CMP9056M Research Project Assignment 2

*Acknowledgements*

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# Abstract

# Chapter 1 – Proposal

## Introduction

## Literature Review

The completion of a literature review is vital to the success of the project. This is because the topic needs to be “supported by a sound theoretical base”, as “topics that are informed by theory have a clearer overall purpose, method, and expected outcome” (Hair *et al.*, 2015, 82). In other words, performing a literature review will help give the project direction by showing areas that can be built upon, and the project can learn from the successes and failures of similar projects in the past. There are also simple practical reasons for performing a literature review – namely, that the review is used to define “what is already known” about the research area so the project does not “simply ‘reinvent the wheel’”, but instead provides “a means of developing an argument about the significance of [the] research and where it leads” (Bryman, 2008, 81). Simply put, this literature review will provide the project with context to show that answering the research question is a worthwhile pursuit that will help expand knowledge in the field and builds on previous research to synthesise something new.

Now that the importance of the literature review has been established, the questions it needs to answer will be addressed. As previously mentioned, the literature review will need to define “what is already known” about the area of research, uncover “concepts and theories” that are relevant, find effective “research methods and research strategies…significant controversies…inconsistencies in findings” and “unanswered research questions” (*ibid*). In terms of the initial aim of the research project – to create an exhibit where visitors are able to record their memories or the stories told to them by their parents – all of the listed purposes of the literature review are relevant. Finding what is already known will not only help prevent the project treading already covered ground, but previous theory can help inform the design of the solution. Concepts relating to effective exhibit design will naturally benefit the project and help prevent extensive redesigning after user testing has been completed, and research methods that were beneficial in similar projects could naturally be applied here. Acknowledging potential controversy is especially important in ensuring a project surrounding the Second World War is sensitively handled, and indicating inconsistencies or unanswered research questions will provide the project the opportunity to expand its reach into new areas of research.

In addition to this, it is important to demonstrate the relevance of the project. The initial aim proposed for this project was to create an exhibit where visitors are able to record their memories or anecdotes that their veteran parents had told them in some form. The project also needs to appeal to a range of age groups – specifically the now-adult children of veterans and children on school visits. This project is important for several reasons. Firstly, it will facilitate the capture of many small anecdotes that together will help paint a greater and more personal historical picture of the war. Secondly, it allows further study around the question of what makes an exhibit effective, whether visitor participation can be successfully achieved, and how the use of technology affects these factors. And finally, due to being a development project, this research will also examine how technology can effectively be used in an exhibit. As the literature will demonstrate, concerns surrounding the effective integration of technology are the focus of many journals and the issue will arguably only become more prevalent as technology becomes more sophisticated. While asking visitors to contribute to a museum is not unprecedented, and it is impossible to rule out the possibility that studies have been done surrounding the idea of encouraging visitors to share their memories before, it is arguable that this project is still relevant due to its potential value as a new means of war documentation.

This review will therefore provide research into what is already known surrounding how technology is incorporated into museums and galleries, and what measure of success this has enjoyed, in addition to research regarding how successful exhibits that wanted user participation were. These areas of research will address the main research points; however other areas need to be examined to ensure a thorough approach is taken. Concepts surrounding visitor and group behaviours related to museums and a look at how exhibits handle controversial topics will also be considered in the design of the solution, amongst other topics, in order to get a full range of knowledge to be applied to the project.

In recent years “new technologies have been used increasingly within museums and galleries” (Hindmarsh *et al.,* 2002, 156), but debate continues as to whether technology provides an effective means of communicating information. Studies have suggested that “even in a hands-on museum…exhibits do not necessarily have to have a manipulative quality in order to evoke widespread learning-talk among visitors”, and many hands-off exhibits had “elicited slightly higher rates of learning-talk” among both adult and parent-child couples (Allen, 2002, 299). However, this does not mean that technology should be disregarded as unsuitable. In fact, it may not be that the interactivity itself is the issue, but rather poor integration is the source of the problem. Allen (*ibid,* 308) further states that “learning is increased by ‘meaningful physical activity’” – interactivity alone may provide a novelty, but an opportunity for learning is missed if the visitor is not encouraged to “focus, recapitulate, and review” (*ibid,* 309). As such, technology should be considered for use in an exhibit as it provides the potential for meaningful interaction when implemented in the correct way. Further still, the sources suggest that incorporating pauses to encourage visitor reflection is as crucial as allowing them to be hands-on with an exhibit.

Other journals support the idea that it may be the integration of interactivity that poses the largest obstacle to success. While an older journal, Fernström and Bannon (1997) highlight one of the most fundamental issues involved with utilising technology in an exhibit, which is that it needs to be integrated seamlessly. That is that there is a danger for both exhibits and museums to be “developed and presented to the visitor as an example of how "computerised" the Museum is” (*ibid,* 2). In other words, technology can be a hindrance to the effectiveness of an exhibit if used simply because it is the most modern option available. Rather, the use of technology should be “hidden and seamlessly woven” (*ibid*) into the design of the exhibit, such that the visitor does not notice its presence as it is merely a natural part of the design. However, the only means of testing how well the exhibit succeeds at incorporating technology is to ensure that visitors are treated as a group amongst the other stakeholders throughout the project. This makes the use of a “user-centred and participatory design approach” (*ibid*, 3) very important, as it will help ensure the usability of the solution and the stability of the initial concept.

There is support in other journals regarding the difficulties in properly integrating technology. It has been noted that “uninspiring multimedia kiosk-type installations” (Ciolfi and Bannon, 2003, 63) were prevalent in the 1990s are no longer present in museums, as they promoted the exact same issue that Fernström and Bannon were concerned with – the kiosks “tended to separate the person from the actual artefacts, and called attention to the computer interface itself as the object of interest” (*ibid*).

It is also important to consider the context of use of the exhibits. In a museum setting, there is no right path to take and no set goal or objective to complete. As a result, “visitors have no way of knowing whether the reward for persisting [with an exhibit] will be worth the effort” and may simply move on (Allen, 2003, 18) if the interface design is unclear. This becomes even more likely in a time pressured museum situation. As such, more than just a user-centred design process is needed to make an exhibit approachable. Many rules of thumb become especially important in the context of museums and should be applied to avoid having an unworkable design from the start. For example, “cognitive overload is a huge problem in museums of all kinds” (*ibid,* 20). This often occurs in museums with a large focus on interactivity as visitors must figure out how to engage with multiple different exhibits, each with their own mechanisms. Therefore it is important that not only is the technology used well-integrated, but that the means of interaction carries “immediate apprehendability [*sic*]” (*ibid*). This is similar to the Human Computer Interaction (HCI) principle of “affordance” (*ibid,* 21) in that both the interface and exhibit should indicate how a user can interact with it through its design. While it may be easier to apply affordances to physical exhibits, interfaces can become more usable if they make the method of interaction clear.

Cognitive overload can also occur due to more than just an overuse of hands-on exhibits or bad interface design. For example, a media exhibit was engaged with by less people and for far shorter times due to the fact that “visitors were overwhelmed with too much text” (Hornecker and Stifter, 2006, 139), showing that even a seemingly simple reading based task can be poorly handled. Other journals corroborate this problem, indicating that “visitors devote most of their time to looking, touching…not to reading” (Ciolfi and Bannon, 2003, 66). However, design issues aside it was noted that there was a pattern of increased use and engagement with exhibits that promoted “intensive visitor activity” over media consumption (*ibid,* 141), and that should be taken into consideration during the design stage. Therefore, considering all sources thus far would appear to suggest that a balance needs to be struck between interactivity, information and reflection.

Building on the problem with flat text exhibits is the suggestion that exhibits that used little interactivity or technology – the reading based ones – ranked low in terms of the diversity of different types of learning talk elicited (Allen, 2003, 302), suggesting multimedia at the very least provides more involvement and discussion when handled properly. Other journals support this, stating that “graphic displays received very little attention” and of a count of twenty six families, “only one family…was noted to read the labels” (Cone and Kendall, 1978, 250). However, there have been exceptions to the above – for example, in one museum “the mummy in the Egyptian room has been an extremely popular exhibit and knowledge of its location…is likely to influence the movement of visitors” (*ibid,* 251). As the mummy is a static category, it can be said that exhibits can be interesting without interactive or ‘flat’ content if the exhibit is of historical importance, or a popular spectacle such as the Mona Lisa. Therefore, unless an account of exceptional interest is found, it can be said that usually static content such as images and text are not enough to hold visitor’s attention by themselves. This information can be incorporated into the design considerations.

Allen and Gutwill-Wise (2004, 199) also support the notion that technology cannot be applied without appropriate design considerations being made, stating that “serious design problems can arise if an uncritical “more is better” approach is taken to interactivity” (2004, 199). Many problems can be prevented by applying common sense to design – obvious issues “include such things as poor accessibility…confusing directions, controls that do not follow cultural conventions…unclear feedback” and “interaction that is so limited or mundane that it frustrates or bores visitors” (*ibid,* 201). The last point is an interesting addition to the typically repeated usability guidelines, as it shows a need for some visual polish and excitement so that a user’s interest can be sustained.

Other common museum exhibition issues can be applied to both traditional and interface exhibits. For example, if there are “multiple interactive features of equal priority” this can overwhelm and confuse visitors (*ibid,* 202). This could become important in the project, as incorporating stretch goals may lead to “too many interactive options” demanding attention (*ibid*). One easy way to rectify this is to put focus on the most important element and ensure it is the largest in all system designs. It is also important that as the project wears on, balance is maintained in feature numbers – “too few and the exhibit fails to engage…to many and the experience is confusing, disrupting or overwhelming” (*ibid,* 217).

However, not all journals believe that technology should merely fade into the background, necessary only in so far as it helps “to get the point of the exhibit across” (Hornecker and Stifter, 2006, 135). On the contrary, Hornecker and Stifter suggest that not only is technology necessary but that it can do more than facilitate a message, as they “advocate exploiting the full potential of interactive media in these settings” in order to “allow for extended and repeated engagement” (*ibid*). In other words, the use of technology presents the possibility to encourage visitors to come back to an exhibit to gain a fuller understanding of what it can offer, and may make providing visitors with an incentive to return easier than any other media.

Other journals suggest ways in which visitors can be encouraged to return to the museum. Observations surrounding a hands-on exhibit noted that “curiosity is a major factor in determining whether environments are appealing, and indeed curiosity triggers interaction” (Ciolfi and Bannon, 2003, 64), and that a way to “keep the user’s interest” is through envisioning ways of supporting “different ‘layers of activity’” that “provide successive surprises and discoveries” (*ibid,* 65). In other words, it is important to design an exhibit to capture a visitor’s interest and encourage them to come back or repeat visits that reward visitor engagement with further information or activities. With some modifications, this idea could be applied to a technological exhibit – if the exhibit was focused primarily on providing information about people’s memories, then new contributions would naturally give visitors a reason to return to the exhibit.

Considering the research presented in the journals above, it can be said that while the use of technology will not automatically make an exhibit engaging, its use should still be considered for the exhibit. The designs will incorporate the suggestions laid out in the previous journals – namely that the interaction should be meaningful, serving a purpose in order to avoid cognitive overload. This is important because “while visitors can benefit from the varied and extensive content provided by multimedia…they can also quickly become overwhelmed with too much information that does not correspond with their interests or goals” (Filippini-Fantoni and Bowen, 2008, 89). As such, it is very important to promote usability by giving visitors as much control and breathing space as possible, whilst maintaining a balance between static and dynamic content and making the primary features of the exhibit obvious through its design. Usability should arguably be prioritised, as while “personalisation techniques can help…these systems are far from effective in implementation, meaning that cognitive load is still a significant issue” (*ibid*) and there is therefore the opportunity to build on existing research regarding technology in exhibits.

