002, in the Parthenon Museum, nor object 0013, in the Science Museum, had any obvious signs and the curators appeared to reasonably relaxed.

Of the observations recorded where the object was touched and interaction was not intended some, 78.57% (22/28) used either sight or hearing or both as well; where the object was not touched this figure was 35.29% (150/425).

The value for observations where interaction was intended, and the object was touched and either sight or hearing or both were used was 29.63% (8/27).

When interaction was intended, and the object was not touched only 7/34 (20.59%) used sight or hearing.

Object 0003 was the most touched object for which interaction was not intended, 18.92% (7/37). The least touched, apart from those which were not touched at all, was 0010, 4.88% (2/41). This might have been because of a small barrier, attentive curators and obedient visitors.

In general, the objects where there was some degree of physical interaction, where none was intended, this interaction involved touch. These were usually the larger objects and it appeared to be the materiality of the object which prompted this and was particularly noticeable for object 0009 and its wood panelling.

10) Comparison Of Parthenon Frieze Displays in Athens and London

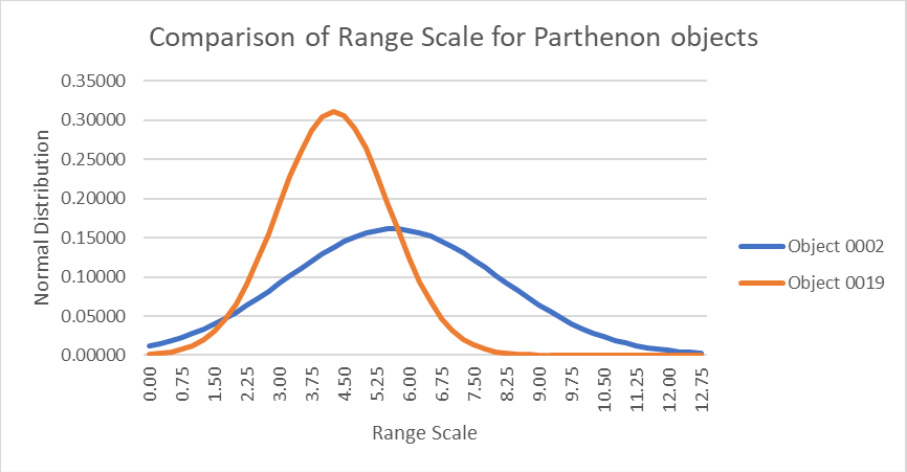
The two objects compared were:

0002 Parthenon Frieze (New Parthenon Museum, Athens)

0019 Parthenon Frieze xlvii (British Museum, London)

It should be noted that whilst these objects have general similarities in the way they are displayed object 0002 is the entire object and 0019 is only one small part of the whole object. The comparison is not ideal, but it does demonstrate the way that the context in which an object is set can alter the perceived information by the visitor.

i. Range Scale



Graph 31 Comparison of Range Scale for Parthenon Objects

The two graphs show very different results. That for object 0002 has a much smoother peak and lower curve whilst that for 0019 is much higher with a much steeper rise and fall. The standard deviation for object 0002 is 2.47 and that for 0019 is 1.28. Object 0002 had a median value of 6.40 with 0019 at 4.90. The average for 0002 was also higher at 5.63 compared with 4.26. The minimum values were the same for both, 0.10, but the maximum value for 0002 was much higher at 8.90 compared with 4.90 for 0019.

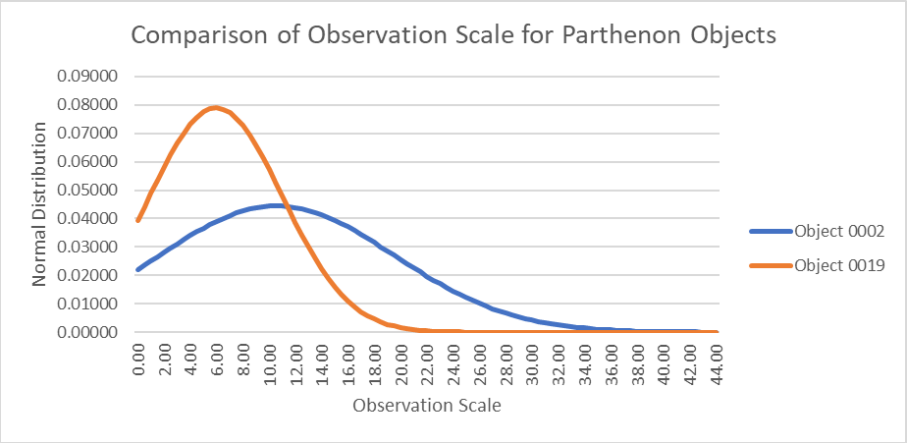
For object 0019 all visitors viewed the object from a static point with the closest distance being three feet and the greatest nine feet. Some 91.67% (22/24) of visitors observed from a

distance of three or four feet but there was a low barrier which prevented visitors getting closer than three feet. This object was only part of the whole display and the gallery only gave a very general overview of what the Parthenon may have originally looked like.

For object 0002 some 78.26% (18/23) of visitors viewed the object from a static point with closest distance being one foot and the furthest nine feet. For visitors not looking from a static point the movement was between one foot and five feet with the minimum observation being two feet and the maximum being nine feet. Non-static observations accounted for 26.32% (5/19) of records. Whilst the objects were displayed in very similar ways the lack of any sort of barrier for object 0002 and the fact that it was displayed at two different heights meant that it was possible, and necessary, to look at the object from a range of distances and angles. Some information about the individual parts of the frieze were also displayed at a height which necessitated movement to be able to read it.

Each object was displayed in a gallery with plenty of space in which it was possible to observe the object from a distance. However, for each object there were only two observation records where this distance was greater than four feet. Object 0002 had two static observations of nine feet and object 0019 had two static observations, one of seven feet and one of nine feet.

ii. Observation Scale



Graph 32 Comparison of Observation Scale for Parthenon Objects

The two graphs mimic the obvious differences of Range Scale with object 0019 having a much higher peak and faster rise and tail-off. The standard deviation for object 0019 is 5.05 and

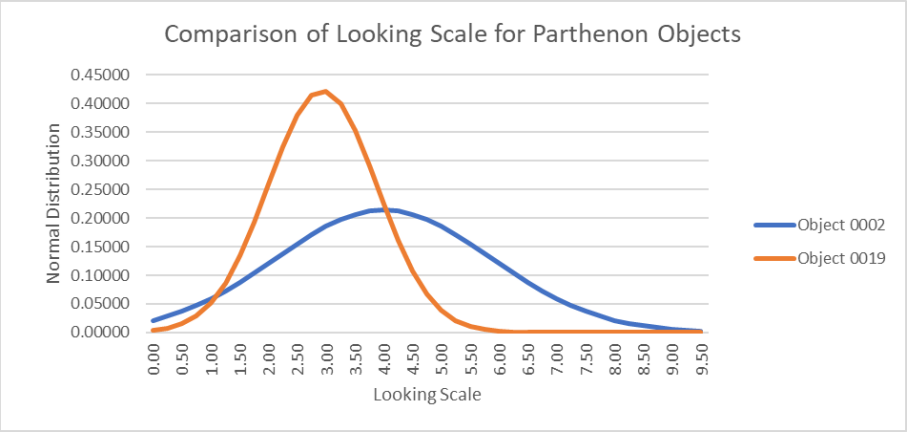
that for object 0002 is 8.97. The median for object 0019 was 4.90 and for object 0002 this was 7.20. Both the minimum and maximum values were lower for object 0019, 0.10 and 25.48 respectively, compared with 0.30 and 34.40 for object 0002.

Object 0019 had much lower observation times. Some 79.17% (19/24) were one minute whilst for object 0002 this value was 42.11% (8/19). There was only one instance for 0019 where the visitor listened to the audio and the observation time was one minute.

Object 0002 also had a higher value for observation times of three minutes or greater, 26.32% (5/19), and the longest observation time, eight minutes, compared with 12.50% (3/24) and five minutes for 00019.

It needs to be noted that the comparison of observation time is a bit stilted as object 0002 comprises the whole gallery and is one complete object. It was only possible to observe this object from one point and only see part of it at any one time. It is possible that there might have been many more longer times than actually observed. The average time before obviously moving away the observation point was 2.16 minutes, whilst that for 0019 was 1.42 minutes and so some differences can be seen.

iii. Looking scale



Graph 33 Comparison of Looking Scale for Parthenon Objects

The graph for object 0019 again has a higher peak and quicker fall off although the median value for both is 3.50. The standard deviation for object 0019 is 1.18 and for 0002 this is 2.61. The minimum and maximum values for 0002 are 0.00 and 8.00 whilst for 0019 these are 1.50 and 6.50.

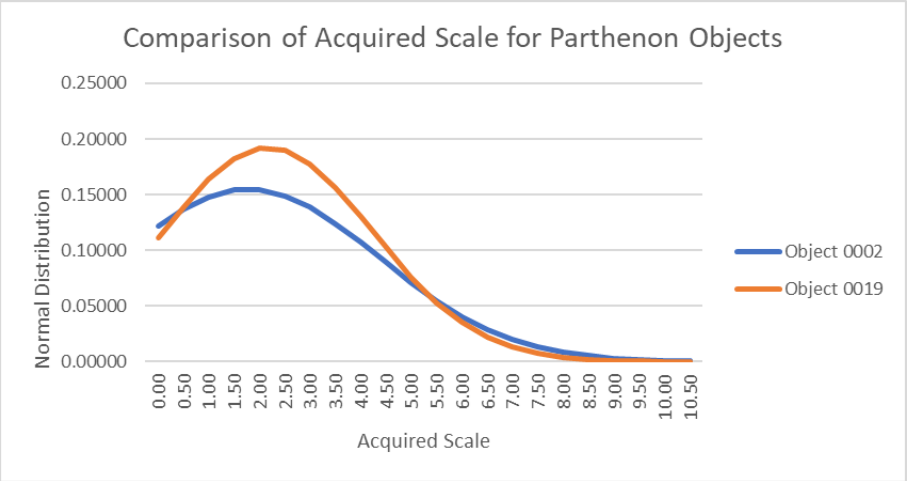
An examination of the individual factors shows a number of differences with the main difference occurring with 'Multiple Angles' and 'Multiple Distances'. There were no observed records for object 0019 for these factors. Most visitors who were not listening to the audio tour spent only one minute observing the object 62.50% (15/24) and some 70.83% (17/24) were simply browsing. As the object is near the entrance/exit of the gallery it also might be that this gallery is just a tick-box of things to see and the visitors stopped only briefly to look at the object before moving on.

For object 0002 some 21.05% (4/19) looked at the object from multiple angles and the same number from multiple distances. In fact, 80% (4/5) looked at object 0002 from both multiple angles and multiple distances. However, there were more visitors who looked at this object with only a quick glance, 36.84% (7/19) compared with object 0019, 29.17% (7/24). This is perhaps more due to the nature of the display of object 0002 which fills the gallery and invites the casual visitor to walk right around the object without necessarily looking too closely, although some 21.05% (4/19) of visitors who gave the object a quick glance also looked at a specific part of the object. It is again possible that, out of sight of the researcher, visitors were look at other parts of the object more intently. Object 0019 had a value of 8.33% (2/24) for this factor.

There were no records recorded for 'Comparison' for object 0002, but there were no other objects with which visitors could compare it. Object 0019 had a very low value of 4.17% (1/24), although this was one of only two objects where this factor had a non-zero value. It should be pointed out, that just like object 0017, the other object with a non-zero value, there were very similar objects displayed on either side.

There were no records at all recorded for 'Revisit' for either object.

iv. Acquired Scale



Graph 34 Comparison of Acquired Scale for Parthenon Objects

Whilst the graphs again show 0019 with the steepest peak the differences between the two are not as great. The standard deviation for object 0019 is 2.08 and for 0002 it is 2.35. Both graphs have minimum values of 0.00 whilst 0002 has a maximum value of 8.00 and 0019 a maximum value of 5.00. The median for 0002 is 0.00 and for 0019 this is 2.50.

The greatest difference is in use of a guidebook. Object 0002 has only one observed record indicating that a visitor is carrying a guidebook which was neither checked nor referred to. Object 0019 had some 37.50% (9/24) of recorded observations for visitors carrying a guidebook. It also had the highest value of any object for 'Guidebook – Referred To', 66.67% (6/9) and the second highest of any object for 'Guidebook – Checked', 44.44% (4/9). There seems to be no obvious reason for this although photographs of the galleries and other objects in these galleries seem to indicate that this is representative. Photographs of the British Museum gallery, 'Greece: Parthenon', which displayed object 0019 show a number of visitors looking closely at guidebooks and maps; a photograph of another gallery in the New Acropolis museum, the Erechthion gallery which displayed object 0001, shows only one visitor carrying a guidebook.

Both objects recorded only a single observation for 'Group Discussion' but object 0019 had 3 records (12.50%) for 'Group discussion with expert leader' and 0002 had none.

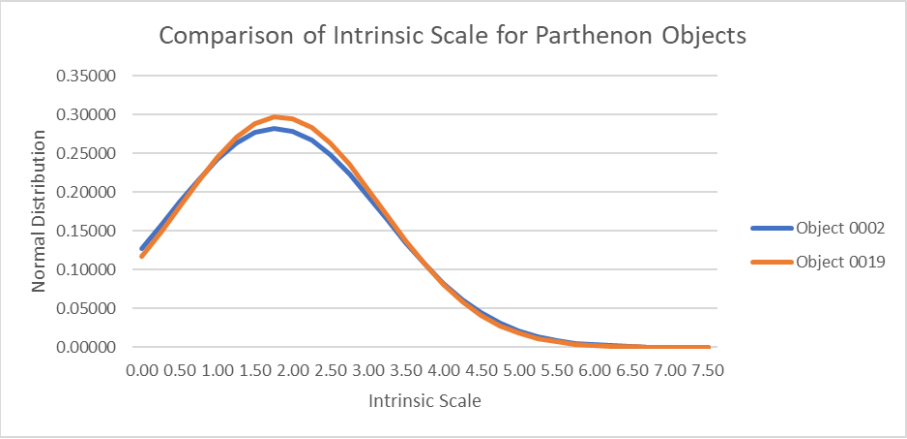
There were no curators specifically on hand for either object although there was one observation recorded for this for 0002.

For object 0002 seven tourist groups were recorded and there was one observation of a guide being questioned; for object 0019 there were two tourist groups recorded but no observations of a guide being questioned.

The figures for 'Sought out' were also very similar with 0002 having a value of 30.43% (7/23) and object 0019 with 29.17% (7/24).

There were no observed records for 'Recognised' either record which was likely due to the fact that both galleries were given over to one object and that 0019 was part of an audio tour.

v. Intrinsic Scale



Graph 35 Comparison of Intrinsic Scale for Parthenon Objects

Both graphs show a very similar curve but with slightly differently placed peaks. That for object 0019 is slightly higher than that for 0002. The median value for object 0019 is 1.50 and that for object 0002 is 2.00. The standard deviations are very close with that for 0002 at 1.41 and that for 0019 at 1.34.

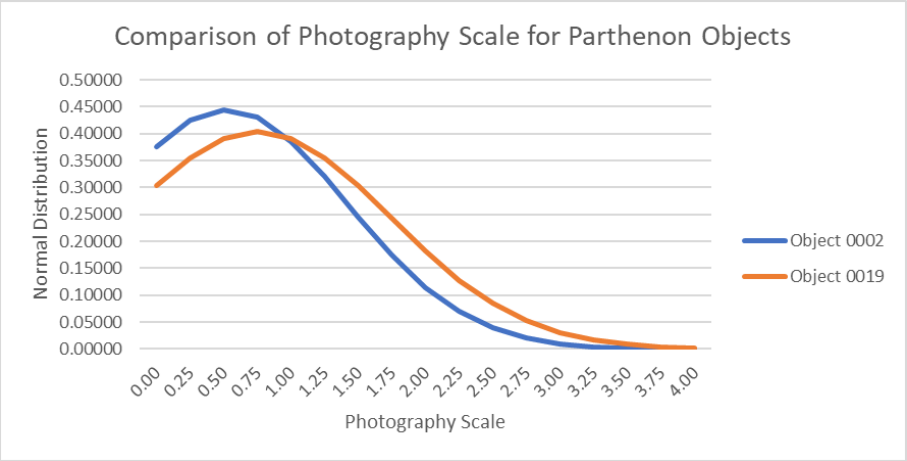
The difference in the shape of the graphs is borne out by the figures for a general interest in intrinsic information with 'Slight', 'Moderate' and 'Extensive' all being higher for object 0019. For 0019 these values are 41.67% (10/24), 33.33% (8/24) and 16.67% (4/24) which compares

with 17.39% (4/23), 30.43% (7/23) and 4.35% (1/23). The total for these three factors is 91.67% (22/24) for object 0019 and 52.17% (12/23) for object 0002. The largest value for object 0002 was for 'Moderate' which might be expected if the gallery contains just one large object. For object 0019 this was 'Slight'. Whilst it was labelled as an individual object it was surrounded by very similar objects and easy to walk past.