Hornecker and Stifter (2006) also suggest that visitors can be entirely willing to interact with exhibits and even create new media for the museum, which is an encouraging sign that the central design idea of the project is sound. This is shown in the account of a popular exhibit, a “blue screen TV Newsroom” that allowed visitors to create their own content (*ibid,* 136). Both children and families liked another exhibit for the same reason – it allowed them to save their own photos and sound samples (*ibid*). Most encouragingly, the study notes that “stations allowing ‘real’ interactivity and *creation of personal content* [emphasis mine] were more intensely used” (*ibid,* 141), suggesting that contributing to a museum is seen as positive and engaging and not a burden or demand being made on the visitor. Other journals have even explicitly noted that “popular exhibits were ones that require visitors’ participation” (Fleck, 2002, 53).

While different in tone and purpose to the IBCC exhibit, this shows that technology can increase enthusiasm for an exhibit, and the ability to create or interact with one is valued by visitors. In addition to this, the study notes that the newsroom video exhibit was often misappropriated by groups so that they could convey personal messages, and that while videos would be “replayed on TVs at an adjacent lounge before being replaced by newer clips”, “the public visibility of the of both the videos and the installation did not seem to inhibit most visitors” (*ibid,* 141). Other journals suggested that allowing “participants themselves to creatively shape and configure the experience of others, either by changing aspects of the display or by other means” helps create an opportunity for “sustained interaction” (Vom Lehn *et al.,* 2005, 5) – in other words, being able to contribute to the museum and change the environment for others to see may increase engagement with an exhibit. This could be applied to the project in allowing users to queue the next memory to be loaded, in addition to contributing their own stories and memories. This is a promising research find in the context of the IBCC project, as a potential area for concern was that visitors would not want to record personal memories or wartime anecdotes for others to view.

However, it is simplistic to say that technological exhibits that allow both interaction and creation will be popular, as there was arguably a strong design element that made the TV newsroom so popular – it followed good design principles in framing the exhibit as “providing a challenge (and reward)” (*ibid,* 140), and it clearly indicated from visitors what was required and when the interaction has finished, making the interaction easier. Thus while there is evidence to support that visitors may be willing to share accounts of their own or their parents lived experience for others to learn from, it must be said that the need for strong design cannot be underestimated.

Another potential issue with encouraging visitors to record their own stories for others to see is the reliability of the information provided. In moments of “articulating memories we render those memories [as] narrative and this in itself inevitably impacts upon the memory’s solidity and coherence” (Kidd, 2012, 75). In other words, it is only natural that a veteran’s memory, or an adult’s second hand account of something one of their parents told them about the war, will be subject to inaccuracies that “can render such memories open to accusations of nostalgia at best, and fictionalising at worst” (*ibid*). While checking can be applied to ensure visitors do not contribute false accounts, there will be no way of checking whether or not small details or personal memories are accurate in their recollection and presentation of events. This is an inherent weakness of the exhibit design idea, and other than maintenance to remove fake or unrelated entries, the most that can be done to counter this issue is to provide a disclaimer that the accounts provided may not be strictly factually accurate, and ultimately the memories are intended to encourage personal reflection among visitors in addition to providing a voice to veterans who have previously been overlooked.

It can be said that the second major concern of the research – whether or not visitors would be willing to contribute to an exhibit – has a largely positive outlook. Rather than feeling burdened when asked by new media, research suggests visitors were often enthusiastic and willing for content to be displayed to other visitors. However, due to the potentially unreliable nature of collecting stories from the public, some thought needs to be applied to a safe direction for the project to take in terms of the types of memory it attempts to elicit from visitors.

While the two main research questions have been addressed, the project must also consider other ways to make an exhibit successful, as there are naturally many social and ethical concerns to be addressed.

Fernström and Bannon (1997, 6) indicate another large aspect of museum design – the “group experience”. This is important as “visitors often explore galleries with companions” who “use exhibits with them” (Hindmarsh *et al.,* 2002, 156). In one case, the museum staff developing an audiobook had to consider the social nature of museum visits, as “audiobooks can isolate visitors from their companions” (Grinter *et al.*, 2002, 146) and lessen enthusiasm towards the use of technology. They came to the solution of an ‘eavesdropping’ function for their audiobook, which allowed two people to listen to the same clip simultaneously, whilst being able to override listening to their partner’s clip to make a selection of their own if they wanted to. As the audiobook study demonstrated, the positive response of many visitors to the ‘eavesdropping’ function suggests that visitors value an opportunity to “enrich their conversations” (*ibid*, 151) through simultaneous learning. However, even when not listening simultaneously many visitors used their guidebooks as a starting point for conversation (*ibid*, 152), so this could be applied by simply designing the exhibit so that multiple people can observe the activity at once. Other journals support this observation, noticing that the exhibits that received “active prolonged engagement” (Allen, 2003, 25) were “designed to support the use of exhibits by more than one member of a social group” (ibid, 26).

This could be applied in the project by suppling multiple headphones to allow groups to engage with the exhibit, rather than just one user. This may lead to users listening to a wider range of clips than they would have alone, and will encourage further discussion about the IBCC’s content, both during and after use. The issue of technology isolating the user and “fostering a more private and isolated experience” (Klopfer *et al.*, 2005, 319) can be partially addressed by making the exhibit bound to one location rather than using an audio book. Therefore while an audio experience will cut visitors off from the rest of the museum, a stationary exhibit would not distract them from the rest of the museum as an audiobook might and providing two headphones could help ensure the exhibit is still a social experience. While not as collaborative as the scavenger hunt game created by a museum in Boston, an exhibit allowing headphones to be shared could be a good display for families to use, as parents could help children navigate the information and assist them in forming meaning from the disparate sources (*ibid*). Another easy way to accommodate groups is by “making displays free-standing so that a family could gather round and “discover” it together”, further facilitating interaction and learning (Cone and Kendall, 1978, 257). Having a group-friendly exhibit will hopefully lessen the chance of visitors avoiding an exhibit due to crowding, as studies indicate that crowds create “the task of managing and coordinating” and that “that environment increasingly drains attention ordinarily available for goal attainment” (Epstein, 1981, 127).

Exhibits types also often contribute to the group sizes that gather. Touch screens or computer terminals “tended to be used by one visitor and only rarely by two”, while “interactive installations were often surrounded by groups of up to five persons” (Hornecker, 2005, 10). It is important when considering design to anticipate what size audience may be gathered, as the study indicates the way in which users will interact will be different. Exhibits that invite multiple users’ attention need to handle interaction differently – for example, ensuring the speed of a system response to enable “simultaneous interaction”, thus allowing “less vocal group members to have a say” (*ibid,* 13).

Other studies similarly note that “predominantly single users populated the terminals in the digital room”, while hands-on exhibits often attracted small groups (Hornecker and Stifter, 2006*,* 141). As such, there is a clear if unintentional demarcation between the group numbers of each exhibit. An arguably important part of designing the IBCC exhibit will be to anticipate the type of audience it is likely to attract, and how long visitor engagement could be expected to be, in order to gauge its eventual success. This will naturally be constrained by the size and design of the exhibit as well as the nature of the content/interaction provided.

Further journals regarding how visitors learn in museums will be considered further in this review. However, as it is “well known that learning in museums is highly social in nature” (Allen, 2002, 260), it is worth considering how groups learn together. That the groups learn from one another is highly likely – they have a tendency to “frequently split up and reform” and compare their experiences with one another (*ibid,* 269). They can also influence one another during the visit, vocalising to “family members on the other side of the gallery” (*ibid*) if an exhibit engages them. In this way, an exhibit intended for solo or paired use could quickly become the subject of attention for a whole group if it sufficiently interests the group member who notices it. Therefore, it can be said that the size of a group can have a considerable impact on visitor behaviour. Given that journals suggest that terminals and hands-on exhibits tend to attract smaller groups, designing the exhibit to be small and intimate, in accordance with the types of groups that are likely to be attracted to it. The need for strong usability is also present when considering group interaction, as multiple users making demands on a system will need good response times to support it.

It has also been noted that different types of groups, beyond just differences in number, affect visitor behaviour. And since the IBCC is considering two primary target audiences – adults who may be the children of veterans of the Second World War, and school visits – it is important to further consider the needs of different groups and their potential responses to exhibits. Hornecker and Stifter (2006, 141) noted that “different types of exhibits drew different types of groups”, and Sandifer’s (1997) observations corroborated that there was a marked difference in the museum visiting behaviours of different groups. Furthering the claim that groups can increase learning and engagement as members will naturally point out areas of interest to one another, this journal shows that “families spent more time than nonfamilies in individual exhibitions and in the…museum as a whole” (*ibid,* 689). It has also been noted that “weekend family and nonfamily visitors did not differ in their average time spent per exhibit” (*ibid*).

This is directly significant to the exhibit, as it shows that the main target audience – the now-adult children of veterans – may fall into two museum-going habits. The first group is families. Regardless of the day, families spend more time both in the museum as a whole and at each exhibit (*ibid*). This is possibly due to parents stopping to explain exhibits to their children, or a general slower walking speed of the whole group. However, it demonstrates that groups are more likely to linger, and as such the exhibit needs to incorporate ways to catch the attention of nonfamily visitors, who may spend “less than 1 minute per exhibit” (*ibid*) on weekdays. Therefore it is important that in order to fully appeal to both family and nonfamily visitors that their needs and museum-going habits are fully considered.

It is noticeable that even independent of group, stopping times at exhibits are frequently short – in considering two science museums, it was noted that “57% of exhibit interactions were less than 1 minute long, whereas 18% of exhibit interactions were over 3 minutes long” (*ibid,* 690). Other journals corroborate this, suggesting that “time spent in front of a single display was brief, averaging thirty seconds” (Cone and Kendall, 1978, 258). With this time frame in mind, it would arguably be beneficial to the exhibit to make its design as transparent as possible and to provide a quick means of allowing users to record wartime vignettes.

However, it should be noted that even though some museums suggest a difference in visiting habits between groups and a general increase in time spent the bigger the group or the more children there are in it, others suggest that “neither the day of the week…nor the type of social group…influenced the amount of time that visitors spent” (Sandifer, 1997, 690). This variance in results may be the result of different types of museums with different approaches to exhibits being observed, in addition to “the visitor learning agenda and the number of visitors physically present” (*ibid,* 696). In other words, some museums may be reflective in nature rather than interactive, and draw fewer crowds. This may encourage visitors to linger longer at different exhibits, and produce a different pattern depending on the day of the week. As such, there is no uniform way for groups to behave on a given day, and the effect this has on the IBCC will naturally vary depending on their expected visitor intake and the tone of the rest of the museum. It has also been suggested that the reason for the gap closing between family and nonfamily visitors in terms of time spent per exhibit on a weekday is due to the reduction of crowds, which makes it easier for visitors with their own set “learning agenda” (i.e. a favoured exhibit or area of interest) to stay longer at exhibits that interest them specifically (*ibid,* 698). As such, the time spent may not necessarily indicate the success of an exhibit, as other factors will affect how much time a visitor or group of visitors spends in a museum. One way to measure project success would be to gain an understanding if the IBCC team had any key performance indicators that could be applied to the implementation of the project, and apply these factors in the testing stages.

While the variation in time spent depending on the group or day of the week appears to vary by study, Sandifer notes that previous studies reflect their studies’ findings in terms of how long visitors sustain concentration during a visit, with studies showing concentration times of around 70% for adults and 80% for children (*ibid,* 696). While quite a high figure, this shows that both groups need a ‘mental break’ to continue engaging effectively with exhibits, and the phenomena of ‘museum fatigue’ may be at play in large museums. Sources have suggested museum fatigue is a very real phenomenon, noting that “as visitors moved through the hall there was a consistent decrease in the number of exhibits viewed, the time spent attending to them, and verbal interaction” (Cone and Kendall, 1978, 258) as visitors presumably grow more tired throughout the day and less able to take in more new information. As such, the reduction of the cognitive load on the visitor is important so that they will give an exhibit their attention for a sustained period of time.