There for no observed records for 'Read title', or 'Read description', 'Read Contextual Information' or 'Read gallery notes' for either object. However, the plaque with the title and other information for object 0019 was rather small and unobtrusive and set behind a barrier; for object 0002 this information was set high up, small and rather hidden from view.

Object 0019 was part of an audio guide and there were three observed records for visitors listening to this information.

vi. Photography Scale



Graph 36 Comparison of Photography Scale for Parthenon Objects

The graphs were similar with that for object 0002 having a slightly higher peak and a quicker tail-off. The standard deviations for both objects were close with that for object 0002, 0.90 and for 0019, 0.99. The median, minimum and maximum values were all the same for both, that is 0.00, 0.00 and 2.00.

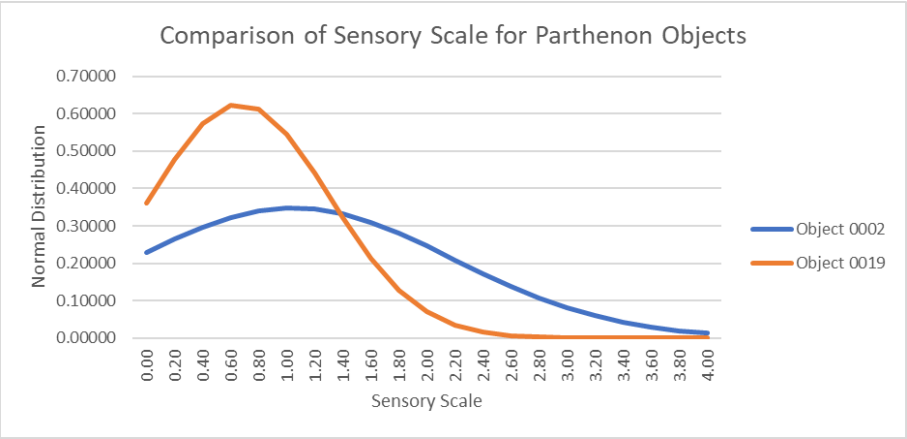
Neither object had any observed photography scale records except for the factor 'Object only' but this was higher for 0019, 37.50% (9/24) than 0002, 26.09% (6/23). For object 0019, in observations when a photograph was taken, only one record had an observation time

greater than one minute, for object 0002 there were five such records. It suggests that with object 0019 these observations were more about taking a photograph and that with object 0002 there was a degree of interest in the object and the photograph was a record of that visit. For object 0002 it was only groups who were recorded taking photographs whilst for 0019 it was mainly single adults, 77.78% (7/9).

There was only one photograph taken per observation record for both objects.

The metopes for object 0002 are displayed at head height which makes them harder to photograph and also slightly obscure the sightline needed to photograph the frieze although there are other parts of the gallery where display conditions are very conducive to photography. The object was only observed from one point by the researcher which may affect the results. Object 0019 was positioned slightly lower and much easier to photograph.

vii. Sensory Scale



Graph 37 Comparison of Sensory Scale for Parthenon Objects

The two graphs are noticeably different with that for object 0019 having a much higher peak and steeper rise and fall. The standard deviation for object 0019 is 0.64 and for 0002 this is 1.15. The median and minimum values are the same for both, 1.00 and 0.00 but the maximum for object 0002 is 3.00 compared with 2.00 for 0019. Object 0002 also has a higher average at 1.02 compared with 0.67.

Despite object 0019 being part of an audio tour it had a lower value for hearing, 37.50% (9/24) than object 0002 which was 52.63% (10/19). This was due to the higher number of tourist groups observed visiting object 0002, seven compared with two.

The figures for 'Sight' had similar differences with 0002 having a value of 52.63% (10/19) and object 0019 having a value of 43.17% (7/24). The observations for 'Sight' for object 0002 were all for watching the additional video material.

There were four observed records for 'Touch' for object 0002 (17.39%) and no records for object 0019 which had a barrier and observant curators.

Object 0002 had a slightly higher value, 47.83% (11/23) for no sensory engagement than object 0019, 43.48% (10/24) and object 0002 had a value of 13.04% (3/23) for three senses being engaged. Object 0019 had no observed records for all three senses being engaged.

11) Comparison of objects by Gallery Layout

It should be noted that these gallery descriptions are subjective and the opinion of the researcher and not the museum. Some objects could be categorised into more than one type of gallery and these results can only give general trends. However, these trends are useful because the gallery layouts are very different.

Objects in galleries of type 'Intended to get overview' comprised:

0001 Balustrade from Temple of Athena Nike
0010 The Tower of Babel
0015 Rosetta Stone
0016 Mummy Coffins
0019 Parthenon Frieze xlvii

Objects in galleries of type 'Drawn to particular object' comprised:

0008 The Ardabil Carpet

Objects in galleries of type 'Intended to take journey' comprised:

0006 British Rainwear 1910 – 2015
0007 Radical Fashion 1990 -
0012 Crick and Wilson's DNA Model

Objects in galleries of type 'Exploration encouraged' comprised:

0011 Owl
0013 Aerial Tuning Collector from Rugby Radio Station
0020 Electric Trains

Objects in galleries of type 'Theme' comprised:

0003 Neptune and Triton
0004 A Collection of Sculpted Busts
0005 Samson Slaying a Philistine

0009 Panelled Room from a House at Bromley-by-Bow 1606

0014 Human Headed Winged Lion, Assyrian, from Nimrud

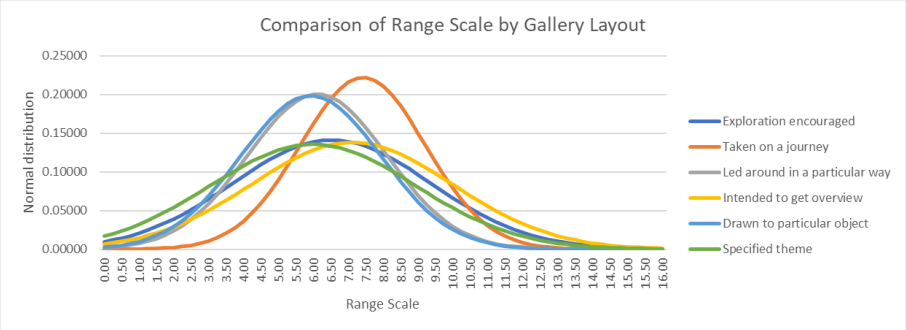
0018 Sitatunga

Objects in galleries of type 'Led around particular way' comprised:

0002 Parthenon Frieze

0017 Dodo

i. Range Scale



Graph 38 Comparison Of Range Scale by Gallery Layout

The graphs show three distinct groupings.

The first group which has the highest group comprises a single type of gallery layout - 'Taken on a journey'. It also has the steepest rise and fall with a standard deviation of 1.80 and a median value of 7.40.

The second group comprises 'Led around in a particular way' and 'Drawn to a particular object' with a shape similar to 'Taken on a journey'. These have standard deviations of 1.99 and 2.01, but with lower median values of 6.40 and 4.90. 'Drawn to a particular object' had the lowest median of all these groups but it comprised just one object, 0008, an object with an ideal, but limited, equidistant viewing distance and the lowest average Range Scale of 5.93. The object was positioned slightly above floor level and the visitor needs to come up to the glass display case and look down.

'Led around in a particular way' had the lowest maximum value, 9.40, but this comprised objects 0002 and 0017 which was more about the nature of how the objects were displayed,

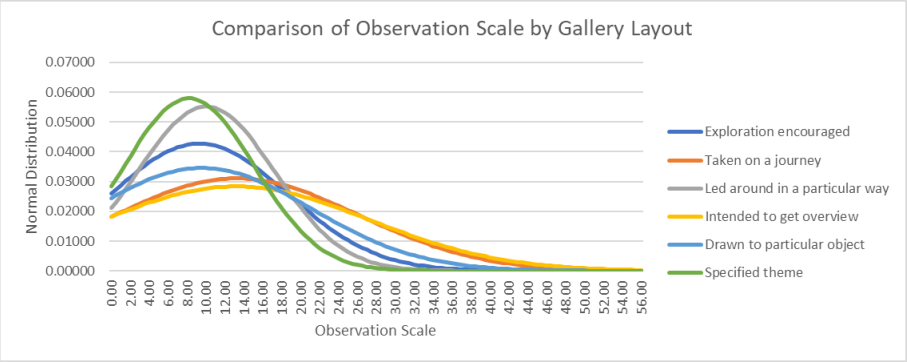
again with smaller ideal viewing distances. Object 0002 was displayed as a long veranda and 0017 was part of a series of long glass display cases of the very traditional museum style.

The third group comprises the three remaining categories 'Specified theme', 'Intended to get overview' and 'Exploration encouraged' which have standard deviations of 2.94, 2.89 and 2.83 and median values of 6.40, 6.90 and 8.10.

There were noticeable differences in spread of Range Scale between the six categories. The greatest difference between minimum and maximum was for 'Specified theme' which was 15.00, which also had the highest maximum value of 15.10. This was mainly due to object 0005 which had static viewpoint observations which ranged from one foot to nine feet and a lot of movement between distances ranging from one foot to seven feet although its proximity to object 0010 may have affected this. This category also had the largest number of static viewpoint observations at 77.70% (115/148); 'Led around in a particular way' also had the second highest value for static viewpoint observations at 77.14% (27/35) but the nature of the display invited this.

The lowest value for static viewpoint observations was for 'Intended to get overview', 61.06% (69/113) but this included objects 0010 and 0015 both of which had high values for non-static viewpoints for reasons previously explained.

ii. Observation Scale



Graph 39 Comparison Of Observation Scale by Gallery Layout

These graphs are quite different from range scale, although there are still three distinct groupings.

The two categories 'Specified theme' and 'Led around in a particular way' have the highest peaks and both have a very quick rise and tail-off. The standard deviations are 8.23 and 7.23. They both have a median value of 6.40 and the lowest maximum values with 'Specified theme' at 32.40 and 'Led around in a particular way' at 34.40.

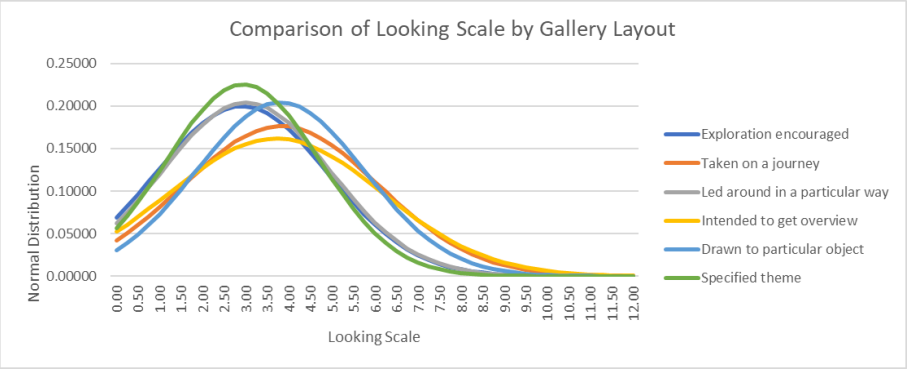
The second grouping comprises 'Exploration encouraged' and 'Drawn to a particular object' which have noticeably lower peaks with 'Exploration encouraged' having the higher of the two. They both a quick rise and tail-off. The standard deviations are 9.34 and 11.54. 'Exploration encouraged' has a median value of 8.10 and 'Drawn to a particular object' a median value of 5.90.

The remaining two categories, 'Taken on a journey' and 'Intended to get overview' form the third grouping and have the lowest peak and longest tail-off. The standard deviations are 12.83 and 14.06. They both have a median value of 8.10 and the highest maximum values of 80.80 and 70.70 respectively and the highest percentage of observation times greater than three minutes. 'Taken on a journey' has a value of 12.33% (9/73) and 'Intended to get overview' a value of 7.08% (8/113).

The highest average time is for 'Led around in a particular way', 1.83 minutes, but this category includes object 0002 which is both the highlight of the museum and gallery and the main purpose for visiting. It also had the lowest value for an observation time of one minute, 51.83% (18/35). The lowest average was for the category 'Exploration encouraged', 1.29 minutes, as well as the highest value for recorded observations of one minute, 82.09% (55/67). This was distributed between all objects. The highest value for recorded observation times of greater than three minutes was for 'Taken on a journey', 12.33% (9/73) and the lowest was for 'Specified theme', 0.68% (1/148) which also had a low average time, 1.30 minutes.

If the gallery layouts 'Exploration encouraged' and 'Taken on a journey' are compared it does suggest that, as with the comparison of contextual information, visitors will spend more time if given at least some guidance as to what they are looking at or at what they feel they ought to be looking at.

iii. Looking Scale



Graph 40 Comparison Of Looking Scale by Gallery Layout

The graphs are fairly similar and there are two distinct groupings although there are no flat curves.

The first grouping comprises the categories 'Specified theme', 'Led around in a particular way' and 'Exploration encouraged' with 'Specified theme' having the highest peak. The standard deviations are 2.94, 1.95 and 2.00 respectively. The median value for each of these three categories is 2.50 and the minimum is 0.0. The maximum value for 'Exploration encouraged' is 10.00 whilst that for 'Specified theme' and 'Led around in a particular way' is 8.00.

The second grouping comprises 'Drawn to a particular object', which has the highest peak, and the remaining categories 'Taken on a journey' and 'Intended to get overview' which have very similarly shaped curves. The standard deviations are 1.95, 2.26 and 2.46 respectively. 'Drawn to a particular object' and 'Taken on a journey' both have median and minimum values of 3.50 and 1.50; 'Intended to get overview' has a median of 3.00. 'Taken on a journey' and 'Intended to get overview' have a maximum value of 12.00; 'Drawn to a particular object' has a maximum value of 10.00.

An examination of the individual factors shows that in general the higher individual values are pretty much spread across board and the categories are mostly a mixture of freestanding and Glass Case Objects and single and Multiple Objects suggesting that these general methods of display do not make much difference.

There is one anomaly in the comparison of the categories 'Taken on a journey', which comprised three Glass Case Objects only and 'Specified theme' which comprised one Glass

Case Object and five Freestanding Objects. 'Taken on a journey', which included objects 0006 and 0007, tended to have much higher values for individual factors.

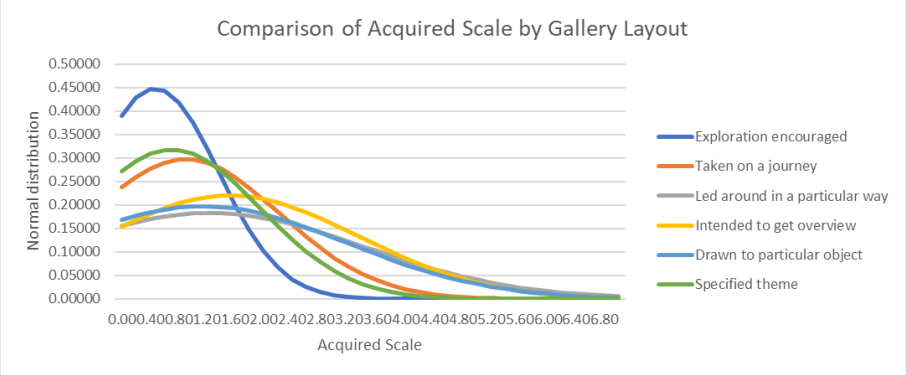
For 'Multiple distances' and 'Multiple angles', 'Taken on a journey' had values of 28.77% (22/73) and 30.14% (24/73) compared with 18.92% (28/148) and 14.19% (25/148); for 'Revisit', 'Taken on a journey' had a value of 5.48% (4/77) compared with 2.70% (4/148); for 'Specific part', 'Taken on a journey' had a value of 27.40% (20/73) compared with 12.16% (18/148); 'Quick glance' was much lower for 'Taken on a journey', 21.92% (16/73) compared with 43.24% (64/148).

The highest value for 'Quick glance' was for 'Drawn to a particular object', 54.84% (17/34) and interestingly this category also had the highest value for 'Revisit', 6.45% (2/31).

Another interesting result was that the gallery type 'Led around in a particular way' had the lowest value for 'Multiple Distances', 11.43% (4/35) and the highest value for 'Comparison'. It may have been the nature of the objects and their display which accounted for this. Object 0017 was set in a glass case with several other types of extinct bird and little could be gained from observing object 0002 from multiple distances as it was displayed so as to have an ideal viewing point.

There is also some correlation between 'Quick glance', 'Specific part' and gallery layout. Both 'Specified theme' and 'Exploration encouraged' had low figures for 'Specific part', 12.16% (18/148) and 0.00% and high values for 'Quick Glance', 43.24% (64/148) and 40.30% (27/67). This can be compared for 'Led around in a particular way' which scored a high value for 'Specific part', 34.29% (12/35), and a relatively low value for 'Quick glance', 31.43% (11/35). It could be that more guidance was needed than is offered is some gallery layouts.

iv. Acquired Scale



Graph 41 Comparison Of Acquired Scale by Gallery Layout

There are three distinct groupings with little difference within each group.

The first group comprises 'Exploration encouraged' which has the highest peak and steepest tail off with median, minimum and maximum values of 0.00, 0.00 and 3.00. The standard deviation is 0.89.

The second group comprises 'Specified theme' and 'Taken on a journey' which each have a lower peak and median and minimum values of 0.00 and 0.00. The maximum value for 'Specified theme' is 11.00 compared with 5.00. The respective standard deviations are 1.26 and 1.34.

The curves for the third grouping are all a lot flatter. The categories 'Drawn to a particular object' and 'Led around in a particular way' both have median and minimum values of 0.00 with maximum values of 11.00 and 8.00 respectively and standard deviations of 2.02 and 2.17. 'Intended to get overview' is the only category with a median greater than zero (1.00) and has the highest value for Acquired Scale, 1.52, and a standard deviation of 1.81.

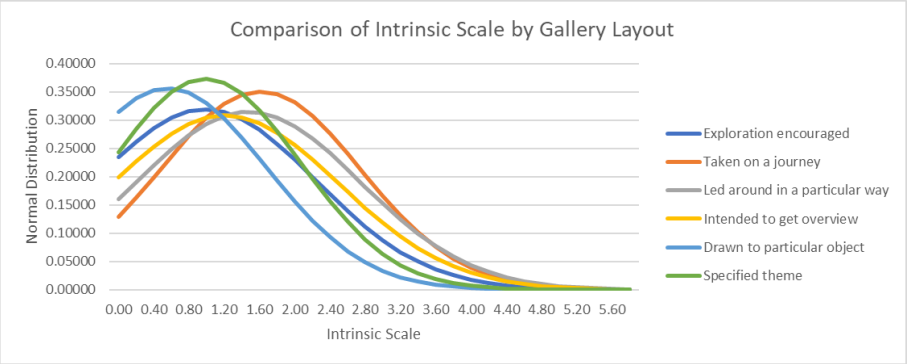
Whilst the values for individual factors tend to be low there are some interesting figures. The highest values for carrying a guidebook were for 'Specified theme', 21.05% (36/171), and 'Intended to get overview', 33.61% (40/119) which also had the highest figure for 'Checked guidebook', 45.00% (18/40). It might imply that more information was required than was readily available with the object, although the highest value for 'Guidebook referred to' was for 'Drawn to a particular object', 50.00% (4/8). Nevertheless, there were no observation

records for 'Read Title', 'Read Description' or 'Read Contextual Information' for this category.

The highest value for 'Sought out' was 'Led around in a particular way', 17.95% (7/39) which comprised objects 0002 and 0017. This might be the subjectivity of the researcher or the fact that the 'way' was very obvious in each case. This category also had the lowest value for 'Group discussion' and 'Group discussion with expert leader', 6.25% (2/32) and 2.13% (1/32). Whilst it might be that the layout made the objects easy to understand, this category also had the highest value for 'Question guide' 21.88% (7/32).

'Taken on a journey' had the highest value for 'Group discussion', 36.17% (17/47) and the lowest value for 'Group discussion with expert leader', 2.13% (1/47). It was also the most recognised category, 10.39% (8/77). Again, this was mainly due to objects 0006 and 0007.

v. Intrinsic Scale



Graph 42 Comparison of Intrinsic Scale by Gallery Layout

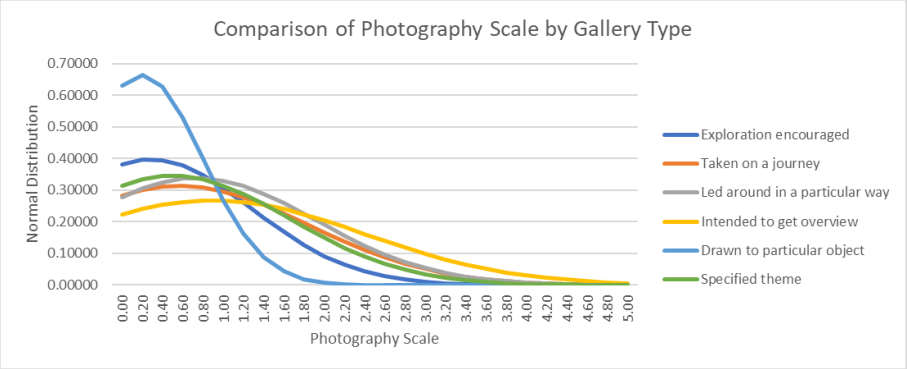
There is not much difference between the graphs and there are no obvious groupings. All minimum values are 0.00, all maximum values are 4.00 or 5.00 and all median values are between 1.0 and 2.0 except for 'Led around in a particular way' which is 0.00. The standard deviations are all very similar, each lying between 1.07 and 1.29.

The lowest value by far for any notice being taken of intrinsic information, that is (any value for slight, moderate or extensive) is 'Drawn to particular object', 20.0% (8/40) with zero values for 'Read title', 'Read description' or 'Read contextual information'. This category comprised the Single Object 008 and although plenty of contextual information was available

it was slightly separate from the object and not necessarily obvious. The highest value for this was the category 'Taken on a journey', 77.92% (60/77) which was mainly due to object 0012 which had high values for reading the title and description, 43.75% (7/16) and 25% (4/16). There was little difference between the other types of display.

The highest value for 'Read title' was for 'Intended to get overview', 23.53% (28/119) which also had the highest value for 'Read description', 19.33% (23/119), and the only score for 'Read contextual information, 7.56% (9/119). 'Exploration encouraged' had the highest value for 'Read gallery notes', 2.94% (2/68), suggesting that visitors are seeking more information when they have some direction to guide them through this process. 'Exploration encouraged' also had high values for 'Read title' and 'Read description', 20.59% (14/68) and 16.18% (11/68); and 'Check website', 1.47% (1/68), which supports this notion.

vi. Photography Scale



Graph 43 Comparison of Photography Scale by Gallery Layout

The graphs show two distinct groupings with 'Drawn to a particular object' on its own with a much higher peak and steeper tail off and all other categories in the second group and a standard deviation of 0.60. All categories had median and minimum values of 0.00 and 'Drawn to a particular object' had the lowest maximum value, 2.00. The standard deviations for the other categories ranged between 1.01 and 1.49 with 'Intended to get overview' having the highest value.

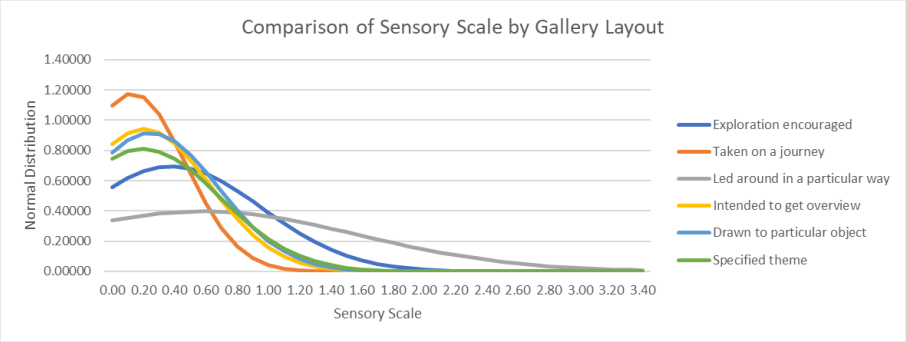
The most photographed category, with the most number of shots and the most number of unique observation records where a photograph was taken, was 'Intended to get overview'.

These values were 48.74% (58/119) and 34.45% (41/119). This category also had the highest number of multiple shots, 6.72% (8/119). This category contained the most photographed object, 0016.

The least photographed category was 'Drawn to a particular object', with a value of 7.50% (3/40) for both total photographs and unique observation records but the only object in this category is 0008 which is quite difficult to photograph. The three photographs were all 'Object only'. The most photographed category for 'Object only' was 'Led around in a particular way', 33.33% (13/39).

The highest value for selfies, either with the object and/or with others was 'Intended to get overview', 4.20% (5/119).

vii. Sensory Scale



Graph 44 Comparison of Sensory Scale by Gallery Layout

There are three distinct groupings.

The first group comprises 'Taken on a journey' which has the highest peak and the steepest rise and fall and the lowest average value, 0.34, and a standard deviation of 0.34. The third group comprises 'Led around in a particular way' which has a very flat curve and the highest average value, 0.74, and a standard deviation of 1.00. The middle group comprises the remaining four categories and the curves are all very similar with standard deviations ranging from 0.42 to 0.57. All categories have median and minimum values of 0.00 and a maximum value of either 1.00 or 2.00 except for 'Led around in a particular way' which has a maximum value of 3.00.

The highest value for engaging three senses is 'Led around in a particular way', 7.69% (3/39) which had high values for each individual sense. 'Taken on a journey' and 'Drawn to a particular object' have no observed records for engaging three senses but these two groups included Glass Case Objects 0006, 0007, 0012 and 0008 which ruled out any physical interaction. These two categories also had the lowest values for engaging two senses, 2.60% (2/77) and 2.5% (1/40) as well as the two highest values for 'Hearing', 23.38% (18/77) and 25% (10/40).

The highest value for not engaging any senses is 'Specified theme', 70.18% (120/171) but it had a relatively high figure for engaging three senses, 3.51% (6/171).

The highest value for 'Touch' was 'Exploration encouraged', 39.71% (27/68) but this included objects 0011 and 0020 for which interaction was intended. 'Intended to get overview' had the lowest value for 'Touch', 1.68% (2/119), but it was only physically possible to touch objects 0001 and 0010 and both of these objects displayed 'Do not touch signs' which might influence the more law-abiding visitor.

The highest value for 'Sight' was 'Intended to get overview', 40.34% (48/119) by a long way, but this included objects 0010 and 0015 which had low values for 'Quick glance' and high values for 'Read title' and 'Read description'. The lowest figure for 'Sight' was 'Taken on a journey', 10.39% (8/77). Its high value for hearing, 23.38% (18/77) might indicate that the visitors are discussing information and not reading it. The lowest value for 'Hearing' was 'Exploration encouraged', 8.82% (6/68), but only one object, 0020, had any observation records for this factor.

Chapter 10. Discussion Of Results

1) Summary of findings

Freestanding and Glass Case Objects

Overall, more visitors observed Freestanding Objects from a minimum distance of one foot than they did Glass Case Objects and more visitors only looked at Glass Case Objects from a distance of one foot. The furthest viewing distance was greater for Freestanding Objects which also had higher average minimum and maximum values for this. The non-static viewpoints tended not to be about whether the object was freestanding or displayed in a glass case but more about the space around the object so that it was possible to see the details of the object as well as the object in its entirety. The objects 'Electric Trains', 'Rosetta Stone' and 'Tower of Babel' had the highest value for this and in each case it was possible to get a unique viewpoint from different distances.

Nonetheless, the display type 'Glass Case – Themed', which displayed objects in perhaps the most traditional way, also scored highly for visitors who observed the objects from multiple angles and distances. As the fashion related objects were displayed this way it again suggests that it is the object itself which can affect this way of looking even if the actual display is not necessarily conducive to doing this. The difference in observation times between these two fashion objects also supports this with 'British Rainwear 1910-2015' recording observation times greater than four minutes and a much lower percentage of visitors just giving the object a quick glance.

With an object such as the 'Rosetta Stone' which is not easily understood to any great depth without reading some of the information values for reading the title, description and contextual information were relatively high. At the same time, the relatively high value for 'Slight', 'Moderate' and 'Extensive' in the Intrinsic Scale would indicate that there is a large number of more casual visitors, with a desire to see the object, but without an equal desire to find out too much about it. This compares with an object such as the 'Winged Lion from Nimrud' which makes a dramatic statement by itself and had high percentages of visitors looking at it for a minute or less and from a static viewpoint. Its placement at the entrance to a gallery and against a wall limited the possible viewpoints and an enclosure also defined the possible viewing points. Similarly, it was this the case with the objects in the category

'Freestanding – Themed' each of which had restrictions on the viewing point to a certain degree.

Overall, though, Glass Case Objects tended to have higher values for 'Slight', 'Moderate' and 'Extensive' and also for reading the title of the object. It could be argued that the Glass Case Objects which were observed were a little more recognisable than the freestanding ones and that visitors were confirming information which they already knew. This could be back up by the fact that a higher percentage of visitors who were carrying a guidebook checked this when looking at Glass Case Objects. More visitors who looked at the observed Freestanding Objects were seen to be carrying a guidebook and more of these visitors referred to it. For Freestanding Objects, the figures for checking the guidebook and referring to the guidebook did not appear to bear any relationship to each other.

There were similar figures for using the senses for both freestanding and Glass Case Objects although the figure for using three senses was slightly higher for freestanding, a result which should be expected as it is easier to touch these objects even if touch is not intended. The individual object with the highest value for sight was the Rosetta Stone.

More photographs were taken of Freestanding Objects than of glass objects but, again, this was not an unexpected result as these are easier to photograph. Freestanding Objects also included the least photographed objects, the 'Room at Bromley-by-Bow', 'Owl' and 'Collection of busts'. The most likely cause of this was the physical difficulty of photographing these objects, particularly in the case of 'Room at Bromley-by-Bow' where there was very poor lighting.

Multiple and Single Objects

Multiple objects had a much higher percentage of observations from a static viewpoint although Single Objects had a higher percentage of static observations from a distance of further than four feet. Similarly, for non-static observations the number of recorded movements greater than three feet is much higher for Single Objects than it is for Multiple Objects and Single Objects also have a much wider spread of viewing distances ranging from zero feet to seven feet which compares for Multiple Objects this is between zero feet and four feet. For a movement of less than three feet the figures are similar. This could be partly due to the fact that the observed Single Objects tended to be of a larger size than the Multiple Objects and more easily viewed from further away. Another possibility is that the visitors

were seeing the object from a distance and had no desire to look at it from a closer distance. This is partly backed up by the fact that a slightly higher percentage of visitors spent one minute or less viewing Single Objects. At the same time, however, the average observation time for Single Objects is higher than that for Multiple Objects and with a slightly larger range between minimum and maximum observation times. This could be due to the nature of the popularity of the objects in this type of display with the 'Parthenon Frieze' and 'Tower of Babel' both having an average observation time of greater than two minutes with both these objects. All Single Object displays had at least one observation record where the visitor looked at the object from multiple angles which was not the case with Multiple Object displays.

Multiple Objects indicated more general engagement when looking at the total of the factors 'Slight', 'Moderate' and 'Extensive' with the values for 'Moderate' and 'Extensive' being much higher. Although the number of visitors who read the title or description of the object or who read the gallery notes were similar. However, the number of visitors who carried a guidebook and checked it was much higher for Single Objects.

There tended to be more discussion for Multiple Objects, which also had a higher value for being recognised, although for Single Objects there was more discussion led by an expert but this was influenced by the nature of the objects which included the 'Rosetta Stone'.

When it came to taking photographs, more visitors took a photograph of the object only, whether any other type of photograph was taken or not, for Single Objects. Visitor also took more photographs for this category from several different angles.

There was slightly greater engagement with the senses for Single Objects, in respect to sight and hearing' although the value for touching objects was much higher for Multiple Objects as all observed objects which were intended to be touch were Multiple Objects.

Levels of contextual information

Difference between max & min range scale - For 'Context made by clear by display and written information' and 'Context made clear by written information only' lower than 'Context not made clear' suggesting that visitors are trying to take in an overall picture of these objects. The low values for the factors 'Read Title' and 'Read Description' for the Intrinsic Scale for 'Context not made clear' would support this. This category has the highest

value of minimum and maximum observation distances of one foot, but this was offset by the high value for those who only looked from this distance or at a specific part of the object

'Context made clear by written information only' had the lowest percentage of those who observed the object from a static viewpoint and the most for those who moved more than three feet when looking at the object

There is a suggestion that it is not only the information about the object itself which is important but the nature of the object itself can be equally so. For some, looking at an object may be of more interest than reading too much information about it.

When information is only available in one location difference in Range Scale is very low for 0012 and 0018 Neither object gains anything from looking at from further away in both cases the space around the display is limited. The complex object similar to 0012, 0013, has a much wider variation in range scale of 7.70 but the information regarding this is separated from the object.