Research also suggests that engagement may occur in multiple forms. For example, Hornecker and Stifter noticed that “some exhibits, while not drawing many visitors, managed to engage the few that interacted with them for considerable time” (Hornecker and Stifter, 2006, 139). This may indicate a difference in interests or in the style of exhibit that visitors prefer. This idea was supported by the journal’s record of observing visitors, and that while some groups would leave interactive or problem-solving based exhibits after two minutes, others would persist for fifteen, indicating that they felt “patience and an explorative mindset or mood” were required (*ibid*), and that some visitors enjoyed these aspects of the museum.

There are also visiting styles to consider when designing an exhibit. Besides dividing by group and age, journals suggest visitors can also be separated by behaviour. For example, some spend “a long time to observe all exhibits”, some “move and stop [near] empty spaces”, some “spend a long time to see selected exhibits but ignore the rest” and others “spend varied times to observe each exhibit” (Sookhanaphibarn and Thawonmas, 2009, 144). In this way it can be assumed that some visitors are not likely to engage with the proposed exhibit – it either will not be one of the ones they find interesting enough to proportion visit time to, or it will not fit in with a casual browsing style where engagement happens from a distance. However, the journal also notes that “the visitors’ behaviour can be substantially changed when they accompany their relatives or friends on the museum trip” (*ibid,* 153), providing a further reason to try and make the exhibit as group-friendly as possible. As a general rule, however, it should be accepted that not all visitors will engage with the proposed exhibit, although further research could be applied into how to attract visitor attention from a distance.

Other journals also show a difference in the behaviour and types of visitor museums attract. Hood (1983) suggests people fall into three broad categories – casual visitors, devoted museum-goers, and nonparticipants. A review of literature over the last 60 years suggested that the major attributes in determining how adults spent their leisure time including:

• being with people, or social interaction;

• doing something worthwhile;

• feeling comfortable and at ease in one's surroundings;

• having a challenge of new experiences;

• having an opportunity to learn;

• participating actively (*ibid,* 51).

The most frequent visitors were found to value all of the major attributes rather than some more than others, and to perceive that museums fulfilled these needs. In the museum reviewed in the journal, the frequent visitors group were also found to “account for 45 to 50 percent of museum visitation” (*ibid,* 53), suggesting that it is very important to provided enough material to make repeat visits worthwhile, with Hood similarly noting that it is important that “museum professionals…make sure the museum is not a static place” but rather provides frequent visitors “the challenge of new experiences on a continuing basis in their leisure activities” (*ibid,* 54). This could be achieved in the project by continually pushing new contributions to the top, and having secondary modes for users to explore.

However, this journal also indicates the needs of occasional participants – they are more likely to be families, as “family-centred activities are much more important” to them than they are to frequent participants (*ibid,* 55). This suggests frequent visitors are more likely to be alone or in pairs, whereas occasional visitors might be families looking for suitable days out. As such, it is “essential to program for more than one type of audience” as “each attendance group is looking for different types of benefits in leisure experiences” (*ibid,* 56). In other words, the exhibit must also account for a family’s desire for social interaction and facilitate parents helping their children to learn, as well as independent visitors wishing to teach themselves or further their interest in a subject.

Other journals help present a picture of reasons behind visitor motivation. It has been observed that “many people ascribe powerful motivation to a museum visit, claiming that their desire to learn more about some aspect of the world” (Csikszentmihalyi and Hermanson, 1995, 67) was the root of their visit. In this case it is logical that visitors not only enjoy museum-going as a leisure activity, but want to further their own interests in a certain area. The journal also notes the significance of museums to the second target audience – school children – in noting that where the “externally imposed tasks children confront in school undermine the motivation to learn for many” (*ibid*), there are no real tests involved in a museum trip. This can enable adults to explore life-long interests, and children to begin to form them in an environment where curiosity and exploration can be encouraged.

This falls into a type of learning called intrinsic, where “the performance itself is worth doing for its own sake” and action is spontaneous (*ibid,* 68). Engaging visitors with this type of learning – encouraging them to explore and trying to pique their interest – is a must, as museums have no “external means to compel a visitor’s attention” (*ibid*) as other learning environments do. As such, experimenting with what can attract a user’s attention and encourage exploration is arguably a worthwhile pursuit for improving the final exhibit.

Other journals provide a contrasting view of the way visitors can be engaged in an exhibit. One examined different types of video – one was inquiry based, and “provided visitors with an activity…that invited them to investigate the exhibit more deeply” (Gutwill-Wise and Allen, 2002, 7), while narrative versions of the same video presented the material as a story. However, the journal found indeterminate results regarding which was the superior method – some felt that the narrative version “took them beyond the museum” the most, while others found the inquiry version “helped them talk to their children about the exhibit” (*ibid*, 8). Therefore, neither the inquiry nor narrative approach can be said to be superior, and the amount it engaged visitors appeared to depend on their own agenda for visiting the museum. The journals also suggest that there is a clear divide between the agendas and visiting behaviours of different types of groups. The above sources have indicated a clear need to accommodate families in the design of the exhibition. In addition to this, the variable stopping times visitors have has shown that the exhibit needs to include features appealing to all styles. For example, memory accounts could be divided up by length and include some that are shorter to read.

The gradation of potential engagement length is also positive in reducing cognitive load for visitors who are experiencing museum fatigue and are viewing later exhibits for much less time than the others. In addition to this, a ‘sleep’ mode could be included that randomly displays short memory accounts, in order to reach the visitors who only view exhibits from a distance and just approach ones they are interested in. Finally, the journals further show the importance of new features to keep frequent visitors engaged – this could be incorporated into the project by making the most recently recorded accounts the most visible on the exhibit.

The age of visitors is also an important consideration. Hornecker and Stifter have also provided further justification for looking at adults, both veterans and non, and school trips as distinct user groups – it was observed that “elderly visitors…more or less circumvented anything that looked like a computer”, while “children and young people…tended to spend most of their visit time in the digital room” (2006, 140). This may be the natural result of visitors tending to “focus on the kinds of media they are familiar with” (*ibid*). However, the observation also noticed that older audiences may be encouraged to interact with technology if it is sufficiently hands-on, as these types of exhibits attracted both children and adults (*ibid*).

Given that the main target audience – the now-adult children of veterans – may not be as confident with technology as younger visitors, design is important. Hornecker (2005, 4) expresses the importance of “expressive representation” – in other words, when the design combines tangible and virtual elements in order to clearly express how the system should be used then it has succeeded in communicating to the user. Having a clear system is also important for families as parents may want to teach their children, or visitors “may discover the functionality of the piece simply by observing others using it” (Heath *et al.,* 2002, 26). As the review has shown how important groups are, it is important that the system is simple enough to facilitate second-hand learning.

The journal offers further usability guidelines for consideration – for example, “embodied constraints” (*ibid,* 5), which means showing the user how to use the system by prohibiting their available actions and “tailored representation” (*ibid*), meaning the system needs to anticipate the user’s level of expertise and work with them. This is especially important with the system having more than one target audience, as the interface should suit both younger and older audiences for being easily usable. However, while an older audience may be less experienced with technology there are still benefits to using the “knowledge of people” (*ibid,* 14) for design purposes. This could include common design shorthand, such as symbols to represent ‘Home’ or ‘Information’, in addition to including more complex features for experienced users. Therefore, while there will inevitably be a divide in confidence levels between different generations regarding technology, research suggests that the older generation may be willing to engage if clear representation is used in the interface, and it is hands-on and straight forward.

A question asked by Shortland of visitors to science centres was “But do they learn anything?” (Tulley and Lucas, 1991, 533). His concern was that, while fun, visitors may not be taking away valuable knowledge with them when they left. However, journals have shown that when in a museum “most of the time visitors’ talk was about the exhibit that was currently in front of them” (Allen, 2002, 276), and that conversations were “tightly coupled with what they were seeing” (*ibid,* 277) showing active engagement with each exhibit at a time on their part. Additionally, a case at a science museum demonstrated that a woman was able to fix a lock after having put one together at an exhibit – showing both affective and cognitive gain (Tulley and Lucas, 1991, 533). A director of another museum was also known for seeing interactivity as the cornerstone of not only learning, but the ability to apply and remember the knowledge in other situations. Therefore it appears that interactivity, particularly hands on activity, may be the key to helping visitors not only retain but understand information about Bomber Command and the lived experience of its personnel.

However, both of these examples came from science museums where it is arguably easier to apply a practical, hands-on approach to see if the frequency of visitors “knowing why” a certain machine or scientific principle works the way it does. By comparison, a history museum is not intended to solely educate but to also provide visitors with an emotional experience. In addition to this, when observing data from the lock exhibit the science museum noted that “perhaps physical engagement is not always necessary to learn”, and that often visitors could understand how an exhibit worked without having considered the information at any deeper level (*ibid,* 541). True understanding is a “multi-faceted” attribute which can arise from a variety of activities, rather than assuming that a physical or hands-on approach is enough to get visitors to understand the topic at hand.

As such, further research must be done regarding the range of exhibits potential visitors have found engaging and their reasons for this.

Other journals again indicate museum fatigue – and limits to visitors’ attention spans – being a large problem that should be considered when considering learning from exhibits. It has been observed that “a person cannot process more than a limited amount of information at a time”, which makes understanding how people select what to pay attention to and for how long that much more valuable (Csikszentmihalyi and Hermanson, 1995, 68).

The journal also suggests that many items will go unnoticed in day to day life simply because they hold no interest for the observer (*ibid*), as most visitors “wander through the museum without a specific plan in mind of what they want to see, heading towards those things that draw their attention” (Berkovich *et al.,* 2003, 995). While any visitor to the IBCC will arguably already hold an interest in World War Two and Bomber Command, not all visitors will show an interest in personal stories and the Aftermath section and may not want to learn more.

However, this does not mean that all visitors will only show an interest in certain exhibits – situational interest can occur when “one encounters tasks or environments with a degree of uncertainty, challenge or novelty”, thus stimulating “built-in propensities for curiosity and exploration” (Csikszentmihalyi and Hermanson, 1995,69). The journal further notes that situational interest “has only a short-term effect” and “may not affect one’s motivation to learn more” (*ibid*). Therefore, while the exhibit should attempt to present something new to engage passing visitor’s attention, the most learning will arguably be done by those with an interest in the approach of the exhibit to begin with, and the appealing factors of the exhibit need to be discovered and emphasised to promote the maximum amount of learning possible in addition to trying to encourage learning for its own sake amongst even casual viewers.

The journal further suggests ways of keeping visitors involved with an exhibit. This is achieved through “activities that produce flow”, and these activities have “clear goals and appropriate rules” (*ibid*, 70). This ties in with the usability principle that a system should “design dialogues to yield closure” and provide “informative feedback at the completion of a group of actions” to show the user that they have finished a certain activity and should mentally prepare for the next (Bernsen and Dybkjær, 2009, 251). This is important when the user records a memory, as they need to know when the process is complete so that they can move on and can receive a small sense of “satisfaction of accomplishment” (*ibid*). Similar to the good design principles proposed, the journal notes that a flow activity should “provide immediate and unambiguous feedback” (Csikszentmihalyi and Hermanson, 1995,70) so the user knows their actions had the desired effect and are encouraged to continue. This positive feeling in turn encourages intrinsically motivated learning (*ibid*).