The number of observations which were only one minute were almost identical. For 'Context made by clear by display and written information' This similarity continues for observations longer than two minutes

The differing levels of contextual information do not appear to make very much difference although as 'Context made clear by written information only' has a very slightly higher average observation time,

'Context not made clear' had the lowest percentage of values for Looking Scale greater or equal to seven The other two categories had similar but slightly higher values. These results are noticeably different for a value of Looking Scale less than two, with 'Context made clear by written information only' much higher and highest zero looking score

Whilst this suggests that if the context is made clear by written information visitors are interested in finding out what this is, it also suggests that visual clues from the object itself are just as important. The figures suggest that when the context is not made clear some visitors will try to determine this by looking the object.

The individual factors tend to support this. For the highest weighted factors 'Context made clear by written information only' scores either the highest value or very close to it. and lowest for the lowest weighted factors

For ‘Group discussion with expert leader’ the highest scoring category was ‘Context made clear by written information only’ but included object 0015. This contrasts with the value for ‘Group Discussion’ for this object indicating that some objects are less easily understood than others but that visitors may seek the easiest way to gain required information.

The category with the highest value for ‘Guidebook Carry’ was ‘Context made by clear by display and written information’ which had several high scoring objects, notably object 0016 suggesting that visitors are seeking out these particular objects. In fact, this category had the highest for ‘Sought Out’ by some way although this was more on account the scores for objects 0002 and 0019 rather than object 0016 which scored 0.00% for this factor. The category with the lowest score for ‘Guidebook – Carry’ was ‘Context not made clear’ which also had the lowest score for ‘Sought Out’, 0.99% 2/202. and negligible scores for ‘Guidebook – Checked’ and ‘Guidebook – Referred To’.

The highest score for ‘Guidebook – Checked’ was ‘Context made by clear by written information only’, ‘Guidebook – Referred To’ it was ‘Context made by clear by display and written information’ which had the highest score. This was mainly due to object 0019, which was part of the audio tour. ‘Context not made clear’ had the lowest values for ‘Guidebook – Carrying’, ‘Guidebook – Checked’ and ‘Guidebook -Referred To’ by a considerable way indicating that perhaps some starting point for taking notice of information is required.

The individual factors showed some marked differences. The highest values for ‘Read Title’, ‘Read Description’, ‘Read Contextual Information’ and ‘Read Gallery Notes’ are all for ‘Context made clear by written information only’; ‘Context not made clear’ has the lowest value in each case There is a suggestion that some contextual information creates a degree of interest whilst visitors may be inclined to give up if there is no such information available.

The totals of ‘Slight’, ‘Moderate’ and ‘Extensive’ show a different story. ‘Context not made clear’ has the highest value and ‘Context made clear by written information only’ has the lowest, This indicates visitors are looking for information from the object itself if no written information is available. The value for ‘Context made clear by display and written information’ was also very high, indicating that the object itself is more important than any written information.

The category with the most number of unique photographs, the most photographed category and also the category with the most number of ‘selfies’ is ‘Context made by clear by display and written information’ although the value for photographing just the object was similar to

'Context made clear by written information only'. Although the values for these were lower for 'Context not made clear' they were still relatively high suggesting that photography can be a way of acquiring information to some level.

For senses 'Context made clear by written information only' and 'Context made by clear by display and written information' both have much higher values for 'Hearing' and 'Sight' than 'Context not made clear'; for 'Touch' these results are noticeably reversed. However, 'Context not made clear' included object 0011 where touch was specifically encouraged, and it might be that visitors are using touch to make up for the lack of other information.

Parthenon Objects

In the comparison between the two Parthenon objects there were some obvious differences and similarities. In the British Museum all visitors viewed the Parthenon object from a static viewpoint and for less time whereas in the Parthenon Museum in Athens visitors were observing the object from a range of distances and angles getting much closer to the object and staying for longer. It was the British Museum object which had the greatest use of the guidebook and the greatest use of intrinsic information with the factors 'Slight', 'Moderate' and 'Extensive' all being higher.

There for no observed records for 'Read title', or 'Read description', 'Read Contextual Information' or 'Read gallery notes' for either object. The only type of photograph taken for both was of the object only. In each case the gallery was clearly signposted and dedicated to housing the Parthenon objects. This might also explain the fact that both objects had a zero value for 'Recognised'.

Other figures tended to fairly similar the notable difference being for 'Touch'. There were no records for the British Museum but there was a rope barrier and observant curators nearby.

Gallery Layout

All gallery layouts had a minimum viewing distance of one foot although 'Specified theme' had the highest range of movement between minimum and maximum viewing distance. However, the layout 'Intended to get overview' had the lowest number of static viewpoint observations and the with highest number of movement range observations greater than two feet.

The lowest average Range Scale was for the category 'Drawn to particular object', which also had the lowest value for observation times greater than three minutes.

The highest average observation time is for 'Led around in a particular way', which also had the lowest value for an observation time of one minute. This included the Parthenon Frieze and might be another instance of the object having more importance than the information about the object.

The highest values for carrying a guidebook were for 'Specified theme' and 'Intended to get overview'. 'Intended to get overview' also had the highest values for 'Checked guidebook', 'Read title' and 'Read description', the only score for 'Read contextual information and a relatively high value for 'Read gallery notes'.

The highest value for 'Guidebook referred to' was for 'Drawn to a particular object'. However, there were no observation records for 'Read Title', 'Read Description' or 'Read Contextual Information' for this category. The lowest value for any notice being taken of intrinsic information is 'Drawn to a particular object' with no values for 'Read title', 'Read description' or 'Read contextual information'.

The most photographed category with the most number of shots and the most number of unique observation records where a photograph was taken was 'Intended to get overview' and this category also had the highest number of multiple shots and selfies. The least photographed category was 'Drawn to a particular object', but the only object in this category is 0008 which is quite difficult to photograph. The three photographs were all 'Object only'.

The highest value for not engaging any senses is 'Specified theme' although it had a relatively high figure for engaging three senses. 'Intended to get overview had the lowest value for 'Touch' but it was only physically possible to touch two objects, The Balustrade from the Temple of Athena Nike and The Tower of Babel, and both of these objects displayed 'Do not touch signs'.

The highest value for 'Sight' was 'Intended to get overview' by a long way, objects 0010 and 0015 which had low values for 'Quick glance' and high values for 'Read title' and 'Read description'.

2) How were research questions answered?

Does the context within which an object is set affect the information the object conveys? If so, how?

The gallery layout 'Taken on a journey' which is designed take the visitor on a starting point towards a particular end point appeared to make the most informational difference.

The three objects which comprised this layout were all in galleries that were set out chronologically. The gallery, 'Fashion', was in a circular shaped gallery and it was possible to view the objects either going backwards or forwards in time

It had the highest values for totalling the 'slight', 'moderate' and 'extensive' factors in the Intrinsic Scale and although the figures for 'Read Title' and 'Read Description' were only moderate those for 'Recognised' were also high.

The two objects in the 'Fashion' are certainly objects that visitors would recognise, even if only in the most general sense, and many people with only a passing interest in fashion would be familiar with the name 'Jean-Paul Gaultier'. The high values for 'Group discussion' and low values for Group discussion with expert leader' would suggest this is the case and that the visitors observing these objects are getting their information from looking at the object and talking about it rather than reading any supplied information. For the objects displayed in this way the only contextual information was that of the chronological layout.

In her interview Leila Meinertas (2018), speaking in terms of furniture displays, suggests things '*start to make sense*' when displaying objects without labels and arranging them chronologically as one goes from '*curly things and reed things, and then it all starts getting straighter*'.

It was the gallery layout 'Intended to get overview' which had the highest values for 'Read title', 'Read description' and 'Read contextual information'. This was more due to the nature of the objects which this layout type included where the object itself was definitely taking precedence over the context in which it was set.

Leila Meinertas (2018) noted that for some visitors coming to a museum was just on their list of things to do and that if they did not read the label this was unimportant. '*They will just get drawn to whichever objects appeal to them,'* she said. *'They're usually brightly coloured or large or there's something about them.*'

This was certainly true for this gallery layout which included the objects '*The Rosetta Stone*' and '*The Tower of Babel*'. The first being an object of world renown and the second an object to which visitors could easily find a personal or familiar connection.

David Judd (2018) noted the advantages of audio guides for adding contextual information to an object, for example by adding sounds which can create an atmosphere. They can also help prevent museum fatigue by allowing the visitor not to look at the glass cases the whole time. It is interesting to note that of all the observed records of those visitors listening to audio none read the title or description of the object or read the contextual information or gallery notes.

Do the curator's notes which are placed with the object affect the information that the object conveys? If they do, what effect does this have?

Johanna Agersson mentioned in her interview that a new display at the National Museum of Stockholm that some galleries had no labels at all and that she found it '*challenging*' and did not feel at ease not knowing the basic where, when, what about the object. She also discussed how Swiss architect Peter Zumthor and the director of the Los Angeles County Museum of Art believed in displaying all art without labels to open the object up to the visitor to make up their own journey and own interpretation about the object. However, this gives some informed visitors who feel confident with what they are seeing certain informational privileges over others.

In fact, observation records showed that there five objects where no one read the title and of these four did not read the description either. The visitor ends up seeing just 'clothing', 'large statue', 'carpet' or 'Parthenon'. However, this appeared to have no overall effect on observation time or the total of 'Slight', 'Moderate' and 'Extensive' as all these values were spread throughout the range of values.

Johanna Agersson (Gardner & Agerman Ross, 2018) continued by raising the issue of 'democratic' labels which inform the visitor of the story the object has to tell, what is interesting about it and how it fits in with the wider theme of the gallery. There is a need to get the visitors from the beginning and in the Rapid Response Gallery the aim is provide the information to put the visitors' '*imaginations into flight*' and to consider, for example, different

responses to a pair of Primark trousers. This could be either a cheap way of being able to follow fashion or an example of child labour.

Bryony Shepherd (2018) also mention that with the Europe galleries the main interpretational aims were to get the social and historical background because visitors needed that as a way in to understanding the object.

Only two observed objects had any score for reading contextual information were the 'Mummy Coffins' and the 'Tower of Babel', the first of which might be regarded as a well-recognised object and the second as something very unusual. 'Mummy Coffins' also had the highest value for reading the description. This might suggest that there is a desire to know more about the objects which are familiar and interesting as well as those which are unusual and displayed in an unexpected context. However, whilst 'Tower of Babel' had high median scores for the Range, Observation and Looking Scales, 'Mummy Coffins' had low values for these.

Leila Meinertas (2018) pointed out the there is a difference between the information the curator would like to display with the object and what the Education and Learning Department feels is suitable. In the furniture gallery they were told not to use panels as people do not read information on walls. This was backed up by the fact that out of 514 observation records only nine read any contextual information and only eight read the gallery notes. The labels are also limited to a set number of words and must avoid any words or phrases considered too '*technical*'.

Is there a difference in the information conveyed by similar objects set in their original context and those in a more artificial context? (For example, objects in a local parish church and in more tourist-orientated place of worship such as a cathedral.)

There does not appear to be much difference. Instead it is more dependent on what information presented with the object and different facets of the display affected the different scales of measurement. For example, the Metope was just one individual part of the whole object and visitors were more likely to view the object from a static viewpoint. The contextual information for this object was displayed in two separate side galleries, which were not necessarily obvious to the visitor intent on seeing the object or on the audio guide which was not widely used for this object.

The Parthenon Frieze in Athens had been displayed as size which there was more to see but there was also more for the visitor to take in. The descriptions were much briefer and positioned above head height. There was also less general information in gallery about the object. However, the reproductions were clearly labelled that were such and it was also indicated in which museum the originals are displayed.

Observation records showed that visitors were spending more time looking at the Parthenon Frieze in Athens, which was a mixture of reproduction and original, than that in London. More visitors appeared to be getting information from the London object itself. There were more visitors carrying and checking a guidebook for the London object than for the Athens object, although a similar number were only giving each object a quick glance.

Does context have any bearing on what objects are displayed within that context? (For example, would an art gallery display a reproduction of a well-known work if displaying the original were economically unviable or impractical for other reasons.)

Bryony Shepherd (2018) she spoke about the Cast Courts in the V & A. These galleries display reproductions of famous objects to allow visitors who might not otherwise to be able visit the original. They were not devised as fakes and are all clearly labelled as reproductions. She spoke about how being empowered with this knowledge then it can add to the visitor's understanding of the object's value and the reproduction can be discussed as an object in its own right.[3] She also spoke about how looking at the reproduction can add to the story that the object tells.

Leila Meinertas (2018) spoke about displaying furniture and the difficulties of being able to determine the difference between two Chippendale chairs made from the same pattern with one having a provenance comprising an invoice and the name of the family who bought it

[3] On a recent visit to the archaeological excavations at Pompeii it was observed, that for reasons of protecting some the fragile original objects, exact reproductions (complete with damage) had been made to put in the site and the originals placed in the Naples Archaeological Museum.

which shows it was made by the Chippendale workshop, the other just looking like a Chippendale chair.

She then spoke about the Parthenon and the trend for filling in the missing bits but pointed out that that this has to be something that is reversible. There are times, though, when keeping the object exactly the same will be impossible, mentioning the example of visitors sitting on chairs and damaging them beyond repair. In the observed objects both 'Dodo' and 'Sitatunga' could not be original objects because they were killed and then stuffed to make them look as realistic as possible. The original objects were the ones living in their natural environments. This does not, however, negate the learning objectives of the museum which might be better presented with this three-dimensional model as opposed to a two-dimensional picture. Both these objects were among the highest values for the total of 'Slight', 'Moderate' and 'Extensive' and displayed amongst similarly reconstructed objects showing that this method of display can be justified.

Does context affect the information seeking and retrieval process? If so, how?

Taking 'Reading title' as the quickest measurement of the information seeking process the highest value for levels of contextual information was for 'Context made clear by written information only' with that for 'Context not made clear' the lowest. 'Read description' and 'Read contextual information' had the same result order. The order was reversed for the total of 'Slight', 'Moderate' and 'Extensive'. When the contextual information was made clear by written information and the display, more visitors looked at a specific part of the object. However, the value was also high when contextual information was made clear by written information only.

It suggests that having written information is an incentive to read at least some of that information but that if there is information to be gained from the object itself then that is a sufficient substitute. This layout included 'Sitatunga' and it is possible that visitors were reading the operating instructions rather than other information. When there is no contextual information at all, and the visitors were in a group, this led to information retrieval though discussion with each other rather than the use of a guidebook. When understanding of the object is made as clear as possible in all ways visitors will look more closely at one particular part of the object which affects the number static viewpoints, although in this case it is a positive thing.

The gallery layout with the lowest total for 'slight', 'moderate' and 'extensive' factors was 'Drawn to a particular object'. Whilst it had zero values for 'Read title' and 'Read description' the value of 'Read gallery notes' was relatively high suggesting that the layout itself provides some information about the object but not quite enough to satisfy information needs. Once it had been determined what the object was by being directed by gallery notes and layout it was deemed unnecessary by the visitor to read the information attached to the object itself as well.

Of the fifteen objects where the title was read there were seven objects for which the value of the description also being read exceeded 20%. These were spread evenly throughout the range of totals for 'slight', 'moderate' and 'extensive' but there were no records for the gallery layout 'Led to a particular object' or the when the contextual information was not made clear by either written information or the display.

More visitors spent time looking at an object when the gallery layout was 'Led in a particular way' and the least time when exploration was encouraged. However, this gallery layout type had the least number of views from a static point.

Chapter 11. CONCLUSIONS

1) Overview of Results

Looking the overall figures, and doing a simple total of each of the measured scores for each object, the types of display or gallery layout that come out on top are 'Freestanding – Unrelated', 'Glass Case Objects', 'Single Objects', 'Context made clear by written information only' and 'Intended to get overview'. Those which have the lowest score are 'Freestanding – Inhabited', 'Freestanding Objects', 'Multiple Objects', 'Context made clear by display and written information' and 'Specified theme'.

Each of the categories which have the highest score, except for 'Glass Case Objects' the object 'Tower of Babel' is included in this category; for each of the categories which have the lowest score 'Panelled Room from a House at Bromley-by-Bow 1606' is included. 'Tower of Babel' also highest average total score and 'Panelled Room' the second lowest average total score.

Two other objects which also follow this pattern are the 'Rosetta Stone', which is part of the highest scoring categories 'Glass Case Objects', 'Single Objects', 'Context made clear by written information only' and 'Intended to get overview' and 'Parthenon Frieze' which is part of the lowest scoring categories for 'Freestanding Objects' and 'Context made clear by display and written information' and in 'Freestanding – Single' which had the second lowest score for display type.

If we use these objects as generic of their display type we can see trends which do show that the context in which an object is set does have some effect on the information which that object conveys. Just as important as the context for gleaning this information so is the object itself and the way in which the visitor can relate to it. For the 'Tower of Babel' this relationship was a personal one with the visitor trying to recognise the shops which comprised the object; for the 'Rosetta Stone' this was more to do with the prestigious nature of the object and the fact that it might be on the 'tick list' of many people.

The other important factor that needs to be taken into account regarding the 'Tower of Babel' is the quite unexpected placement of a contemporary sculpture in a gallery of medieval and renaissance sculpture which must have made an impact on the visitor. Many visitors stopped not just to look, but to take notice of information which was displayed by museum staff and which they could discern for themselves. The objects which scored lowest were

those which were very traditionally displayed although this was demonstrated to be less important than the object in the case of the fashion related objects. The Parthenon objects in Athens also score much more highly than those in London because of the manner of display where they had recreated how they might have originally stood. The Athens museum also had the advantage of being geographically close to the original site and perhaps with the best context of all.

If one uses the values of standard deviation for each observational scale as a measure of the spread of the different ways in which visitors respond to the various methods of display then some broad conclusions can be draw. For the comparison between all freestanding and all Glass Case Objects, all single and all Multiple Objects, for the different types of gallery display and also for the two Parthenon objects the difference between minimum and maximum standard deviation is the lowest for the Intrinsic Scale. This is the scale which includes reading the title and description and measures the easiest to find information. In each case, too, these differences in standard deviation were much higher for the Acquired Scale which measures relatively harder to find information with the Gallery Type having the greatest difference. These same groups also had the highest figure for same measurement of difference in standard deviation for observation, generally implying a difference in observation time.

The differences in levels of contextual information were different from this with lowest values being for the Sensory Scale and the Photography Scale. The values for Acquired Scale and Looking Scale were also high.

If an overall conclusion is to be drawn then one can say that the context in which an object is set does make a difference, but the information needs to be relatively easy to find and the nature of the object may overrule any contextual setting that the curator has intended.

2) Who will benefit from this research?

This research has added to the existing knowledge that museum education departments use to display objects in order to assist visitors in better understanding what they are seeing. This has been a constant process since visitor behaviour was first observed and measured and is necessary step in making such endeavours more fruitful (Nielsen, 1946) and very much an ongoing process. In his interview, David Judd (2018), the Creative Projects Manager in the Learning Department at the V&A not only described how they carried out an audit of learning styles but in designing a display on the manufacture of encaustic tiles ask people if they understood this process from the initial text they had provided to describe it.

Whilst this research did not cover how children look at objects it could easily be adapted for this purpose. Research by Charitonos (2011) and Hicks (2005) shows that in these times as the culture and expectations have changed and technology has advanced seemingly exponentially, it has become a great challenge and that modern museums need to look back at and learn from the sometimes poor experiences of museum visits in the past. As Hicks (2005) puts it:

> *Today's museums can still be places that assist the journey from childhood to adulthood, places where children can experience Growing Up.*

The social expectations of what museums are have also changed. Whilst the educational expectations have remained there are expectations, described in the definition of museum, which are about community identity and social inclusion. Barron and Leask (2017) evaluated the effectiveness of late-night events at museums in attracting a greater diversity of visitors. Whilst this research was only collecting a limited amount of demographic data this could easily be expanded to collect this information.

Secondly, the techniques developed to capture observed data, and the different measurements of scale used to reinterpret qualitative data in a quantitative way, are flexible, adaptable, easy to use and make use of readily available software. They readily show the different aspects of an object's information whether that is a natural part of the object or has been deliberately displayed by a curator.

Thirdly, it has added to the arguments for object as document. Observational data shows that of the 514 records in some 115 cases visitors took notice of at least one piece of intrinsic information, that is the title or description of the object, contextual information, information regarding the gallery in which the object is displayed, or made use of additional audio or visual information or looked at the museum website. Whilst Robert Pagès (Buckland, 2018) would describe these as secondary documents, it should be pointed out that one observed object, 0006, had zero value for any textual information being read but an extremely high value for information being gleaned from the object itself. One object which does fit in with Pagès argument is 0008 where no intrinsic textual was read but information, separate from the object, in this case being shared through discussion or read in a guidebook, was used considerably. In both these cases the visitor is perceiving the object as document and regarding the object as evidence in support of a fact.

There are two objects whose high level of visitor interest in their intrinsic information which directly support two of Buckland's (2014, 2018) viewpoints of how documents are created. The first of these is 'The Tower of Babel' which shows the functional viewpoint. Whilst it was not ostensibly made as a document it is factually documenting contemporary history, architecture and geographical locations with the visitors understanding and recognising what they are seeing. The second of these is the Rosetta Stone, which demonstrates the viewpoint of a document specifically created as a document.

These same two objects also support the concept of object biography with the Rosetta Stone recording the story of King Ptolemy V Epiphanes, at least a part of it, and The Tower of Babel a story of modern London. The visitor can compare these objects with what they already know (Dudley, 2010:151-2) even that is slightly easier with The Tower of Babel, which demonstrates a sense of belonging and as is the case with the Rosetta Stone obvious traces of use (Albano, 2007).

3) Potential impact

The application that was developed is a very flexible way of collecting observational data. As the test versions demonstrate it was very simple adapt it to the changing needs of data collection. The technology and software used in the research are easy to obtain and provide a simple alternative to pen and paper and a cheaper alternative to some of the professional technology available on the market. This would make it more suitable for the smaller museum with tighter budgetary requirements or the individual researcher.

It shows the importance of the visitor making, or already having, a personal relationship with the object they are viewing. The objects with the highest degree of informational interest were those which managed to do this. In the case of 'The Tower of Babel' this was an emotional and very personal connection with visitors recognising places which this sculpture represented. In the case of the Rosetta Stone this was mainly an intellectual connection even if that was only wanting to tick off the item on a list of 'must see' items.

It does, though, also show that the traditional museum with its rows of glass cases and similar objects are not necessarily the best way of displaying objects. The exception to this is, again, the Rosetta Stone. If one compares this to the Ardabil Carpet, though, then the reason for the differences in informational interest might be entirely due to the fame of the object rather

than the object itself.

Other factors which this research drew out were the context in which the objects are set. Those which have some sort of context allow the visitor to start making connections and drawing out information. Placing objects in some sort of order, such as the chronological order of the Fashion Gallery in the V&A, can be important. The opportunity to handle or interact with objects also makes a difference although, whilst the curators in their interviews highlighted this, the observational data of this research did not seem to corroborate their enthusiasm. However, the desire for visitors to touch and interact was nevertheless an important part of many of their visits.

The one thing noted by the curators' interviews that the observational data definitely supported was the reading of labels and how important both the content of the label and its placement on the object are. The limited time spent by visitors looking at objects means that the label needs to grab their attention very quickly.

This research also backs up some of the arguments of documentation theory with the quantitative data illustrating the concept of document as thing.

4) Future developments

The two major developments involve the refinement of the analysis of existing data and the refinement in which data is collected.

There were data which were collected but not used which could be analysed to get better results. This included factors such as the time of day when the observations were made which could be used to compare these observations. Research into the effects of museum fatigue has shown that visitors' eyes glaze over when they have spent too long looking at objects. This could be used in conjunction with the time the visitor entered the museum and at what point in their visit they were looking at the object. In addition, it could be investigated as to whether the actual time of day, regardless of length of visit made a difference. For example, it was noted in this research that the lighting for the 'Bromley-by-Bow' exhibit was not working. A time of day, or even year, when the natural light is better might make a difference to the information gleaned by the visitor. Nielsen (1946) also suggest that the time of year could be compared with a comparison made between visits made in the winter and in the summer.

Other data which were gathered were demographic data which could be analysed to compare the differences in the information gleaned by single visitors or groups. The data recording where the visitor has come from or is going to within the museum could be used to analyse their information seeking and retrieval process. For example, does it make a difference if the visitor is browsing or has been directed by a tour guide. Similarly, the difference made by type of gallery could be investigated. Does the visitor spend more time seeking data if they have paid to see a particular exhibit or if they know it is only going to be displayed for a short time?

Melton (1972) also suggests looking at the number of objects in a gallery and seeing what difference that makes.

There are some parameters which are a bit too subjective. This especially applies to the Intrinsic Scale with the factors 'Slight', 'Moderate' and 'Extensive'. It is also acknowledged that it was often the opinion of the researcher that decided whether a visitor was taking notice of a particular piece of information.

Ideally, some form of negative weighting should be applied to many of the scale factors to give more accurate values. For example, if the title is displayed, and not read, then this should incur a penalty rather than a zero value. It was also noted that when the scales were totalled into an overall result some factors overlapped and negative weightings could help prevent this.

Ideally, the visitors being observed should be interviewed, or filmed, to confirm that what is being recorded about how they are interacting with an object is what they are actually doing. This would necessitate more data collectors and the data collection software designed for this research, whilst straightforward for the researcher to use is still rather user unfriendly.

Bibliography

Albano, C. (2007). Displaying lives: the narrative of objects in biographical exhibitions. *Museum and Society,* 5 (1), pp. 15–28.

Alberti, Samuel J.M.M., (2005). Objects and the Museum. *Isis,* 96 (4), pp. 559–571.

Ballantyne, R. and Uzzell, D. (2011). Looking Back and Looking Forward The Rise of the Visitor-centered Museum. *Curator,* 54 (1), pp. 85–92.

Barbosa, B. and Brito, P. Q. (2012). Do open day events develop art museum audiences? *Museum Management and Curatorship,* 27 (1), pp. 17–33.

Barr, J. (2005). Dumbing down intellectual culture: Frank Furedi, lifelong learning and museums. *Museum and Society,* 3 (2), pp. 98–114.

Barron, P. and Leask, A., 2017. Visitor engagement at museums Generation Y and 'Lates' events at the National Museum of Scotland. *Museum Management and Curatorship*, 32 (5), pp. 473–490.

Barry, R., (1969) *Inert Gas Series/Helium, Neon, Argon, Krypton, Xenon/From a Measured Volume to Indefinite Expansion*. Available at: https://www.moma.org/collection/works/109710 (accessed 18 December 2019)

Barthes, R. (2000). *Camera Lucida*, trans. Richard Howard, London: Vintage.

Bayne, S., Ross, J. and Williamson, Z. (2009). Objects, subjects, bits and bytes: learning from the digital collections of the National Museums. *Museum and Society*, 7 (2), pp. 110–124.

BBC News (2013a). *Museum visitors can "unwrap" a mummy*. BBC News, 28 June [online]. Available at: https://www.bbc.co.uk/news/science-environment-23045904.

BBC News (2013b). *Readers explain their refugee heirlooms*. BBC News, 18 November [online]. Available at: https://www.bbc.co.uk/news/magazine-24954580.

BBC News (2014a). *Disobedient objects chart history of protest at V&A*. BBC News, 25 July [online]. Available at: https://www.bbc.co.uk/news/entertainment-arts-28445742.

BBC News (2014b). *Outdoor replica WW1 trench opens in Cavan.* BBC News, 8 August [online]. Available at https://www.bbc.co.uk/news/uk-northern-ireland-28707240.

BBC News (2017). *British Museum sorry for labelling row*. BBC News, 13 September [online]. Available at: https://www.bbc.co.uk/news/entertainment-arts-41254560.

Berns, Steph (2015). Considering the glass case: *Journal Of Material Culture,* 21(2), 153–168.

Berryman, J. (2018). Art as document: on conceptual art and documentation. *Journal Of Documentation,* 74 (6), 1149–1161.

Best, K., 2012. Making museum tours better: understanding what a guided tour really is and what a tour guide really does. *Museum Management and Curatorship,* 27 (1), 35–52.

Bitgood, S.C. and Patterson, D.D. (1993). The Effects of Gallery Changes on Visitor Reading and Object Viewing Time. *Environment And Behaviour*, 25 (6), pp. 761–781.

Brida, Juan. Gabriel., Disegna, Marta and Scuderi, Raffaele (2013). The behaviour of repeat visitors to museums: review and empirical findings. *Quality & Quantity* 48, pp. 2817–2840.

British Museum, (1830). *A Guide To The Beauties of the British Museum*. London: Thomas and George Underwood.

British Museum (1855). *A Synopsis of the Contents of the British Museum Sixty Second Edition*. London: Woodfall and Kinder.

British Museum, (1899). *A Guide To The Beauties of the British Museum*. London: Bloomsbury.

British Museum, (2017a). *The Parthenon Sculptures In The British Museum, British Museum.* Available at: https://www.britishmuseum.org/parthenon-sculptures-british-museum (Accessed 1 January 2018).

British Museum, (2017b). *History of the British Museum, British Museum*. Available at: http://www.britishmuseum.org/about_us/the_museums_story/general_history.aspx (Accessed 1 January 2018).

British Museum, (2017c). *The Parthenon Sculptures: Facts and Figures, British Museum.* Available at: http://www.britishmuseum.org/about_us/news_and_press/statements/parthenon_sculptures/facts_and_figures.aspx (Accessed 1 January 2018).

Buckland, M. (1991). Information as thing. *Journal of the American Society of Information Science,* 42 (5), pp. 351-60.

Buckland, M. (2014). Documentality beyond documents. *The Monist,* 97 (2), pp.179–186.

Buckland, M. (2017). *Information and Society*. Cambridge, MA: MIT Press. The MIT Press Essential Knowledge Series.

Buckland, M. (2018). Document Theory. *Knowledge Organisation,* 45 (5), pp. 425–436.

Casey, Valerie (2003). The museum effect: gazing from object to performance in the contemporary cultural-history museum. *Cultural Institutions and Digital Technology*, École du Louvre, 8-12 September.

Chalfen, R. (1987). *Snapshot Versions of Life*. Bowling Green, Ohio: Bowling Green State University Popular Press.

Chandler, L. (2009). 'Journey without maps': unsettling curatorship in cross-cultural contexts. *Museum and Society,* 7 (2), 74–91.

Chaplin, S. (2008). Nature dissected, or dissection naturalized? The case of John Hunter's museum. *Museum and Society,* 6 (2), 135–151.

Charitonos, K. (2011). Museum Learning via Social Media: (How) Can Interactions. *Learning, Media and Technology Doctoral Conference*, London, 4 July.

Chatterjee, H., Vreeland, S. and Noble, G. (2009). Museopathy: Exploring the Healing Potential of Handling Museum Objects. *Museum and Society,* 7(3), 164–177.

Cobbledick, S. (1996). The information-seeking behavior of artists: exploratory interviews. *The Library Quarterly*, 66 (4), pp. 343-372.

Cole, H. (1857). *Introductory Addresses on the Science and Art Department and the South Kensington Museum No. 1 The Functions of the Science and Art Department*. London: Chapman And Hall.

Conn, S. (2010). *Do Museums Still Need Objects?* Philadelphia: University of Pennsylvania Press, Inc.

Cowan, S. (2004). Informing visual poetry: information needs and sources. *Art Documentation*, 23 (2) pp. 14-20.

Dahl, T.I., Entner, P.S., Johansen, A-M.H., and Vittersø, J. (2013). Is Our Fascination With Museum Displays More About What We Think or How We Feel?. *Visitor Studies*, 16 (2), pp. 160–180.

DeWalt, K. M. & DeWalt, B. R. (2002). *Participant observation: a guide for fieldworkers*. Walnut Creek, CA: AltaMira Press.

Dim, Eyal and Kuflik, Tsvi (2014). Automatic Detection of Social Behavior of Museum Visitor Pairs. *ACM Transactions on Interactive Intelligent Systems*, Article No. 17.

Dirsehan, T. (2011). Comparison between Holistic Museum Visitors and Utilitarian Museum Visitors. International. *Journal of Marketing Studies*, 3 (4), pp.78–94.

Duncan, C. (1995). *Civilizing Rituals: inside public art museums.* London and New York: Routledge

Englander, M. (2012). The Interview: Data Collection in Descriptive Phenomenological Human Scientific Research. *Journal of Phenomenological Psychology*, 43, pp. 13–35.

Erlandson, David A., Harris, Edward L., Skipper, Barbara L., & Allen, Steve D. (1993). *Doing naturalistic inquiry: a guide to methods*. Newbury Park, CA: Sage.

Falk, J.H. (2009). *Identity and the Museum Visitor Experience*. Walnut Creek, CA.: Left Coast Press.

Falk, J.H., and Dierking, L.D. (2000). *Learning from museums: Visitor experiences and the making of meaning*. Lanham, MD.: Altamira Press

FileMaker (2005). *FileMaker Development Conventions*. Available at: https://www.filemaker.com/downloads/pdf/FMDev_ConvNov05.pdf (accessed 11.1.05).

Forward, E.A. (compiler), 1923. *Catalogue of the Collections in the South Kensington Museum Land Transport III Railway Locomotives and Rolling Stock*. London: HM Stationery Office.

Foster, H. (2001) *The Return of the Real, the avant-garde at the end of the Century.* Cambridge Mass., London: MIT Press.

Fouseki, K., (2010). Community voices, curatorial choices': community consultation for the 1807 exhibitions. *Museum and Society*, 8 (3), pp. 180–192.