However, the journal also presents the view that learning is at its most meaningful when it speaks “to the soul as well as the mind” and relates the information to the wider world, thus making it more relatable (*ibid,* 73). This is especially relevant to an exhibit aiming to capture and relay people’s experiences, as the memories presented will hopefully make the war less of a series of facts and statistics but more a situation populated by actual people with relatable feelings and emotions, in the hope of providing an emotional connection to the visitor.

Another journal suggests the use of the 51% rule: asking whether “51% of a random sample of cued visitors, immediately after viewing the exhibition” can “express general and specific attitudes or concepts that are related to the exhibition's objectives” (Serrell, 1995, 8). If they can, this suggests the exhibit has been partially successful in engaging the visitors, and what is more, that the visitors also had some understanding of the exhibit’s purpose. This idea could be adapted and applied during the testing stage.

Considering all the journals that have been discussed, it is clear that learning is a highly complex topic. Hands-on interaction cannot definitively be said to engender learning, and much appears to be dependent on interest and curiosity. However, the most important issue raised is arguably that there needs to be a sense of context – the exhibit needs to link the past to the present, and remind visitors that the atrocities occurred are still within living memory.

A stretch goal for the project was to consider if learning can be taken beyond the walls of the museum, as observations of visitor conversation show that visitors were heard “at least expressing their *intent* to take some action beyond the walls of the exhibition” (Allen, 2002, 290). Fernström and Bannon (1997) suggest ways in which this can be achieved. For example, in history museums it is common for visitors to “eventually request to view artefacts along a particular line” (i.e. from a certain time period or of a certain type), and other museums have had structured websites to allow users to take more away from the experience. This suggests not only media that could be used to enhance an experience, but suggests that themes could be used when providing further information, as visitors themselves may have very specific areas of interest. Within the exhibit itself, customisation could be provided – for example, if a user selected a memory within a certain theme, others of the same type could be suggested.

Though this project will not use RFID, another journal raises some interesting points in its reflection on how a museum used RFID to “let visitors continue their scientific exploration beyond the museum’s walls” (Hsi and Fait, 2005, 60). This was achieved through the use of RFID card which were provided to visitors upon entry to the museum. This helped visitors capture information by scanning their card to bookmark exhibits of interest. They could later view this information on “personalised web pages” (*ibid,* 62). While the creation of such a system is outside the central aim of the project, this method could be modified and applied to allow visitors to take information away for further consideration in another format. For example, barcodes could be scanned from the exhibit that allow further information to be looked at on the visitor’s phone. Links to further learning materials could also be provided. The source itself notes that this method could be used by a teacher “taking students on a museum field trip” (*ibid,* 62) in order to review information in class.

Other journals indicate that there could be support for users wanting to extend their learning beyond museums. One museum provided a ‘Rememberer’ tool, with users expressing “a strong interest in a “bookmarking” facility…to create a record for their own use” (Fleck *et al.,* 2002, 48), with post-visit comments indicating “that some see value in the record for later reflection and communication” (*ibid,* 52). There was also a notable social element to these observations, usually in the reflection of wanting to share the post-visit log with others for discussion, or even to encourage them to visit the museum.

However, as these method are most beneficial for school trips and the younger generation, who are more likely to be in possession of smartphones, it will be considered as a potential stretch objective only.

While learning outside of the museum is not the main focus of the exhibit, the above journals provided several interesting possibilities for exploration. Given that visitors may be interested in one theme of history, the exhibit itself could propose further information or resources for them to look at, or barcode scans for them to ‘take away’ an article for further reading. However, as this is a stretch goal for the project it will not be extensively considered in the design stage.

Another issue to consider with exhibits, especially where historical museums are concerned, is the question of theme. How far should an exhibit try and fit a theme or message in its organisation? Research suggests that providing minimal connections through “loose clusterings [*sic*], area titles, and label-text mentioning related exhibits” only led to most visitors not recognising the themes presented (Allen, 2003, 26), especially where the themes were abstract. While this research is noticeably focused on where an exhibit belonged amongst a group of exhibits, the proposed principle of placing “simple partitions around a group” (*ibid,* 27) could be applied to the display of information to help users find categories that interest them and increase their engagement.

Tying the exhibit into the IBCC’s mission to present previously untold stories as a major theme would also arguably improve visitor engagement, as studies suggest “humans prefer to add new experiences, new data and new information to conceptual schemes they already have” (*ibid*). Therefore, rather than attempt to communicate a new theme to visitors, the exhibit could loosely group information to make it easier to engage with whilst leaving room for visitors to engage with new information about Bomber Command and its ground personnel in whatever way they wish to.

It has also been noted that conversations in museums may carry a “lower frequency of connecting-talk, which includes connections among exhibit elements, connections to previous knowledge, and personal stories or associations” (Allen, 2002, 289), it is to be expected that even if the exhibit explicitly tries to link with the theme of the museum subsection or other exhibits, a large percentage of visitors may not pick up on this. While this suggests visitors do not notice the previous exhibits, other journals suggest that this is not the case, and that each exhibit is “seen in the light of the previous one” (Vom Lehn *et al.,* 2001, 198). In other words, visitors may not always pick up on the themes behind the exhibits, but they are aware of the context of an exhibit in terms of its placement within the museum. Therefore, while the exhibit should try to connect to the relevant museum theme (in this case, the Aftermath exhibit), other exhibits and visitors’ personal experiences, encouraging the visitor to form connections outside the exhibit should not be the central focus of the exhibit’s design, as it is not necessarily going to engender learning for the majority of visitors.

When considering the topic of themes, the exhibit should not try to match other exhibits in its presentation, as it is likely that visitors will only notice overarching themes as presented by the museum itself (the Aftermath section, the During the War section and so forth). As such, the design should focus more on building on knowledge people already hold, and subverting their expectations where possible.

Another important aspect of the exhibit to be considered is how the information will be presented. As Crane (1997, 45) indicates, “when members of publics [*sic*] find that their memories of the past or their expectations for museum experiences are not being met, a kind of “distortion” occurs”. This is caused by the differences between their personal experiences and the institution’s representation of the past. While the exhibit and the IBCC themselves are seeking to subvert the usual museum experience by collecting personal experience, and historians have been concerned over “the unincorporated realm of personal historical memory” (*ibid,* 46), this exhibit still has the potential to be controversial as including personal memories could provoke the feeling of distortion as much as a purely factual exhibit would. This is particularly pertinent considering the IBCC’s decision to try and include the memories of the Luftwaffe, as the Second World War remains such a point of contention in Germany that there is even “a particular term for this failure to come to terms with the Nazi past, ‘*Vergangenheitsbewältigung*” (*ibid*, 54). However, being able to capture the experience of Germans during the war during this project would firmly be a ‘would like to have’ feature due to scheduling difficulties, so this may not be the greatest issue posed by representing the war.

More immediately relevant to this project is the potential controversy surrounding a focus on Bomber Command, who embody a mixture of suffering caused and suffering experienced. Further controversy was caused at the Holocaust Memorial Museum when the curators desired to limit “the amount of space dedicated to Nazi memorabilia…evidence of ‘suffering caused’” (*ibid,* 59). Similarly, the Enola Gay exhibit originally had “images of Hiroshima and Nagasaki bombing victims”, which “would have transgressed the bounds of acceptable American memory” (*ibid*). While the ground personnel whose stories the IBCC hopes to capture are clear examples of survivors of suffering experienced, their active role in servicing and arming planes for the bombing of civilian locations, both enemy and occupied, could cause an uncomfortable acknowledgement and “provoke feelings of guilt and shame” among visitors, “including veterans” (*ibid,* 60) of the suffering caused by the Allied side. This can be an extremely sensitive issue where veterans are involved, as it is potentially asking them to reflect as to whether decisions made by their higher-ups were morally justified, more than 50 years after the war.

However, while it is difficult to handle controversial aspects of history, especially those that have been overlooked for years, it is not impossible to break new ground. While the Enola Gay exhibit was “purged of horrors” to the extent that the final exhibit was a shadow of its former self, the Holocaust Memorial Museum avoided this by “making choices regarding the degree rather than the kind of horror which would be exhibited” (*ibid,* 61). The latter museum also researched into public response to its presentation of the Holocaust in order to achieve a balance that allowed visitors to see the horrors involved whilst including information on the Nazi regime that could be considered without being considered a universal attack on the German people. They were also careful to represent both suffering experience and suffering caused, from new angles, whilst warning visitors about emotional content in its photographs.

Another journal reflects on potentially controversial topics in museums, but presents a more positive outlook. Bedford (2001, 28) attended a session on the Holocaust, recalling a documentary profiling “several older Europeans who as young adults had risked their lives to save Jews from the Gestapo” and how “they were simply doing what was right” (*ibid*). The documentary, despite being on a small, personal level, affected the author’s thinking to the point that “it changed forever” how they thought about museum work. In developing exhibits since, the author became increasingly convinced that “storytelling often lies at the heart” (*ibid*) of any exhibit. Their observations are potentially relevant to the exhibit even further, as they indicate that people can “make concrete details of the story represent something much larger” (*ibid,* 29) – that is, providing personal stories in an exhibit can often be enough for visitors to put the stories together to form their own larger narrative picture. The exhibit providing soundbites of people’s lived experience also potentially benefits the secondary target audience of schoolchildren – once over the age of seven, children’s understanding of the world begins to mature past “binary opposites” such as good and evil (*ibid*) and this exhibit could help provide them with a more complex picture of the world.

Further observations of the journal could be used to inform the exhibit. The journal notes that “one of the most compelling object theatres was in *Familes…*called “Everything Must Change”, it had a spare and simple set…visitors hear short narratives, all first person and authentic, about moments of loss and change”, coupled with an appropriate item being lit up (*ibid,* 30). It was simple and yet often profoundly moving, showing that sometimes the simplest approach could be the most effective, so long as there was the sense of a story and effecting change behind it. By presenting the exhibit through everyday items, the story could become more relatable to the audience.

Another example was the exhibit “The Day that Grandfather Died”, that used a simple story to express not only a tale of loss, but it was “crafted to help adults understand how young children experience the death of someone they love” (*ibid*). In this way the exhibit was simultaneously moving, whilst speaking to different audiences at different levels despite using deceptively simple prose. This could certainly be adopted when trying to describe the memories presented, and removing any “affective language or suggestive words” (*ibid*) is arguably particularly important in avoiding telling visitors how to feel and ensuring that they are not manipulated to a particular emotion or conclusion. These exhibits both provide strong support for the need to appeal to the intimate, smaller details of people’s lives – an argument further supported by reactions to another exhibit, “a graphic reproduction of a leaf from the children’s book, ‘Frog and Toad are Friends’” (Allen, 2002, 298). While the exhibit itself was simply about frogs, its use of a popular children’s book reminded visitors of their own personal connection to fiction surroundings frogs, and the content became more emotionally meaningful to them.

These examples are indicators that exhibitions will naturally be interpreted through “the visitor’s own background experience, own knowledge, and own interests” (Allen, 2002, 308). Therefore it is arguable that an exhibit will be more successful if it appeals to visitors on a smaller, more personal level. This could be incorporated into the design of the project by encouraging participants to share smaller stories and anecdotes as well as more formal stories about the war.

It is also important to think ethically during the design of the project, as asking participants to record memories and stories is deeply personal and the display of these memories needs to be handled sensitively. One exhibit had a more extreme example of this – the dwelling of a homeless man was turned into a display whilst the man in question, Ulfrik, was still living in it (Bandelli and Konjin, 2015). While media covering the exhibit initially feared Ulfrik was being exploited for the public’s benefit, coverage of the exhibit was largely positive. This was because both parties had an equal say in the handling of the exhibit, and Ulfrik was treated with respect (*ibid*). This could be incorporated in the project by making it as clear as possible to visitors how recorded memories will be used, and by making them confirm their entry being saved more than once.

Another interesting part of the homeless exhibit was that the museum noted that people were more “willing to consider the problematical sides of society in the context of a museum, which was seen as a “safe” setting” (*ibid,* 63). This suggests that, even if the new exhibit showed more of the darker narrative of the war on the Allied side than people were accustomed to, they still might be open to learning from people’s accounts within the museum environment, so long as the topics were handled respectfully and encouraged them to personal reflection. The journal further notes the potential positivity of this – in that museums “have a responsibility and an opportunity to contribute to the public debate by making use of the museum setting, giving a diversity of voices the chance to be heard” (*ibid,* 65).

Considering all the approaches taken by these different exhibits, it can be argued that the exhibit should not shy away from potential controversy but rather should anticipate and prepare for it. This can be done by applying user centred design, but also in presenting information as sensitively as possible, and acknowledging that the opinions expressed by those recording memories do not reflect the opinions of the museum but are intended to provide a platform on which unheard stories can be expressed. A way to categorise content to warn about potentially upsetting topics such as violence or grief should also be built into the design, and a recommendation will be given to the design team during the design and implementation stage that a sign should be considered to warn users about potentially upsetting content within the exhibit.

When considering all of the topics discussed so far, several factors have been identified that should be carried forward to the design stage, as given below.

* There is a strong need for a user-centred design process in order to ensure the design is sound and the use of technology contributes to the exhibit rather than detracting from it.
* The designs should have users interact only as much as they need to in order to reduce cognitive load.
* The designs should also give users room to reflect on the information provided.
* The content needs to be dynamic and changing to hold the visitors’ interest.
* Secondary content should be provided to encourage visitors to return, but this content should be de-emphasised in the designs to make the primary function obvious.
* The design should include disclaimers as to the potential inaccuracies of the stories in regards to small details and indicate to visitors that entries may be second hands accounts.
* The potential for users to contribute to the museum should be emphasised, as accounts suggest visitors will respond with enthusiasm.
* Given that terminal and hands-on exhibits tend to attract smaller groups, the exhibit should be designed for a more intimate experience with one or two users.
* The design needs to work for different visiting styles i.e. provide content suitable for shorter and longer engagements.
* The design needs to work for visitors who view exhibits from a distance e.g. by auto playing content when not being used.
* Build the content toward handling the war sensitively and respectfully, design a way to warn visitors about more upsetting entries and encourage visitors to reflect on the lives of all the contributors.
* Encourage the IBCC to put a sign around the exhibit, in addition to asking users if they want to proceed on the interface itself.
* Find out if the IBCC has any KPIs that can be considered when measuring the success of the exhibit.

## Initial Research Methods

In addition to using the literature review to inform the research and direction the deliverable should take, the project should also incorporate quantitative and qualitative research as appropriate. In the outline of the research methods the following will be defined: what the project is attempting to discover (i.e. the research questions to be answered), what is needed to achieve this, the limitations on the proposed method and a final pragmatic outline of steps to be taken.

In this project, there are multiple questions that the research should aim to answer. These are:

* whether visitors would be willing to contribute memories and anecdotes to an exhibit, and in how they would prefer to do this;
* what makes an effective exhibit and why;
* what the needs and preferences of different audiences are regarding exhibits;
* how visitors would want to extend their learning beyond the museum.

The project will principally collect qualitative data, in addition to quantitative data to complement it. The majority of the data will be qualitative as it allows a documentation of “how people interact in one situation” (Silverman, 2013, 14) – that is, it is heavily focused around understanding the social and ‘soft’ aspects surrounding people’s behaviour in a particular scenario. Given that the choice between qualitative and quantitative data is really a choice ranging from “more to less precise data” (*ibid,* 15), qualitative data can still be favoured as the focus of the project is finding the preferences and emotional responses of participants to different museum exhibits so that the exhibit design can be improved, rather than looking to prove a hypothesis which quantitative data would lend itself to. As such, it is clear that the project has a strong qualitative research background – while the numbers of people who would contribute could be an indicator of potential project success, knowing *why* potential visitors think the way they do and *how* they prefer to engage with museums is equally important to enabling a potentially successful design stage.

In this way, the focus of this research surrounds people’s opinions, though some quantitative data should also be collected. Quantitative data is needed for a few reasons. Firstly, the “purpose of a quantitative correlational study is to use numerical data to describe relationships between variables and to predict consequences following from these relationships” (Fairbrother, 2007, 40). As such, some quantitative data could be useful in testing for the presence of relationships that could affect how the solution is designed – for example, if there is a relationship between age and exhibit interaction preferences. This will help the project to make sound design choices and judgements. Quantitative data could also help avoid the project drawing conclusions due to confirmation biases, as data could be collected “to determine whether the observations hold across multiple samples” (Dunbar and Fugelsang, 2005, 710). However, it should be noted that large amounts of quantitative data are not a necessity in this project, as it is more important to use qualitative data to “describe and interpret a phenomenon observed in its natural setting” (Fairbrother, 2007, 40) i.e. the main aim of the project is to observe and understand user feelings towards potentially recording their own or their family’s memories of the war. As long as there is research showing that users would engage with this idea, extensive amounts of quantitative data are not needed.

A mixed methods approach is therefore an ideal approach, as it is one that “uses quantitative and qualitative research methods, either concurrently…or sequentially…to understand a phenomenon of interest” (Venkatesh *et al.*, 2013, 23). In other words, a mixed methods approach “provides strengths that offset the weaknesses of both quantitative and qualitative research” - quantitative research is weak in that “the voices of participants are not directly heard”, and qualitative research “is seen as deficient because of the personal interpretations made by the researcher, the ensuing bias…and the difficulty in generalising findings to a large group” (Creswell and Clark, 2011, 12). In this project both deficiencies want to be avoided – it is very important to account for the participant’s thoughts and feelings, but bias in the research should be avoided where possible when checking if an opinion is held by the majority of a group. As such, an exploratory mixed methods approach is ideal as it can “provide stronger inferences than a single method or worldview”, allowing a more “holistic understanding to be achieved” (Venkatesh *et al.*, 2013*,* 25).

The ideal research method is as follows: people are interviewed all over the country regarding their opinions on museums and exhibit interaction. The sample size is as large as possible, as it has been noted that “gains in precision are noticeable as the sample size climbs from low figures of 50, 100, 150” (Bryman, 2008, 169). The sample consists solely of people in the target audience for the IBCC – adult children of veterans who have an active interest in going to museums, and children on school trips. Both groups are engaged in unstructured, face to face interviews. These interviews will be semi-structured because it provides room for respondents to “answer in their own terms” and make room for “unusual responses” (*ibid,* 232). This is because open questions help ensure “that the evaluator does not put words into their mouths …or create categories that limit or direct visitors' responses” (Serrell, 1995, 7). While there is a set number of questions, a semi-structured interview technique will be employed as this gives “some latitude to ask further questions in response to what are seen as significant replies” (Bryman, 2008,196). In other words, when an interesting or emotional response is provided, other questions may be exchanged for further inquiry. However, in order to make sure the data can be coded later for analysis there are some questions that should always be asked.

The interviews will follow ethical guidelines (asking for consent to record and allowing participants to opt out if they wish, providing them with context on the purpose of the research), and are set at 5 minutes for two reasons. Firstly, long interviews are not practical for transcribing purposes, especially given the volume the project is aiming to complete. Secondly, a shorter interview is fairer on the participant and more likely to yield genuine answers (so long as pertinent questions are asked).

The project will also use a secondary approach, through an online survey. This uses a technique called ‘Snowball Sampling’, where the researcher makes “initial contact with a small group of people who are relevant to the research topic and then uses these to establish contact with others” (*ibid,* 184). This will allow a broader range of people to provide useful opinions and answers that can be coded, thus making the sample even larger.

The online study follows HCI principles to ensure a more honest response. To start with, there are only 8 questions, some of which require quick responses such as selecting an item or ranking options in order of preference. This is preferable as having a complex questionnaire can scare participants by giving them the impression that it is “long and boring” (Dai and Paasch,2013, 65). Having a short questionnaire might reduce the participant’s temptation to “answer the questionnaire in very quick succession” (Heiskala *et al.*, 2014, 251), that is, they are less likely to give an ill-thought out or best fit answer if their patience is not tested with too many questions. Each question on the survey has been written to be “understandable…unambiguous…collect data which actually answers evaluation questions”, and so that the results “can be analysed easily” (Benyon *et al.*, 2005, 524).

The questionnaire also asks users to rank features in preference order instead of using a Likert scale as Likert scales can be problematic – for example, if a feature ranks 7 out of 10, what does this mean? How do different people value and view that score, and can it be seen as enough that a feature scores “above the mid-point” when assessing respondents’ opinions? (*ibid*). This subjectivity is not as present in a ranking scale, which wants to determine participant preference between different options. Therefore, rather than get a subjective ranking on how preferable each option is the questionnaire shows makes the participant weigh up all the options and choose the option they find the most appealing. The participants are then asked to explain why in the following qualitative questions.

The online survey will also be used as a pilot study. A pilot study is useful in that it can be used to “help to test and refine one or more aspects of a final study – for example, its design…or analysis plans” (Yin, 2015, 39). In other words, the pilot study provides the opportunity to check if the questions used are valid and producing genuine results. For example, if “everyone…who answers a question replies in the same way, the resulting data are unlikely to be of interest because they do not form a variable” (Benyon *et al.*, 2005*,* 247). It is also an opportunity to check if there are “questions that seem not to be understood” because the wording is unclear due to their responses being short or appearing to interpret a question in an unexpected way (*ibid*). If results from the pilot appear initially positive (as will be discussed later on), then the same questions will be used in the semi-structured five minute face-to-face interviews.

Once a large enough sample has been collected, the data will be coded. This will be done using a strict process to help transform the qualitative data into usable information that is based heavily around “Schutz’s social phenomenology” (Fereday and Muir-Cochrane, 2006, 81). When coding qualitative data there is a danger of the researcher imprinting their own biases onto it, therefore a method needs to be employed that explores the “subjective meaning of experience” without replacing it with a “fictional, non-existent world constructed by the researcher” (*ibid*). As such, this research uses “In Vivo Coding…to ground the analysis from their perspectives” (Saldana, 2012, 61) and will “use the direct language of participants as codes” (*ibid*). In other words, common themes for analysis will be found by analysing the participants’ responses and will be backed up using evidence from the transcripts.

The framework of the coding will therefore be an investigation into themes that appear within the research, framed within the context of participants’ responses and not the researcher’s agenda, in as far as this can be achieved. The first step in the coding is a “thematic analysis”, which is a “search for themes that emerge as being important” (Fereday and Muir-Cochrane, 2006, 81). This will be done by transcribing all the information and identifying themes through a “careful reading and re-reading of the data” (*ibid*). These themes will then become the “categories for analysis” (*ibid*) when the data is studied in more detail.

Finding themes from the feedback is known as “inductive coding, or ‘open’ coding” (Bernard, 2000, 444). The idea is to have the analysis “become grounded in the data and to allow understanding to emerge from close study of the texts” (*ibid*) rather than the opinions of the research. The identification of themes through inductive coding will help find “a pattern in the information that at minimum describes and organises the possible observations and at maximum interprets aspects of the phenomenon” (Fereday and Muir-Cochrane, 2006, 83). In other words, themes help divide the data into noticeable patterns and can provide potential answers to the research questions. What is more, the identification of themes will be performed as “an iterative and reflexive process” (*ibid*) – the responses will be read and re-read multiple times in order to ensure the themes that are found are as truly reflective of the participant responses as possible.