Fowler, H.W. and Fowler, F.G. (Eds) (1964). *The Concise Oxford Dictionary of Current English, 5th edition.* Oxford: Clarendon Press

Frohmann, B. (2009) Revisiting "what is a document?" *Journal Of Documentation,* 65 (2), pp. 291–303.

Galloway, S. and Stanley, J. (2004). Thinking Outside the Box: Galleries, Museums and Evaluation. *Museum and Society*, 2 (2) pp.125-146.

Gardner, C. and Agerman Ross, J. (2018). Personal interview with C. Serbutt, London.

Gorichanaz, T. (2017). Applied epistemology and understanding in information studies. *Information Research,* 22(4), paper 776. Retrieved from http://InformationR.net/ir/22-4/paper776.html

Gorichanaz, T. (2019). A First-Person Theory of Documentation. *Journal Of Documentation,* 75 (1), 190–212.

Goulding, C. (2000). The Museum Environment and the Visitor Experience. *European Journal of Marketing*, 34 (3/4), pp. 261–278.

Great Exhibition, (1851). *Official Descriptive and Illustrated Catalogue of The Great Exhibition*. London: Spicer Brothers.

Hall, S. (1997). 'The Work of Representation', in Stuart Hall (ed), *Representation: Cultural Representations and Signifying Practices*. London: Sage Publications, 15-63.

Hatton, A. (2012). The Conceptual Roots Of Museum Management Dilemmas. *Museum Management and Curatorship,* 27 (2), 129–147.

Hennink, M., Hutter, I., & Bailey, A. (2011). *Qualitative research methods*. London, England: Sage.

Hetherington, K. (2010). The Empty Gallery? Issues Of Subjects, Objects And Spaces. *Museum and Society*, 8 (2), 112–117.

Hicks, M. (2005). 'A whole new world': the young person's experience of visiting Sydney Technological Museum. *Museum and Society,* 3 (2), 66–80.

Hidi, S. and Renninger, K. (2006). The four-phase model of interest development. *Educational Psychologist*, 41 (2), pp. 111–127.

Hjørland, B. (2000). Documents, Memory Institutions and Information Science. *Journal Of Documentation,* 56 (1), pp. 27–41.

Hsu, P-L., (2012). *Different Ways of Meaning Making A Case Study About Eight East Asian Museum Visitors' Reflections and Behavior Patterns in a Comprehensive American Art Museum.* PhD Thesis, Indiana University, Indiana.

Hudson, K., (1998) The Museum Refuses to Stand Still. *Museum International*, 50 (1), pp. 43-50.

Illeris, H. (2006). Museums and galleries as performative sites for lifelong learning: constructions, deconstructions and reconstructions of audience positions in museum and gallery education. *Museum and Society* 4 (1), 15–26.

Illeris, H. (2009). Visual events and the friendly eye: modes of educating vision in new educational settings in Danish art galleries. *Museum and Society* 7(1), 16–31.

Insley, J. (2008). Little landscapes: Dioramas in museum displays. *Endeavour* 32(1), pp. 27-31.

Judd, D. (2018). Personal interview with C. Serbutt, London.

Jung, Y. (2011). The art museum ecosystem: a new alternative model. *Museum Management and Curatorship,* 26 (4), pp. 321-328.

Kashtanov, S.M. (2005) *S.O. Shmidt i problema opredeleniya istoricheskogo istochnika. Istochnikovedenie. (S.O. Shmidt and the problem of historical source definition. Source studies.).* Kazakov, R.B., Medushevskaya, O.M., and Rumyantseva, M.F., Eds., Moscow: RGGU, 2005, pp. 130-134.

Kawulich, B.B. (2005). Participant Observation as a Data Collection Method. *Forum: Qualitative Social Research*, 6, Article 43.

Khan, Y. (2014). *Snap Unhappy*. Museums Journal, February, p.19

Kotler, N. and Kotler, P. (2000). Can museums be all things to all people? Missions, Goals, and Marketing's Role. *Museum Management and Curatorship* 18 (3), pp. 271–287.

Kravchyna, V. and Hastings, S. (2002). Informational value of museum web sites. *First Monday*, 7(2), Available at: https://doi.org/10.5210/fm.v7i2.929.

Lanir, J., Kuflik, T., Dim, E., Wecker, A.J. and Stock (2013). The Influence of a Location-Aware Mobile Guide on Museum Visitors' Behavior. *Interacting with Computers*, 25 (6), pp. 443-460.

Latham, K.F. (2012). Museum object as document: Using Buckland's information concepts to understand museum experiences. *Journal Of Documentation,* 68 (1), pp. 45–71.

Latham, Kiersten, F. (2013). Numinous Experiences With Museum Objects. *Visitor Studies,* 16 (1), pp. 3–20.

Latham, K.F., Narayan, B. and Gorichinaz, T. (2018). Encountering the muse: An exploration of the relationship between inspiration and information in the museum context. *Journal Of Librarianship And Information Science*, 51 (4), pp. 1067-1076.

Lazarinis, F. (2011). Exploring the effectiveness of information searching tools on Greek museum websites. *Museum Management and Curatorship,* 26 (4), 391–408.

Lindauer, M. (2005). What to ask and how to answer: a comparative analysis of methodologies and philosophies of summative exhibit evaluation, *Museum and Society,* 3 (3), pp. 137–152.

Lund, N.W. (2010). Document, text and medium: concepts, theories and disciplines. *Journal Of Documentation,* 66 (5), pp. 734–749.

Lund, N.W. and Buckland, M. (2008). Document, documentation, and the Document Academy: introduction. *Archival Science,* 8, pp. 161-164.

Majer, M. (1997). *Review: [Untitled]*. Ribeiro, A., 1995. The Art of Dress: Fashion in England and France, 1750–1820, *Studies in the Decorative Arts*, 4 (2), pp. 116-120.

Marshall, Catherine & Rossman, Gretchen B. (1989). *Designing qualitative research*. Newbury Park, CA: Sage.

Marty, P. F. (2008). Museum websites and museum visitors: Digital museum resources and their use. *Museum Management and Curatorship* 23(1), pp. 81–99.

Marty, P.F. and Twidale, M.B. (2011). Museum Informatics Across the Curriculum: Ten Years of Preparing LIS Students for Careers Transcending Libraries, Archives and Museums. *Journal of Education for Library and Information Science* 52 (1), pp. 9–22.

McCarthy, C. (2007). Museum factions - the transformation of museum studies. *Museum and Society,* 5 (3) pp. 179–185.

McCarthy, J. and Ciolfi, L. (2008). Place as Dialogue: Understanding and Supporting the Museum Experience. *International Journal of Heritage Studies*, 14 (3), pp. 247–267.

McManus, P. (1989). Oh, yes, they do: How museum visitors read labels and interact with exhibit text. *Curator*, 32(3), pp. 174-139.

Meinertas, L. (2018). Personal interview with C. Serbutt, London.

Melton, A.W., (1935). Problems of Installation in Museums of Art. *American Association of Museums*, New Series, No. 14 [reprinted as part of: Melton, A.W., (1972). Visitor Behavior in Museums: Some Early Research in Environmental Design. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 14, pp. 393–403.].

Melton, A.W., (1972). Visitor Behavior in Museums: Some Early Research in Environmental Design. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 14, pp. 393–403.

Merriam Webster (2020) *Object.* Available at: https://www.merriam-webster.com/dictionary/object (Accessed: 14 January 2020).

Morishita, M. (2007). Struggles between curators and artists: the case of the Tochigi Prefectural Museum of Fine Arts in Japan in the early 1980s. *Museum and Society*, 5 (2), pp. 86-102.

Moussouri, T. (2005). Automated visitor tracking and data analysis for research and evaluation in museums. *Presentation abstract for the 18th annual Visitor Studies Association Conference*, Philadelphia, PA.

National Archives, Kew (2013) 22 February. Available at https://webarchive.nationalarchives.gov.uk/social/search/result?q=quilt&account_include=a6c1a8db-c4a6-42b7-8777-2b09213b2b2b

Nelson, A.G. and Cohn S. (2015). Data Collection Methods for Evaluating Museum Programs and Exhibitions. *Journal of Museum Education*, 40 (1), pp. 27–36.

Nielsen, L.C., (1946). A Technique For Studying The Behaviour of Museum Visitors. *Journal of Educational Psychology,* 37(2), pp. 103–110.

Noldus, (2019). *Noldus Observer XT*. Available at: https://www.noldus.com/observer-xt (Accessed 7 December 2019).

Packer, J. and Ballantyne, R. (2005). Solitary vs. Shared: Exploring the Social Dimension of Museum Learning. *Curator*, 48 (2), pp. 177–192.

Peart, Bob. (1984). Impact of Exhibit Type on Knowledge Gain, Attitudes, and Behavior. *Curator* 27(3), pp. 220-237.

Pleshkevich, E.A. (2008). The Documentation Approach in the Theory of Archaeography and Documentation Science - a Comparative Analysis. *Scientific and Technical Information Processing*, 35 (2), pp. 99–103.

Pleshkevich, E.A. (2009). General Theory of a Document and Theory of Museumology: Points of Intersection. *Automatic Documentation and Mathematical Linguistics,* 43 (2), pp. 12–18.

Pleshkevich, E.A. (2017). Information as Reality in Inanimate Nature or Attributive Concept of Information 2.0 - Problems and Prospects of Development. *Automatic Documentation and Mathematical Linguistics*, 51 (2), pp. 75–78.

Pückler-Muskau, H. (1833). *Tour in England, Ireland, and France, in the years 1826, 1827, 1828 and 1829*. Philadelphia: Carey, Lea & Blanchard.

Raber, D. and Budd, J.M. (2003). "Information as sign: semiotics and information science", *Journal of Documentation,* 59 (5), pp. 507-22.

Richardson, H., (2014). *Changing face of the school trip*. BBC News, 9 March, [online]. Available at https://www.bbc.co.uk/news/education-26024118.

Robertson, B., (2004). The South Kensington Museum in context: an alternative history. *Museum and Society*, 2(1), pp. 1-14.

Rostami, P., Ashcroft, D. M. and Tully, M. P. (2018). A formative evaluation of the implementation of a medication safety data collection tool in English healthcare settings A qualitative interview study using normalisation process theory. *PLoS ONE*, 13(2), doi: 10.1371/journal.pone.0192224.

Rowland, N.J. and Rojas, F. (2006). Bringing technology back in: a critique of the institutionalist perspective on museums. *Museum and Society,* 4 (2), pp. 84–95.

Rubino, I., Barberis, C., Xhembulla, J. and Malnati, G. (2015). Integrating a Location-Based Mobile Game in the Museum Visit Evaluating Visitors' Behaviour and Learning, *ACM Journal on Computing and Cultural Heritage*, 8 (3), Article No. 15.

Scharf, G., (1845a) *Entrance of the Old British Museum, Montagu House*. Available at: https://research.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=736260&partId=1.

Scharf, G., (1845b) *Staircase of the Old British Museum, Montagu House*. Available at: https://www.bmimages.com/preview.asp?image=00034419001.

Schautz, A.M., van Dijk, A., E. M. and Meisart, A. (2016). The Use of Audio Guides to Collect Individualized Timing and Tracking Data in a Science Center Exhibition. *Visitor Studies*, 19 (1), pp. 96–116.

Sennheiser guidePORT audio guide system, (2019). *guidePort*. Available at: http://www.orbitalsound.com/sales-audio-guide-guideport.asp (Accessed 7 December 2019).

Shillingsburg, P.L. (1997). *Resisting Texts: Authority and Submission in Constructions of Meaning*. Ann Arbor, MI:University of Michigan Press.

Schreiber, James B., Pekarik, Andrew, J., Hanemann, Nadine, Doering, Zahava and Lee Ah-Jin (2013). Understanding Visitor Engagement and Behaviors, *Journal of Educational Research*, 106 (6), pp 462–468.

Shepherd, B. (2018). Personal interview with C. Serbutt, London.

Simpson, A.J. (2017). Beyond visitor statistics: value and metrics for university museums and collections. *Museum Management and Curatorship,* 32 (1), 20–39.

Skov, M. and Ingwersen, P. (2014). Museum web search behaviour of special interest visitors. *Library & Information Science Research*, 36, pp. 91–98.

Smith, A.H., 1899. A Guide to the Department of Greek and Roman Antiquities in the British Museum. The British Museum, London.

Snape, R. (2010). Objects of utility: cultural responses to industrial collections in municipal museums 1845-1914. *Museum and Society,* 8 (1), 18–36.

Sookhanaphibarn, K. and Thawonmas R. (2009) A Movement Data Analysis and Synthesis Tool for Museum Visitors' Behaviors. In: Muneesawang P., Wu F., Kumazawa I., Roeksabutr, F A., Liao M., Tang X. (eds) *Advances in Multimedia Information Processing - PCM 2009. PCM 2009. Lecture Notes in Computer Science*, vol 5879. Springer, Berlin, Heidelberg.

Stephens, S. (2014) *House Proud*. Museums Journal, January, p. 32.

Stones, M. (2014). *The Black Watch Castle and Museum, Perth*. Museums Journal, February, p. 46.

Sundberg, C. and Kjellman, U. (2018). The tattoo as a document. *Journal Of Documentation,* 74(1), pp. 18–35.

Swenson, A. (2019). Where are the numbers? Counting museum visitors in France. *Cultural Trends*, 28 (1), pp. 56–71.

Tan, L. (2012). The Participatory Museum (by Nina Simon). *Museum Management and Curatorship*, 27 (2), pp. 197–201.

Teryukova, Ekaterina (2014). Display of Religious Objects in a Museum Space: Russian museum experience in the 1920s and 1930s. *Material Religion,* 10 (2) pp. 255-258.

Tong, A., Sainsbury, P. and Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19 (6), pp. 349–357.

Trodd, Colin (2003). The discipline of pleasure; or, how art history looks at the art museum. *Museum and Society,* 1 (1), 17–29.

Tzortzi, Kali (2014). Movement in museums Mediating between museum intent and visitor experience. *Museum Management and Curatorship,* 29(4), pp. 327–348.

van House, N., Davis, M., Takhteyev, Y. Good, N., Wilhelm, A., and Finn, M. (2004). *From 'What?' to 'Why?': The Social Uses of Personal Photos*. ResearchGate, August.

Vartiainen, H. and Enkenberg, J. (2014). Participant-Led Photography as a Mediating Tool in Object-Orientated Learning in a Museum. *Visitor Studies*, 17 (1), pp. 66–88.

V&A Our Mission (2020). Available at: https://www.vam.ac.uk/info/about-us#our-mission (Accessed 05/01/20)

Vom Lehn, D. (2006). Embodying experience a video-based examination of visitors conduct and interaction in museums. *European Journal of Marketing*, 40 (11/12), pp. 1340–1359.

Walsh, John. A. (2011). "Images of God and Friends of God": The Holy Icon as Document. *Journal of the American Society for Information Science and Technology,* 63(1), pp. 185–194.

Walshe, Catherine, Ewing, Gail. and Griffiths, Jane (2012). Using observation as a data collection method to help understand patient and professional roles and actions in palliative care settings. *Palliative Medicine,* 26 (8), 1048–1054.

Welsh, P.H. (2005). Re-configuring Museums. *Museum Management and Curatorship* 20 (2), pp. 103–130.

Wehner, K. and Sear, M. (2010). 'Engaging the material world: object knowledge and Australian Journeys' in Dudley, S. (ed.) *Museum Materialities: Objects, Engagements, Interpretations*. New York, London: Routledge pp. 143-161.

Wiener, N. (1954). *The Human Use of Human Beings: Cybernetics and Society*. Houghton Miffin: New York, NY

Wilson, P. (1983). Second-Hand Knowledge: An Inquiry into Cognitive Authority. Westport, CT: Greenwood Press.

Wilson, R. (2010). Rethinking 1807: museums, knowledge and expertise. *Museum and Society,* 8 (3), 165–179.

Wood, E. and Latham, K.F. (2009). Object Knowledge: Researching Objects in the Museum Experience. *Reconstruction: Studies In Contemporary Culture* 9 (1).

Yalowitz, S.S. and Bronnenkant, K. (2009). Timing and Tracking Unlocking Visitor Behavior. *Visitor Studies*, 12 (1), pp. 47–64.

Yureneva, T.Y. (2003). *Muzeevedenie: Uchebnik dlya vysshei shkoly (Museumology: Textbook for higher schools)*, Moscow: Akademicheskii Prospekt.

Zacklad, M. (2004). Documents for action (DofA): infrastructures for distributed collective practices. *Workshop of the CSCW 2004 Conference, Distributed Collective Practice: Building New Directions for Infrastructural Studies*, Chicago

APPENDICES

Appendix 1: Field list for each table

OBJECT DESCRIPTION

FIELD	OPTIONS (IF APPLICABLE)
contextMadeClearByDisplay	Yes / No
contextMadeClearByWrittenInformation	Yes / No
contextNotSetInContext	Yes / No
contextOriginalContext	No
	Deliberately No - Time
	Deliberately No - Location
	Deliberately No - Time And Location
	Reproduced
	Yes
	Original / Reproduced
displayinfoHowObjectDisplayed	Glass Case - Single Object
	Glass Case - Similar Objects
	Glass Case - Themed Objects
	Glass Case - Comparative Objects
	Glass Case - Unrelated Objects
	Freestanding - Similar Objects
	Freestanding - Themed Objects
	Freestanding - Comparative Objects
	Freestanding - Unrelated Objects
	Freestanding - Inhabited
DisplayName	
id_ObjectReference	
interactionButtonPush	Yes / No
interactionIntended	Yes / No
metainformationCuratorOnHand	Yes / No
metainformationEvidential	Yes
	No
	Somewhat
	Unknown

metainformationOriginalObject	Original
	Reproduction
	Restored
	Augmented
	Model
metainformationProvenance	Not Stated
	Some Detail
	Stated Precisely
metainformationWrittenInformation	None
	Brief
	Moderate
	Verbose
objectinfoCity	
objectinfoCountry	
objectinfoCuratorIntent	
objectinfoEverydayArt	
objectinfoGallery	
objectinfoMuseum	Science Museum
	Natural History Museum
	V&A
	British Museum
	New Acropolis Museum
objectinfoMuseumCatalogueReference	
objectinfoObjectDescription	
objectinfoObjectType	
objectinfoPhoto	
objectinfoTitle	
relatedmediaAudio	Yes / No
relatedmediaAudio_Visual	Yes / No
relatedmediaSocial_Media	Yes / No
relatedmediaVisual	Yes / No
relatedmediaWebsite	Yes / No
sensesHearing	Yes / No
sensesSight	Yes / No
sensesSmell	Yes / No
sensesTaste	Yes / No
sensesTouch	Yes / No
textonobjectContextualInformation	Yes / No
textonobjectDescription	Yes / No
textonobjectTitle	Yes / No
textonobjectUnknown	Yes / No

OBJECT OBSERVATION DATA

FIELD	OPTIONS (IF APPLICABLE)
acquiredAskedCurator	Yes / No
acquiredDirectionGroupExpert	Yes / No
acquiredDirectionGuide	Yes / No
acquiredGroupDiscussion	Yes / No
acquiredGroupDiscussionExpertLeader	Yes / No
acquiredGuidebookCarrying	Yes / No
acquiredGuidebookChecked	Yes / No
acquiredGuidebookReferred	Yes / No
acquiredListenedGuide	Yes / No
acquiredListenedGuideOther	Yes / No
acquiredQuestionedGuide	Yes / No
acquiredRecognitionObjectRecognised	Yes / No
acquiredRecognitionSoughtOut	Yes / No
Date	(automatic)
demographics	Single Adult
	Adult Group
	Family Group
	Tourist Group
distancefromobjectMaximum	
distancefromobjectMinimum	
fromWhere	Adjacent Object
	Another Object
	Browsing
	By Guide
Gallery	Yes / No
Hearing	Yes / No
id_ObjectReference	
intrinsicCheckedWebsite	Yes / No
intrinsicExtensive	Yes / No
intrinsicListenedToAudio	Yes / No
intrinsicModerate	Yes / No
intrinsicReadContextualInformation	Yes / No
intrinsicReadDescription	Yes / No
intrinsicReadGalleryNotes	Yes / No
intrinsicReadTitle	Yes / No
intrinsicSlight	Yes / No
intrinsicWatchedAudioVisual	Yes / No
intrinsicWatchedVideo	Yes / No

lookingComparison	Yes / No
lookingMultipleAngles	Yes / No
lookingMultipleDistances	Yes / No
lookingQuickGlance	Yes / No
lookingRevisit	Yes / No
lookingSpecificPart	Yes / No
lookingStaticPoint	Yes / No
observationTime	(Calculated value)
photoMultipleAngles	Yes / No
photoMultipleShots	Yes / No
photoObject	Yes / No
photoObjectOthers	Yes / No
photoObjectSelf	Yes / No
photoSingleAngle	Yes / No
physicalButtonPush	Yes / No
physicalExtensive	Yes / No
physicalModerate	Yes / No
physicalNoInteraction	Yes / No
physicalSatOnObject	Yes / No
physicalSlight	Yes / No
Sight	Yes / No
Smell	Yes / No
Taste	Yes / No
TimeOfDay	(automatic)
Touch	Yes / No
whatNext	Adjacent Object
	Another Object
	Browsing
	By Guide
	Left Gallery

:

GALLERIES

FIELD	OPTIONS (IF APPLICABLE)
id_GalleryName	
galleryMuseum	
galleryPicture1	
galleryPicture2	
galleryInformation	
galleryInformationDescribedInCatalogue	
galleryInformationInformationDisplayed	
galleryInformationNamedGallery	
galleryInformationOtherMedia	
galleryInformationSponsoredGallery	
galleryLayoutDrawnToParticularObject	
galleryLayoutExplorationEncouraged	
galleryLayoutIntendedToGetOverview	
galleryLayoutLedAroundInAParticularWay	
galleryLayoutSpecifiedTheme	
galleryLayoutTakenOnAJourney	
galleryType	Free Permanent Gallery
	Free Permanent Gallery With Free Special Exhibition
	Free Permanent Gallery With Paid Special Exhibition
	Paid Permanent Gallery
	Free Special Exhibition
	Paid Special Exhibition

Appendix 2: Error Correction Coding

```
Update Object Observation Data to correct data entry

If [

        Object Observation Data::Physical Slight = "Yes"

        or

        Object Observation Data::Physical Moderate = "Yes"

        or

        Object Observation Data::Physical Extensive = "Yes"

        or

        Object Observation Data::Physical Sat On Object = "Yes"

        or

        Object Observation Data::Button Push = "Yes" ]

        Replace Field Contents [ Object Observation Data::Physical No Interaction + "No"
        ]
]

End If

If [

      Object Observation Data::Distance From Object Min = Object Observation
      Data::Distance From Object Max ]

      Replace Field Contents [ Object Observation Data::Looking Static Point + Replace
      with calculation: "Yes" ]

[ No dialog ]

Else

      Replace Field Contents [ Object Observation Data::Looking Static Point + Replace
      with calculation: "No" ]

[ No dialog ]


]

End If
```

Appendix 3: Pictures of observed objects

Figure 14 Object 0001: Balustrade from Temple of Athena Nike

Figure 15 Object 0002: Parthenon Frieze (Athens)

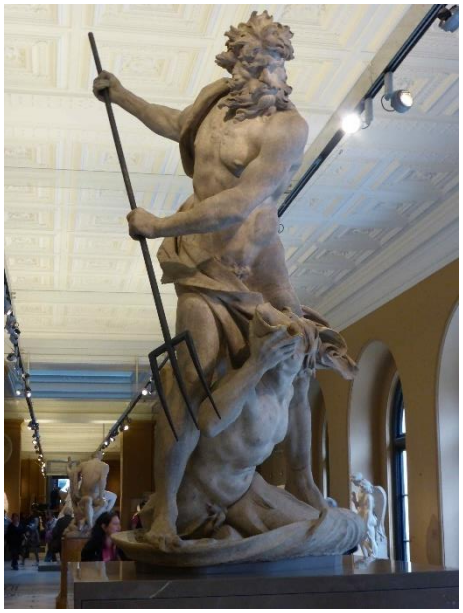


Figure 16 Object 0003: Neptune and Triton

Figure 17 Object 0004: A Row Of Sculpted Busts

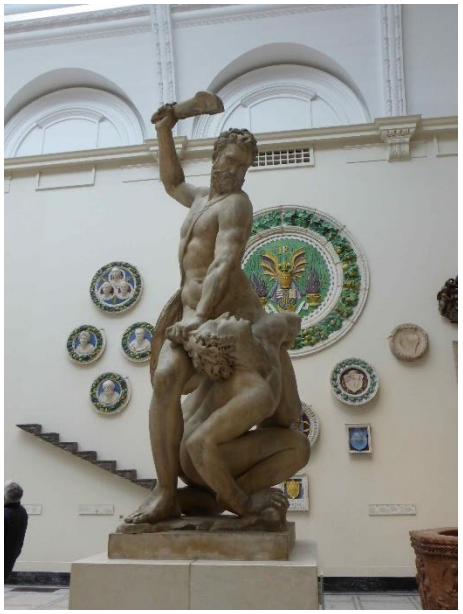


Figure 18 Object 0005: Samson Slaying A Philistine

Figure 19 Object 0006: British Rainwear 1910 – 2015

Figure 20 Object 0007: Radical Fashion 1990 –

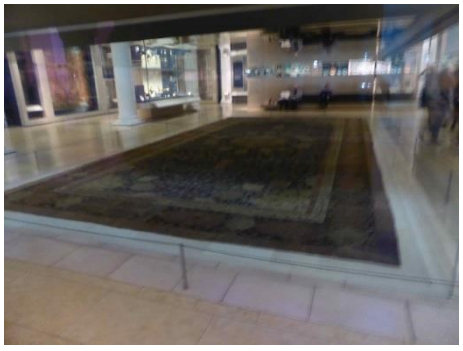


Figure 21 Object 0008: The Ardabil Carpet

Figure 22 Object 0009: Panelled Room At Bromley By Bow

Figure 23 Object 0010: The Tower Of Babel

Figure 24 Object 0011: Owl

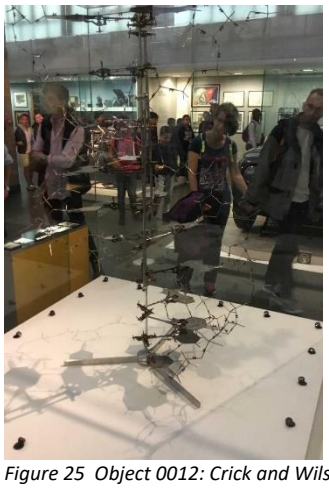


Figure 25 Object 0012: Crick and Wilson's DNA Model

Figure 26 Object 0013: Aerial Tuning Connector From Rugby Radio Station

Figure 27 Object 0014: Assyrian Winged Lion

Figure 28 Object 0015: Rosetta Stone

Figure 29 Object 0016: Mummy Coffins

Figure 30 Object 0017: Dodo

Figure 31 Object 0018: Sitatunga

Figure 32 Object 0019: Parthenon Frieze

Figure 33 Object 0020: Electric Trains

Appendix 4: Summary of analysis of results for all objects

Range Scale

Average movement for non-static observations	2.20 feet	(out of 133)
Non-static from 1foot minimum distance	18.20%	(85/467)
Average distance for static observations	2.83 feet	(out of 334)

Observation Scale

Median Time	1.00 min	
Average Time	1.49 mins	
< 1 minute	72.57%	(373/514)
2 - 3 minutes	22.57%	(116/514)
>4 minutes	4.86%	(25/514)

Looking Scale

Quick glance	34.83%	(179/514)
Static	70.82%	(364/514)
Specific part	22.96%	(118/514)

Acquired Scale

Carrying guidebook	22.57%	(116/514)
Object sought out	5.25%	(27/514)
Object recognised	2.34%	(12/514)
Group discussion	19.69%	(63/320)

Intrinsic Scale

Read title only	4.67%	(24/514)
Read description only	2.14%	(11/514)
Read title and description	10.70%	(55/514)
Read title, description and contextual information	1.56%	(8/514)
Read gallery notes	1.56%	(8/514)
Slight engagement	21.21%	(109/514)
Moderate engagement	22.76%	(117/514)
Extensive engagement	12.06%	(62/514)

Photography Scale

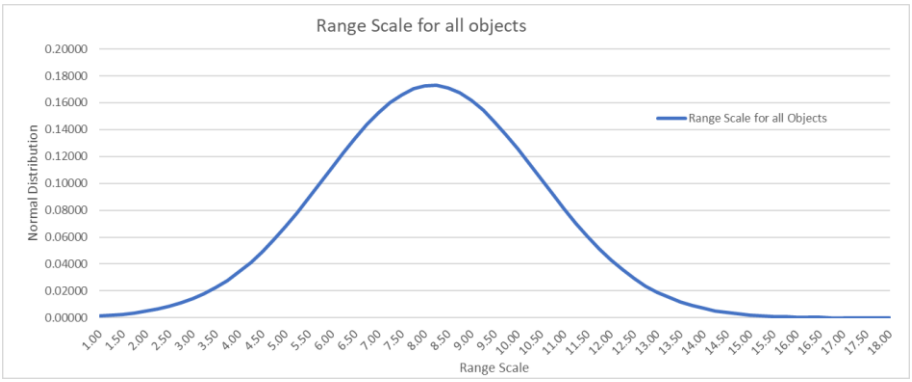
Total number of pictures taken	156
Total number of selfies	14

Sensory Scale

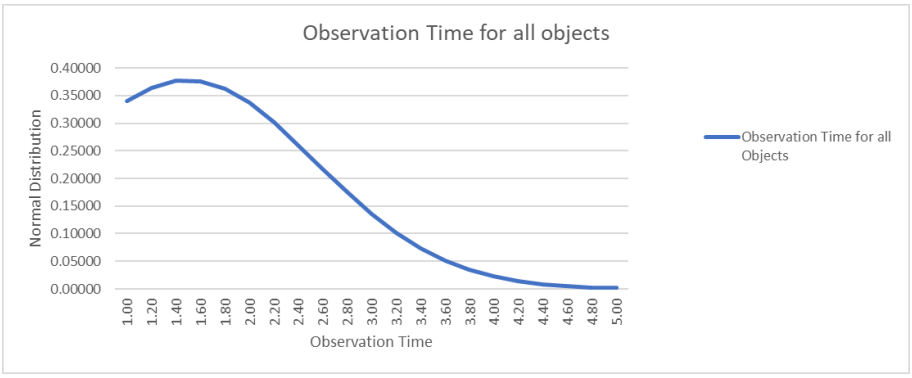
Touch	10.70%	(55/514)
Sight	22.37%	(115/514)
Hearing	21.79%	(112/514)
No senses used	58.76%	(300/514)
Combination of any two senses used	8.95%	(46/514)
All three senses used	2.33%	(12/514)

Physical Scale

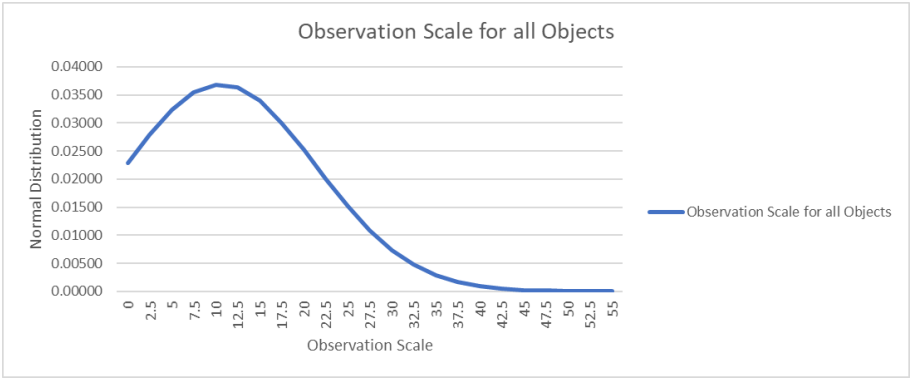
Slight interaction with object	10.12%	(52/514)
Moderate interaction with object	1.36%	(7/514)
Extensive interaction with object	0.39%	(2/514)