Once the codes have been developed, the project will begin to use “Second Cycle methods” (Saldana, 2012, 58). These are determined by analytic skills such as “classifying, prioritising, integrating, synthesising, abstracting, conceptualising, and theory building” (*ibid*). In other words, the coded themes will be applied to classify and synthesise information from the interview transcripts. This process will be done several times, in order to check the outcomes and the codes themselves are valid. After the clusters of data have been considered several times, areas of “consensus in response to the research questions and areas of potential conflict” (Fereday and Muir-Cochrane*,* 89) should hopefully become clear. This is especially important with regards to this project as there are multiple target audiences to consider. Once this has been done, the final stage will involve “further clustering the themes that were previously identified” (*ibid,* 90) to draw conclusions that are as enlightening as possible as to the opinions of the participants interviewed.

However, even with the iterations built in the process is not perfect. There is the risk of falling into “cognitive illusions”, as “based on pre-conceived notions, people pursue, focus on, and better remember information that supports their pre-existing mental models or worldviews” – in other words, they exhibit “confirmation bias” (Hai-Jew, 2014, 65). This “fixation of thought” (*ibid,* 66) can be dangerous, especially in a research project, as it could lead to basing the design of the project around faulty assumptions, which would cost time to fix later on, or it could lead to the faulty assumption that the central concept of the project is sound. It is naturally very important that confirmation bias is eliminated as much as possible before the project continues. The ideal means of overcoming this limitation is to discuss the themes and coding with a “variety of people with differing expertise” in order to gain “multiple perspectives” on the subject (Fereday and Muir-Cochrane*,* 91). This could include the IBCC team, other museum personnel or the participants themselves. Once the transcription and coding of the data has been completed, it too can be used to inform the design stage of the project.

A literature review will also be completed. Ideally the literature review will be a comprehensive study of every journal written regarding museum exhibits, from their themes to how they incorporate interactive features. This will give the project the real world context that it needs to ensure that not only is the research question relevant, but it is also taking advantage of, and building upon, current findings within the field e.g. research into current interactive exhibits could inform the direction of the early designs. Simply put, the project will have an underpinning of ideas and theories, allowing a “conceptual framework” to be constructed (Plowright, 2011, 12) that informs the design and direction of the project. Documentaries will also be observed to study which ones elicit the best emotional response in their presentation of historical accounts.

In addition to this, a brief look will be taken into documentaries and what makes their differing styles of presenting history and topics of public interest engaging. Research will also be carried out into the available hardware and computer languages that could be used. This will ideally find the optimum solution that works within the IBCC’s hardware guidelines and allows coding to be done in a language/medium that presents the best situation for growing programming skills.

However, it is not possible to use the above method without some alterations due to constraints and limits on the project. The largest constraint is on time. The full project needs to be delivered for mid-April and the research and requirements stage is scheduled to finish late November. This means that the scope of the research will have to be limited to what can be realistically achieved within the set time frame. The project is also limited in its financial resources – for example, extensive travel or campaigns to research over the entire country cannot realistically be carried out using the resources available. There are also ethical constraints – while school groups are the secondary target audience, interviews and research cannot be done with children as the project does not have the resources to secure a CRB check.

The given methods will therefore be adapted to be achievable within the given constraints. For the face-to-face interviews, expecting to be able to gather recipients from all over the country is unrealistic, as “including a full population would be resource-heavy, in terms of time and finances” (*ibid,* 37). As such, a non-probability sample will be used. This is because “a random sample of participants will be inappropriate” for the research, as the sample does not need to be random but needs to be “chosen quite deliberately with a purpose in mind”, that is, in order to meet “the aims of the research”, whilst acknowledging that the sample “does not represent the wider population” (*ibid*, 42). The non-probability sample to be taken is a mix of types. It is a purposive sample, in that there is a purpose to the participants selected – the sample will be made up of primarily of people over the age of 50 who are ideally have an interest in visiting museums, and the rest will be legal adults that are under the age of 50. This fulfils the purpose of finding out the needs of the IBCC’s primary target audience – the adult children of veterans who could potentially contribute to the museum.

The remaining part of the sample will help the project uncover the preferences of younger visitors. While interviewing school groups (the IBCC’s secondary target audience) is legally and ethnically outside the scope of the project, this secondary group will help ensure the deliverable also appeals to the younger generation. Additionally, as the project is looking for those with an interest in history, it is logical to gather participants from areas of historical importance such as museums or tourist attractions. As such, recruitment will take place in Lincoln Castle (a museum) and around Lincoln Cathedral. This is a form of convenience sampling, as it chooses participants that “are readily available, nearby, or willing to participate” (Black, 2009, 224).

The sample is also a form of quota sampling, in that a rough number of participants have been selected. The minimum amount needed has been set at 30, with a maximum amount of 50 and a goal to get 75% of participants in the 50s or over group. The interviews should take around 5 minutes each to reduce the burden on participants and make the transcription process more efficient. The amount is set at 30-50 so that there are enough participants to identify potential patterns, though it is acknowledged that this amount is not enough to represent popular opinion accurately.

In carrying out this research it will be acknowledged throughout that the sample is a “biased sample” in that it “does not represent the population” (Bryman, 2008, 169). Due to the limited location of recruitment, sampling bias has occurred since “some members of the population have little or no chance of being selected for inclusion” (*ibid*). In the case of this sample, we can apply the theory of “warranted assertability” (Plowright, 2010, 184). This means that while the research will arguably discover some truths regarding people’s opinions and experiences with museums, the knowledge that has been gained is inevitability relative and fallible (*ibid*). The concept of warranted assertability further states that there is no means of ever arriving “at a final and unequivocal understanding of the world”, and that “knowledge and understanding…are neither static nor certain” (*ibid*). It can therefore be acceptable that the sample has only a limited truth to it – it was carried out within a limited framework and any knowledge uncovered will be accepted as a warranted one – that is, it is true only within the structure of the research method. Therefore it is not expected for the conclusions found to hold true across the entire country, and this limitation will be acknowledged when testing and evaluating the deliverable. This also provides the study the freedom to consider the research methods valid, but its conclusions valid only within the limited framework in which they were discovered.

The pilot study is also subject to limitations. While an online questionnaire site has been used, a high response to this method should not be expected when promoting the survey across social media as “return rates of under 10 per cent are common if the intended respondents have no particular stake” (Benyon *et al.*, 2005, 524). It is also unrealistic to expect every personal contact utilised to respond, as some will inevitably be busy or forget. However, initial responses have been useful in identifying weaknesses with the research questions. The questions have been refined for the face-to-face interviews as follows.

* + Please name an exhibit from anywhere in the world that you found particularly interesting or engaging. [Press participant for the reasons behind their choice and follow up on interesting points].
  + What is your preferred way of recording information? [Give examples of touchscreen, typing, relate to museum study].
  + What is your preferred exhibit type in terms of the emotional response it provides? [Give examples – video, reading etc.]
  + If you wanted to take information from the museum away with you, how would you prefer this to be done? [Give examples – printed media, website, mailing list].

This format will be adhered to as closely as possible to help ensure validity.

There are less limitations that can be applied to the interview coding, but they still exist. Firstly, having multiple people also code the data is not practical from a time and resource standpoint. While this would arguably improve the accuracy of the coding, it is not possible within the time limit of the project. Additionally, the project may also only be able to perform the coding twice due to time constraints.

The other forms of research are also subject to limitations that make the ideal method impractical for this project. The literature review will not be a full and comprehensive look at every journal relating to museums, as there is too little time to do this. Rather, it will be a study of 30-40 journals and books in order to contextualise and inform the project. It cannot be definitively said that similar research to this project has not been carried out before, but this project will attempt to build on the literature reviewed and use academic thought to inform the design and implementation stages. Similarly, research into the best technology and programming language to use cannot be expected to find the ideal match due to the time available for research. As such, a satisficing option will be selected that meets the majority of the criteria set out.

Therefore, while the research methods are all tailored towards answering the research questions, the methods are inevitably limited in scope and the conclusions found will be specific to the limited method that was used to find them.

## Coding of the Interview Data

As outlined in the research methods, the coding of the interview data will follow a series of steps. These are:

* Transcribing all the relevant data (i.e. not transcribing the interviewer asking questions on the recording to save time);
* Reading and re-reading through the data to identify themes;
* Choosing themes for a categorical analysis;
* Identify further codes/patterns by further clustering and connecting the themes;
* Draw conclusions relating to the themes;
* Considering transcripts separately and outline the key points.

The interviews were therefore transcribed, with each separate interview and the age group of the participants noted. The data was read once to identify possible themes, then twice to pick out the most commonly reoccurring themes.

The themes found were:

* Museum overload
* Museum size\*
* Spectacle attraction
* Appeal of the coverage of history
* Direct, intimate connection with people’s experiences
* Recreation of experience/time period
* Difference in content perception/preference
* Age/audience/purpose difference
* Convenience of museum for visiting purposes
* Personal interest in museum or museum topic
* Balance of old and new
* Didn’t talk about it
* Difficult to think of favourite exhibit
* 1950s culture
* Impermanent exhibits
* Information relevant to setting, control of information/ Choice
* Dislike of technology
* Losing handouts
* Difference in info length preference
* Difference in take away knowledge preference
* Going at own pace, at leisure
* Touchscreen preference for writing
* Little stories
* Media complement one another
* Hard to imagine/not hard to imagine

One of the themes (marked with \*) has been identified as being irrelevant to designing the exhibit and will not be used for coding the data.

The next step is to identify code categories directly related to the research categories, and cluster these themes according to them. As the research questions were centred on whether visitors could be encouraged to contribute to an exhibit, and how technology could be successfully incorporated, the two major code categories are Attitudes to Visitor Participation and Attitudes towards the Incorporation of Technology. Other code categories will be centred around the interview questions, what makes an exhibit successful and the difference in opinion between different age groups.

The following code categories will therefore be used:

* Attitudes to Visitor Participation
* Attitudes towards the Incorporation of Technology
* Interaction/Contribution Preferences
* Engagement Preferences
* Age Group Differences
* Visiting Habits
* Knowledge of veteran’s lives and memories
* Engagement outside of museums

The themes have been grouped into the code categories as follows (some themes have fallen into more than one category):

| Attitudes to visitor participation | Attitudes towards the incorporation of technology | Interaction/  Contribution Preferences | Engagement Preferences | Age Group Differences | Visiting Habits | Knowledge of veteran’s lives and memories | Engagement outside museums |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Dislike of technology  Didn’t talk about it (relations with veteran parents)  Touchscreen preference for writing | Balance of old and new  Age/ audience/ purpose differences  Information relevant to setting/ control of information  Complementary media | Difference in content perception/ preference | Direct, intimate connection with people’s experiences  Recreation of experience/  time period  Difference in information length preference  Going at own pace, at leisure  Little stories | Age/ audience/ purpose differences | Museum overload  Spectacle attraction  Appeal of the coverage of history  Convenience of museum for visiting purposes  Personal interest  Difficult to think of favourite exhibit  Impermanent exhibits | Didn’t talk about it (relations with veteran parents)  1950’s culture  Hard to imagine previous generation’s lifestyle | Losing handouts  Difference in take away knowledge preference  Going at own pace, at leisure |

The identified themes can therefore be further clustered as follows (overlapping categories have been removed):

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Attitudes to visitor participation | Attitudes towards technology | Interaction/  Contribution Preferences | Engagement Preferences | Age Group Differences | Visiting Habits | Knowledge of veteran’s lives | Engagement outside museums |
| Dislike of technology due to age differences.  Didn’t talk about it (relations with veteran parents) due to 1950s culture.  Touchscreen preference for writing | Balance of old and new dependent on age perspective.  Information relevant to setting/ control of information may be linked to museum overload.  Complementary media. | Difference in content perception/ preference dependent on age/audience purpose differences. | Direct, intimate connection with people’s experiences  through little stories  and  the  recreation of experience/  time period. | Age/ audience/ purpose differences. | Visitors attracted to spectacle exhibits partially because of personal interests, partially because they are impermanent exhibits or because of the convenience of the museum for visiting purposes.  Appeal of the coverage of history. | Hard to imagine previous generation’s lifestyle. | Difference in preference for taking information outside of the museum because of preferences for personal leisure time. |

Now that the codes have been further clustered and connected, the connected themes will be analysed to draw potential conclusions about the data. This will use excerpts from the transcripts in order to retain a focus on the data, as planned.

* Dislike of technology, possibly due to age differences

When asked about possibly recording the memories of either themselves or a parent, many expressed a reluctance directly because of the involvement of technology. One participant when asked responded immediately with “we are that age…we probably wouldn’t be bothered doing it”, and that “as for the interaction things, I don’t know if I would rush and use it”. They did note that “there’s other people my age that are very happy to do all that”, suggesting there may well be others who are willing to contribute, even if it involves the use of technology.

Another pair – both over 50, one of veteran age – had a contrasting response. The elder of the pair, of a veteran age, specifically stated that it would “have to be writing for me, not touchscreen computers, laptops”, whilst the younger said that “I’d happily do anything, touchscreen computer, writing, talking, it wouldn’t bother me because I just think that it’s so important that we don’t forget. Any of it.” The younger participant’s response was one of the most emphatic in all of the interviews, and supports the previous couples’ statement that older generations may be willing to participate, especially if they are passionate about the cause.

By contrast, another participant expressed support for technology – or interactivity – because of their age, stating that “you get to my age, it gets hard to read the small print”. This was unusual, as it expressed some of the benefits of technology relative to age rather than the alienation from technology that was often expressed by the older participants. Another participant suggested a further benefit of technology in the ability to explore, in that they liked “looking and poking”, but liked all media types to “just sort of complement each other”.

Others still, when asked what type of media would be good for recording information, replied immediately and certainly that “touchscreen’s quite good”, “a touchscreen would probably be best, or typing”, “touchscreen! …kids like it”, “[touchscreen is] far more fascinating”, or “videos and touchscreens again, you get more feel for it than just standing and reading”, and “I like the touchscreen”. It is important to note that many of these interviews were the ones carried out in Lincoln Castle, within the Victorian prison exhibit, which had a mixture of touchscreens, videos and reading material on the walls.

As such, it can be said that the original theme is something of a misnomer – there is not universal dislike for technology among the primary target audience, but there is a divide between those who would not want to engage with it and those who would when given the right motivation or context. Others still showed the benefits that technology can have over traditional or static media – it might improve readability, encourage exploration and allow control over the information provided, so the visitor can choose to focus on what they want to learn only.

Many others expressed confident support for the use of touchscreens, though as many of those participants were interviewed in Lincoln Castle museum, it is possible that they were influenced positively by the interactive touchscreens there. However, even if this is the case it shows that the over 50’s group can look more favourably on the touchscreens if they have an immediate, well integrated example providing them with context. The Lincoln Castle participants may also have viewed touchscreens more favourably if they visit museums more than the rest of the public, and so are more used to them.

Therefore the interviews suggest neither decisive support nor denial for the use of technology in recording memories. While there is more than one participant of the over 50s age group who is opposed to the use of technology, arguably from a feeling of alienation or intimidation, many others were at least supportive of touchscreens, at least among the participants recruited from within a museum. This could definitely inform design as it shows a clear preference towards touchscreens, with a few in support of writing or speaking the information, and provides an indication of what the older generation do feel is beneficial or engaging in the use of technology – such as the ability to choose to explore interesting information, greater text sizes and the feeling of exploring something through interaction.

Design Points:

* Promote the ease of use and make the interface as simple as possible. Include tutorials and interface help as much as possible to encourage older generations to interact and experiment.
* Emphasise the primary purpose of the exhibit – to build an account of overlooked wartime experiences. This may encourage visitors to contribute as they will understand the potential importance of the exhibit.
* Design to make interface elements large and comprehendible, for usability purposes.
* Allow visitors to choose what they want to learn.
* Forefront interaction, but include some videos (‘passive’ content).
* Didn’t talk about the war with veteran parents due to 1950s culture

Another theme when asking participants if they would record their own or their parents’ memories of the war, a few participants expressed the feeling that they didn’t know much – often an outline of the parent’s life would be given (“my father was a gunner on the coast”), but tidbits and anecdotes were sometimes followed by “I don’t think they were inclined to talk about it.” More than one participant linked this attitude to the culture of the 1950s – “we were too hard up in the 1950s. It was a struggle to live…you didn’t have time to worry about the past”, while another similarly gave an outline of their parents’ jobs (“my mother worked in the ATS…my father was stationed in Yorkshire…then he was sent out to West Africa”) and noted that they didn’t know much else, and at the time “no one wanted to know about it. Just get on with life, you don’t talk about it, just get on with life”.

The last response was especially notable, as the participant contradicted her husband’s statement of “we heard their stories…which hopefully we are passing on to our grandchildren” with “but again though, did we know very much?” and there was a noticeable sense of regret in her response – “I can’t tell you any details about it; I do not know. And I feel now that I should have known about it… I didn’t realise now until he’s gone that we never had those sorts of conversations. And I don’t really know why.” Another expressed a similar sense of regret – “it’s too late, they passed away many years ago now…my father would be over 100 now”.

Others suggested that the 1950s culture of moving on with life and not talking about the trauma was very much present today, giving an immediate reaction of “I don’t think my parents would be very interested in that at all”.

As with the previous point about technology, this was not a sentiment universally expressed. One gave the casual assumption that “a lot of people have personal experiences” and “children or their grandchildren…would record them”. This is quite a generalised view, as the participant may not have known anyone who would have memories they would want to express or had heard about from their parents. However, across the many responses, even the participants who professed not to know much about their parents often had small anecdotes to tell – one recalled her mother “saying she was bombed out. She came home and found the front door had gone through and out the back garden”, and another said “he never really said a lot about it…he tended to, when we were going on holiday to Europe, ‘Whoa, I don’t want to go there, I’ve had enough of the backstreets of Italy. I don’t want to go to Italy.’” While small, these anecdotes together could slowly help create picture of what life was like (as one participant noted, “even silly things like the houses people lived in during the Second World War” are important and shouldn’t be forgotten), especially if magnified by the potential numbers of visitors to the IBCC.

One interview showed the potential of a memory-recording exhibit to capture previously untold stories. The couple referred to a friend of theirs who had been bombed out and “evacuated up to Burnley”, where he was “put in with these nuns looking after them. And they were absolutely terrible, these nuns. Really vicious and spiteful and his mother took him out of there, didn’t want anything to do with them.” This is also a topic you might not expect to hear about – as the participant put it – “you don’t hear that side of it you see”. This was a positive indication that there are many out there who have untold stories and may be willing to share them – in this interview, the couple were confident that the friend in question “could tell you all about that”.

Therefore, while a feeling that the children of veterans didn’t know much about what their parents did was quite common, that the same participants often had anecdotes to share was a heartening sign that with the kind of numbers of visitors the IBCC may draw, there could be enough anecdotes (and some undiscovered stories) to create an interesting and engaging exhibit. One interview showed how important the participant felt it that these stories be remembered, and how important it was that society should “never, ever forget”. It may be said when considering these stories that participants may have more information than they realise, and the exhibit just needs to encourage them to share even the smallest anecdotes.

Design Points:

* Encourage visitors to share a story, no matter how small.
* Emphasise the importance of giving the overlooked a voice, and how even small, intimate stories can help create a larger picture.
* Encourage visitors who lived through the war, as well as those who served, to record their memories.
* Provide different ways to record memories where possible to give visitors more choice.
* Complementary media

While some participants, especially the older ones, expressed a dislike of technology, others suggested that a balance of different media worked best to communicate information. One participant said that they liked information that was both “Listening and quite visual”, and acknowledged that “people learn in so many different ways”. This was a pattern repeated among other participants, as they would sometimes mention multiple media or interaction preferences in the same answer – for example: “Written…like reading…no, I quite like audio”; “audio…it could be from labels against photographs”; “Talk to it, say visual”; “Hearing people’s experience…audio or like a film”; “You’ve got it in front of your eyes and you’re listening to it”.

Others still expressed a willingness to engage with technology, provided that it was combined with mother types of media – for example: “I’d probably use the Internet, I wouldn’t take anything away, I’d go away and Google it. But I might also take a leaflet or like a little booklet or something”; “I like looking and poking, yes. Videos are interesting too. Just sort of complement each other. So I think maybe both are necessary”; “purely for research purposes, the interactive media website or CD-ROM. But I do like a good old fashioned book as well to look as pictures. I think the two complete each other”. This suggests that audiences of different ages naturally prefer different types of media to interact with, and some directly state that a balance is a necessity.

Design Points:

* Try to incorporate several types of media in the exhibit and present recorded memories in different ways.
* Balance of old and new dependent on age perspective

Another minor theme to come from testing was that the older generation in particular often felt as though museums needed to balance the old and the new. Historical sites were sometimes praised by participants for being “well kept” and allowing participants to see part of history “for real after all the interest”, and as such several participants felt that it was important to preserve an authentic atmosphere. One participant noted that it was “important to keep the essence of what it is because too much modern technology would kind of take away you know like this [part of Lincoln Castle museum] is a Victorian prison you need to create that kind of atmosphere, applying too much modern technology spoils places”, with their partner corroborating that “We have been to a couple of places where we just felt it was ruined by modern technology that was York minster (it just seemed like a medieval sort of cathedral minster and there was one area that just seemed like a modern and it just seemed to spoil the whole thing for us, it just seemed to just take away from the whole experience, I just think it’s so important to keep what it was. Don’t want to be bombarded with too much technology, this [Lincoln castle] is great so you can see what you like”.

Another participant referred positively to the videos and interactive media in Lincoln Castle, her husband jokingly added “I didn’t realise they had video in those days!” Another participant mentioned Fort George, which is “actually an active military base, but they have a museum onsite and you can walk round, it’s an old fort from old Napoleonic times.” When pressed about the mix of reading and interactivity, the participant said “bit of both, really. It’s got the old and the new. So although the fort is old and the buildings are old there’s the modern military there with the old canons, and whether it goes well together the old and the new”. Both participants showed an awareness of the contrast of the setting with the technology, and even if only one couple rejected it, the fact that the other couples were aware of it suggests the technology was not integrated seamlessly, possibly solely by virtue of the fact that it stood out next to its settings.

While expressing a preference for authenticity and wanting a balance was not as commonly occurring as older generation participants showing dislike for technology, it does give another reason for participants to dislike technology outside of inexperience. These participants show that too much technology can be seen to ruin the experience of a museum, particularly when combined with a historical site. This opinion links in with the literature review, where journals commented that technology could be poorly integrated if it was included only to show how computerised an experience was, rather than add to the pre-existing experience. While the IBCC is an entirely new museum and is not surrounding a historical monument so the use of technology may appear less egregious, the technology used should still feel natural within the context of the museum. Another coded theme – visitor preference for exhibits giving them a feeling of being transported back in time – will expand further on these points.