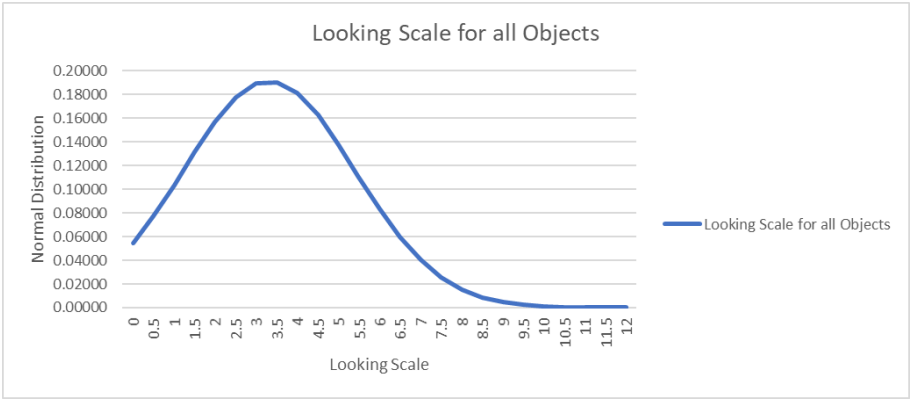
Graph 45 Range Scale for all Objects



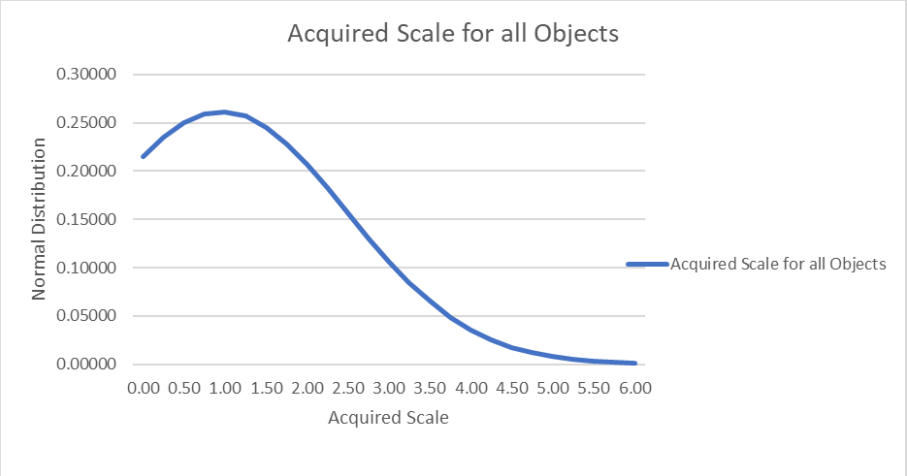
Graph 46 Observation Time (mins) for all Objects



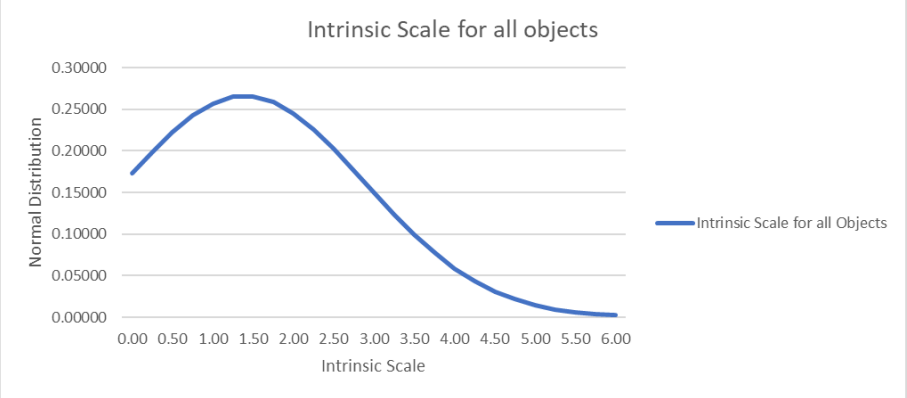
Graph 47 Observation Scale for all Objects



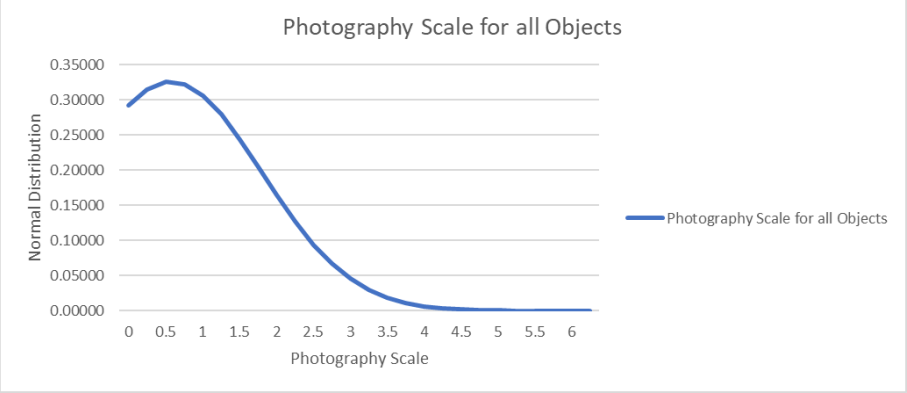
Graph 48 Looking Scale for all Objects



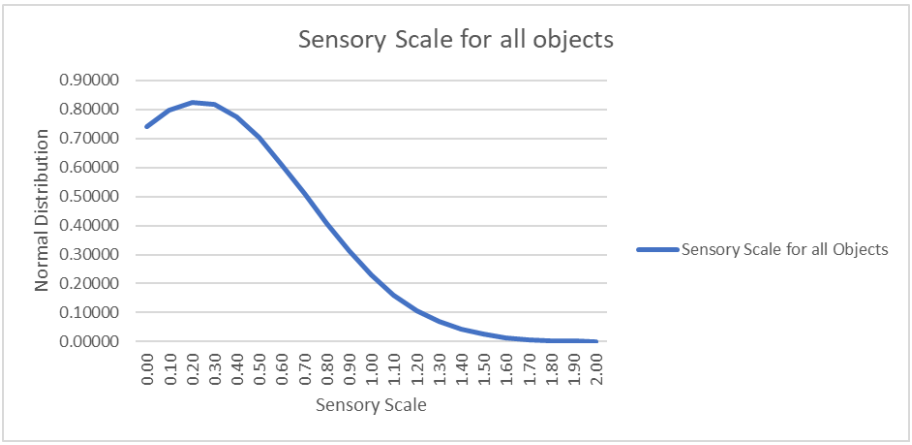
Graph 49 Acquired Scale for all Objects



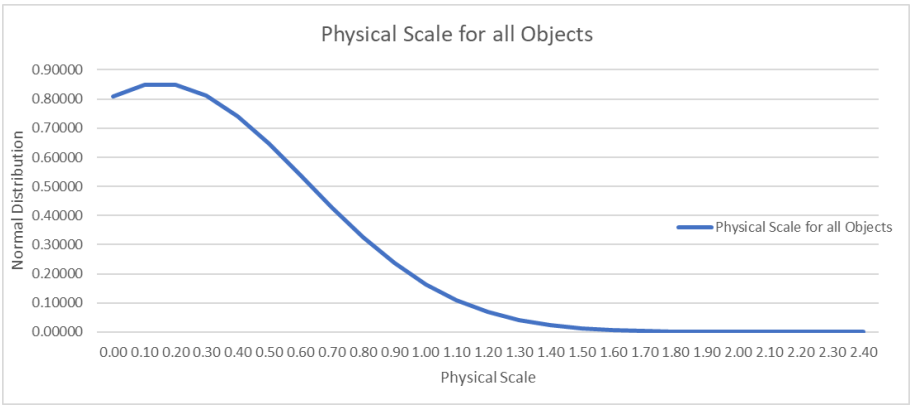
Graph 50 Intrinsic Scale for all Objects



Graph 51 Photography Scale for all Objects



Graph 52 Sensory Scale for all Objects



Graph 53 Physical Scale for all Objects

Appendix 5: Gallery Reviews

i. The Erechtheion

Gallery:	The Erechtheion
Museum:	The Acropolis Museum, Athens
Date of visit:	20 June 2015

The Erechtheion Gallery in the New Acropolis Museum displays artefacts and items used in its construction from the Erechtheion, a temple originally situated in the Acropolis.

The description of the gallery provided by the museum is moderate but is sufficient and factual and there is map outlining the location of the exhibits on the same level. As with all the other galleries in the museum this map indicates the route to the star of the museum:

προς αίθουσα Παρθενώνα (to the Parthenon Gallery)

The museum is set out chronologically and so there is a natural progression which leads the visitor to this gallery and on to the next, although there is no physical restriction on which way to go.

Similarly, as with the rest of the museum there is plenty of space around the exhibits in this gallery so that even with multiple visitor groups it does not seem crowded and it is straightforward to see the objects on display. Tour guides tended use a microphone and headset system so noise disruption was also reduced.

All object descriptions were in Greek and English.

The gallery floors were constructed of marble and stone and the design of the lifts, made out of stainless steel paneling, and the escalators lend to the impression of being in an ancient building. There is plenty of natural light augmented where necessary by the spotlighting of the objects.

Some of the objects were not labelled + however, in that case it was generally obvious what it was. For example, there was a model of what the Erechtheion might originally have looked

like. Whilst it was not labelled a model, or labelled as to what it was intended to represent, individual sections were and so it was made clear in that way. It made a pleasant change to have a museum that assumed some common sense in its visitors. This was also true in the case of the columns to entrance to the Erechtheion which were sited close enough to the model so that a comparison could be made.

As well as the freestanding parts of the temple there were also some more traditional styles of museum display with some objects, presumably the more fragile ones, set out in glass cases. This included objects such as a lamp in the shape of a warship.

There were also instances of similar objects which belonged together being placed together. This included the reconstructed Erechtheion frieze with a suggestion as to how it might have originally looked. Reconstruction seems to be feature of Greek archaeological display, but it is always obvious what is augmentation and what is original.

Perhaps the most interesting aspect of this in this gallery concerns the Caryatids. To avoid further damage conservation is taking place in situ. Visitors can see this conservation process taking place. It also allows the museum to create a database on factors regarding deterioration and, most interestingly of all, to preserve the traces of previous conservation attempts dating from the Roman period to 1971.

ii. Gallery of Soviet Occupation 1921-1991

Gallery: Gallery of Soviet Occupation 1921-1991

Museum: Georgian National Museum, Tbilisi (www.museum.ge)

Date of visit: 2 June 2014

The gallery was laid out chronologically, separated into various key time periods, and so travelling clockwise around the gallery one travelled through history from 1921 to 1991. However, the displays tended to blend into one another so there which gave continuity to the gallery. It was well laid out and told a moving story so that even if one knows little about this time in history you get a clear understanding of why it was like on both a national and a personal level.

There were many pictures with well explained captions, although the English translations sometimes appeared to be slightly misleading or inaccurate. Some objects on display had no caption or explanation but as these objects were sometimes set in an obvious grouping it made an explanation unnecessary. The textual information tended to be quotes or a simple statement of fact. There were also many photographs of people, with names, who had died. It almost made the gallery a memorial, but the impression was that that was not the intention.

One interesting object was a set of prison doors which were suspended from the ceiling between two pillars which blocked off the faces of the dead and their tragic history.

The entrance to the gallery is quite startling with a railway carriage facing out. It gives the impression you are being shot at and makes you feel ill at ease

The layout of gallery draws you to a large central desk. One walks up the centre of the gallery on a carpet. There is no caption, but one feels it might be the table from which the prisoners were interrogated.

These two displays give a certain slant to the story being told but as most of the objects on display represent a time of which many visitors will personal memories it does not seem that this intended in any way to be propaganda.

At the end of the gallery there is a film of recent events which gives a continuation of the story.

The lighting makes one feel that one is in darkness and gloom, but the displays are well lit.

Some objects have been left out as though inviting to be touched but the only real interaction with these is with emotion. Most objects are locked in glass cases or cordoned off, but some objects have been left out as though there is an invitation to be touched but the only real interaction with these is with emotion.

Display captions

Protests after the Tbilisi massacre of April 9 1989

Leader of the Georgian dissidents Merab Kosovar

Bludgeon used by commander for dispersing the peaceful demonstration on April 9 1989

Act of restoration of the state independence of Georgia April 9 1991

one of the carriages in which Chekists shot down the participants of the anti-Bolshevik uprising August 30 1924

incomplete list of public figures and citizens shot in the period of the Soviet occupancy

representatives of the National Liberation Movement of Georgia shot and deported by "Troikas" and the KGB

Destruction of the Kutaisi Cathedral by Bolsheviks

Mitropolite Nazar (Lezhava) shot in Kutaisi 1924

The Nagan revolvers used by Chekists for shooting a large number of people sentenced to death

Ethnic German citizens of Georgia shot for anti-Soviet activities 1924 (check date)

From 1921-1941, 72000 persons were shot and 200000 were deported. At that time the population of Georgia was 4 million

United States House of Representatives Select Committee on Communist Aggression, Communist Takeover and Occupation of Georgia.

Special report no. 6 Dec 31 1954

the repressions of 1937 saw the execution of the most prominent representatives of the nationally determined Georgian scientific, scholarly and creative intelligentsia.

The beginning of world war two brought hope of liberation from the Russian Bolsheviks Empire to the Georgian political emigration, the anti-occupation movement and the Georgian nation.

After the end of the war the prominent Georgian political emigrants became captives of Shikhsankom

iii. Religious Sculpture in Europe 1300-1500 (Rooms 26 and 27)

Gallery: Religious sculpture in Europe 1300-1500 (Rooms 26 and 27)
Museum: V & A
Date of visit: 21 September 2018

The galleries comprise two long and narrow rooms separated by an archway. One side has windows which give a view of a courtyard, although on this day the blinds were pulled halfway down; the other side is an internal wall.

This wall displays stained glass windows originally from various chapels and churches in the Lower Rhine region of Germany but acquired by the V&A from the chapel in Ashridge Park House, Hertfordshire. They are mounted on white light boxes which makes it easy to the colours and designs of the stained glass. Each window has an explanation of what it represents and from where it was acquired. Behind this wall is a museum shop.

Along the window side there are various smaller pieces of religious sculpture displayed in glass cases and along the centre of the gallery are larger works, such as the brightly coloured 'Lamentation Over the Dead Christ' from the Andrea Della Robbia which are freestanding, although there are notices which request visitors not to touch them.

On the walls of the dividing archway are other various smaller sculptures presumably intended to originally be displayed in that way.

There is also extra information regarding the objects made available in a few folders.

The gentle overhead lighting, the floor tiling, which continues from the vestibule on the southern side, the narrowness together with the design and placement of the seating give the effect of walking through a cloister. Whilst it is a thoroughfare to the café on the northern end it still remains quiet and there are more people passing through than stopping to look at the objects.

iv. Circuits and Motors

Gallery: Circuits and Motors
Museum: Museum of Childhood, London
Date of visit: 27 September 2018

The building resembles a hall that has had a change of use rather than any attempt at remodelling. At the time of this review the whole museum was displayed as a single gallery. Instead of doors which lead from one gallery to another there are just signs which indicate the theme has changed. The effect is more like taking one on a themed journey through the objects of one's childhood. Rather than a gallery review, this a review of one particular theme. One side of the second floor was closed for the construction of a new gallery on the theme of 'Pirates'.

As with all the other themed sections, this section had a particularly broad theme under a blanket heading of 'Moving Toys'. The other sections were 'Pushes and Pulls', 'Springs and Cogs', and 'Look See'. 'Circuits and Motors' included toys which were powered by some form of electrical or electronic motion such as robots or trains.

The items were mostly displayed in glass cases but were clearly described with name and date. Some items were even displayed either in or with their original packaging so that their context was clearly understandable. Whilst the cases contained many objects they were not cluttered and it was easy to see each individual object,

These glass cases were not necessarily designed with children in mind but there a few objects which allowed interaction, although other galleries had more interactive displays. In some instances, audio-visual was available. One audio-visual display was especially intended for children,

The most fascinating of these was a model train set display. Although one had to put in a 20p coin to operate the train. Whether this part of a fundraising exercise or whether it was intended to be reminiscent of the coin-operated model railways from the era of this model was unclear.

There was plenty of space in the gallery with more than sufficient room for the few tour groups had come not to cause any obstruction and the gallery was not very crowded by any account. This space along with the soft lighting and translucent blinds made photographing objects very easy.

The overall effect of the gallery, and indeed of the whole museum, was one of ‘oh I used to have one of those’ which makes it instantly appealing.

v. Making the Modern World

Gallery: Making The Modern World
Museum: Science Museum, London
Date of visit: 9 October 2018

Making the modern world is a gallery displaying manmade objects from approximately the mid eighteenth century. It is best described by the inscription at the entrance '*our history is embedded in the objects that we have we invented made and used*'
The objects are displayed chronologically and as well as date on some of the glass cases there are dates, proceeding in decades, engraved on the floor.

There are many objects in glass cases, themed by date, which are labelled 'technology and everyday life'. These dates are quite specific. For example, one case is labelled '1939 – 1968' and contains objects ranging from a Castrol GTX motor oil can from 1960 to a toy James Bond spy watch from 1967. The start and end dates do not always have an obvious meaning although this particular case was immediately preceding the next themed objects which were about the 1969 moon landing. These cases are jam packed with objects, but everything is clearly labelled.

There are also a number of very large objects which are freestanding or suspended from the ceiling. One such object is Stephenson's Rocket, although that was on loan on the day of the visit

To help navigate the themes there are small pillars labelled in yellow which are not easily missed and indicate a particular section within that theme. For example, one pillar indicated 'Designing a better ship'. This was next to further information about two models of ship's hulls which suspended from the ceiling above the pillar.

There is plenty of space to walk around the gallery and the overall effect is that of a warehouse or hangar. There are also a lot of 'do not touch signs' but an equal number of objects with no such restriction.

Appendix 6 has been removed for data protection reasons