Design points:

* Design the exhibit to fit in with a 1940s-50s atmosphere as much as possible.
* Use the IBCC colour scheme and a typography to downplay the modern nature of the technology where possible.
* Information relevant to setting/ control of information may be linked to museum overload

As mentioned previously, museum overload was linked to guided tours – specifically that they “can go on too long” or the “information is too wordy”. However, other participants appear to suggest that they can take in information more readily when they have control – for example, positive reference was given to a museum that provided “a book that had a barcode on it and each room you went round you’d put it against the reader and was given a commentary of what was going on in that area”, potentially because the visitor controlled the start of the information being relayed and information was divided up between areas, instead of being presented in a continuous flow as it would be with a tour guide. Having control and being able to interact with the means through which the information was provided may also have been a cause of increased engagement, as the passivity of listening to a tour guide was spoken of negatively by another participant: “you just stand there and eventually I go completely glassy eyed because so much information and so many dates…I’ve completely lost it.”

Other participants also mentioned having a preference for control over the information, and that interactive displays were useful in this way as “you can choose, discern what you already know, what you don’t know”, and when talking about passive media, other participants mentioned that audio and video had the disadvantage of “if you don’t capture the start of it you can miss out, when you’ve not something to read at your own pace, quite informative”. The participants also noted that “it’s good in each room they’ve got something to read that’s relevant to the space”. In this way there appears to be a link between museum overload, the ability of the visitor to control the information being given, and the relevance of the information to its immediate surroundings.

Design Points:

* Design to give the visitor as much control as possible
* Allow the visitor to pause content and give them total control over how information is relayed
* Divide up information to make it relevant to interests
* Difference in content perception/ preference dependent on age/audience purpose differences.

As mentioned previously, the older age group tended more strongly towards disliking technology for various reasons. However, both groups often frequently mentioned age as being a factor in their opinions of technological exhibits. One participant suggested that “it depends what purpose you want – for somebody to contribute to your exhibit, or for somebody to enjoy your exhibit”, but that family members could record accounts on behalf of veterans. Another participant similarly mentioned that “it depends what kind of audience you’re addressing” for how information could be captured, and many linked interaction preferences to age, saying touchscreens engage “with the younger generation as well, they’re used to doing that kind of task”, but the technology is “not as good for the older generation”. While not universally felt across all the participants, there is a clear sense that the use of technology can change the audience or purpose of an exhibit, though it could be said that participants were more inclined to mention age as a factor due to being asked before the interview what age bracket they fell in.

Another participant suggested that an important way to connect with the older generation would be to “set up the atmosphere of the time” and “take them back” to the time period in question. His son, in the younger age category also agreed that “rather than just having a room with something to stand and read”. It was better to make the atmosphere more like an experience that took people back, with the elder again stating that “they’re always the best museums, when you get transported back into that environment”.

Given that some enthusiasm for touchscreen technology was shown by the older generation, especially when in the setting of Lincoln Castle, which implemented touchscreens well, it would be a generalisation to conclude that the use of technology excludes the older generation completely. However, there are suggestions here that could be incorporated when considering an exhibit design that will encourage use and contributions from older generations.

Design Points:

* Try to recreate the war time atmosphere when designing the exhibit.
* Direct, intimate connection with people’s experiences through little stories and recreation

Another, quite prevalent theme was that participants felt that actual artefacts and personal stories were important in providing an emotional attachment to an exhibit. One participant noted that a museum “in St Petersburg [the museum had audio of people] talking about their experience, that was very moving, very real as it’s a historical resource”, while another recalled how being able to climb inside a Lancaster Bomber “made you feel ‘wow, this is what these people lived through’. This is how they spent their time, inside this aircraft, which turns out to be a very small tin can. But it really brings it home to you…is how they lived their lives and how they died”. Another participant recounted the 9/11 memorial museum in New York, where “some areas that kept the parts of the building that blew up and like you could walk over parts of the building that are covered with glass and just gets you very engaged”. These are quite sensory examples, but they show how people became emotionally in knowing about the experiences others had lived through, as they were perhaps more relatable than numbers or statistics about the war, as it “makes it more real”.

Others still spoke of the appeal of even smaller details – that exhibits could be “trying to capture sort of a moment…if you had a picture of that individual and some items from his or her life and some documentation of the life to read”, and “what they achieved and what the life was about”. This is useful when considering the exhibit design, given that some participants felt they didn’t know much about what their parents did, as it shows people have an interest even in outlined stories and small details. Another participant noted that it was the personal details that made a Holocaust museum especially emotional “with just looking at artefacts of people, people at work in the Holocaust, shoes and hair, as well as a written explanation… backing that up was film – video archive footage shows what conditions were like as well, so I think that’s quite strong”. As such, it could be said that any detail helping people to connect to other’s experiences can be emotionally evocative and powerful, if presented effectively.

Design Points:

* Encourage users that even the smallest stories and details are important
* Include other media like images and videos of artefacts to give visitors contextual information separate to the accounts
* Encourage visitors to share about even the smallest of moments and emphasise that even small stories are accepted and encouraged for contributions
* Visitors attracted to spectacle exhibits partially because of personal interests, partially because they are impermanent exhibits or because of the convenience of the museum for visiting purposes

When asked to think of exhibits that were interesting or engaging, many participants named sites of great historical importance, such as the “colosseum in Croatia”, “[Michelangelo’s] David”, “the Eleanor crosses”, “the Titanic, the big piece of the Titanic” and many more. Some of the participants appeared to like the exhibits just because of their notoriety or historical importance – a participant said of the Titanic “just seeing and touching, you could actually touch a piece of it. Seeing it for real after all the interest surrounding it”, and another mentioned a museum of “central cities of Egypt – lost cities, I’d heard of Alexandria but this was a new one they’d found relics for, like with the Mary Rose down in Portsmouth”. Another subgroup of participants gave their choices based around personal interest – one noted that they had “studied history” and liked exhibits across several museums and their partner knowledgeably linked the Eleanor crosses to “Eleanor of Castille”, another had an active interest in “the subject of Bomber Command” and another participant chose an artist’s work from the Tate Modern due to the influence of his mother, who was an artist herself.

Others suggested it was the impermanent nature of an installation that attracted their visit – one mentioned an exhibit in “York railway museum weeks ago…the war trains there…probably there for six months, it won’t be permanent”, while another mentioned a temporary “display of Princess Diana’s stuff”, while another mentioned making a trip specifically to “see the field of poppies”, which was a temporary exhibit, and that they came back “in case we’ve missed anything”. A few participants naturally had their visiting habits determined by location – many mentioned being from nearby Nottingham, and one mentioned “the Collection in Lincoln is quite good…because it’s free and easy to get to…that’s just one that’s particularly close to here”.

This theme demonstrates that the historical importance of an exhibit is often enough to interest visitors, though some will have active interests with the specialism of the museum. Other participants have shown they are willing to revisit museums just in case they have missed something new, or simply because the museum is nearby and convenient. As such, it can be said that it is important to provide new and dynamic content where possible, so that revisiting members of the public feel rewarded, and to demonstrate to visiting members the historical importance of what the exhibit is trying to achieve, in order to attract their interest.

Design Points:

* Build in a feature to make sure there is new content after a set interval passes, to encourage revisits and reward frequent visitors
* Potentially include a feature to mark the contributions that provoke the most interest and have the content that provokes the most interest rise to the ‘front’
* Make the exhibition’s purpose and scope obvious to visitors on first interaction
* Appeal of the coverage of history

Other participants expressed a preference for museums when the range of information presented was strong. One mentioned the “museum of New Zealand”, which “covered the whole history of New Zealand, right from when it was populated up until present day” and that they considered it “a really good museum”. As such, it could be said that having a broad range of information helps visitors to engage with the museum and provides further information to absorb on repeat visits.

Design Points:

* Encourage visitors to give stories from any time during the span of the war
* Potentially allow visitors to search through contributions and other information by year, to show a full coverage of the war
* Hard to imagine previous generation’s lifestyle

In addition to participants mentioning that they liked being given details or for a museum to create an experience for them, there was also some recognition of a difference between generations regarding knowledge about the war. One participant mentioned that “another generation deals with it [the war] in a different way”, while another commented that “kids today wouldn’t believe how we lived, it seems impossible…they think it was the generation before them”. Therefore, in addition to memorialising those overlooked and the importance of remembrance, feedback from participants suggests that there is also importance in providing reminders that the war and “even silly things like the houses people lived in during the Second World War”, including “prefabs on the common land” existed not so long ago, and the aftermath of the war – many participants mentioned remembering hearing the air raid sirens (“it sounded like the end of the world”) being tested – are very much still a part of living memory.

Design Points:

* Emphasise the reality of how recent the war actually is in human terms on exhibit start-up
* Potentially ask contributors to leave their age. This will be provided against the date the contribution was recorded to demonstrate how recent it is
* Ask visitors for small details, such as their routine and what living conditions were like for civilians and ground crew
* Difference in preference for taking information outside of the museum because of preferences for personal leisure time/age.

Just as participants had varied responses regarding how they preferred information to be transmitted, they also had different preferences regarding how they would take information out of the museum for further research. Some expressed a preference for information in “leaflet form…visual and your bits to read”, while others also said they preferred information that was “written…maybe a book or something substantial”. More than one participant mentioned liking to take printed media home as “Sometimes you’re there quickly or you just haven’t got time for a big exhibition, you take a booklet home you’ve got time to read it afterwards”, “I’d prefer in the printed format that I can take home and read and put on the coffee table”. This was not a universal sentiment though, as one participant and his friend noted that information to be taken away was better “not on anything paper related, because they kind of go to the bottom of your bag and you never see them again”.

Age was again mentioned as a factor in preferring the printed format – one father-son duo had the elder referring to the son expecting a different opinion for what younger people preferred. While some of the under 50s group did reference using websites more, the younger participant in this case noted that “I’d say the same [books/text], but mainly like memories you’ve got from that day”, suggesting personalised experience is also valuable when taking away information. There was also mentions of the use of technology by older groups, including a participant who spoke of relying on websites for research purposes. One participant from the under 50s age group also mentioned that “I know I’d get home and wouldn’t go on to the websites so I’d say leaflets are probably the best way”, possibly because she was a casual museum-goer.

The extent of suggestions for the use of technology outside of the museum also varied. One participant suggested creating an app, so “that way you can actually go through the whole museum on your phone”. This also linked to previous themes of visitors liking control over how information was relayed, as the participant further recalled that “what I found interesting with the New York museum, the memorial one, was that you could get an app for your phone as well, just connect your headphones. And when you go to certain exhibits you could play a recording so you don’t have to have a guide there you could just use your phone as the guide” and this also meant information could be revisited outside of the museum.

A sentiment expressed universally, regardless of preferences between media, was that information linked to the museum was useful. Some participants spoke of using extra material to “plan [the] next visit” and catch up on anything missed or forgotten.

Other participants mentioned the effect of cost on these behaviours – they would “never buy a big booklet, like £10, but if it’s a small leaflet, like complementary”.

Given the lack of homogeneity in these responses, a stretch goal to help visitors take learning outside of the museum would arguably need further examination. However, considering the points given some design considerations can be made.

Design Points:

* Stretch goal: allow the visitors to print out stories they find interesting for future reference, or let them print information on the rest of the museum
* Advertise other sources of information to the user, such as the IBCC website

## Coding of the Pilot Study

As before, the answers of the pilot study will be coded for themes. However, the pilot study also contained some quantitative questions that asked users to rank options in order of preference, so the scores will be considered in addition to the qualitative questions asking participants to explain their reasoning. As responses to the pilot study were generally shorter, codes have been adapted accordingly. The new codes are as follows.

Preferences for Visitor Participation

Interaction Preferences

Age Differences in Responses

Preferences for Outside Museum Learning

* Preferences for Visitor Participation

Participants were initially asked to rank their preferences in order to choice, then to explain their reasoning. The quantitative result will be explained further below. The explanations themselves provided a varied amount of reasons.

Some chose typing out an answer as preferable, as they felt it was “easier for me to sum up experience…as opposed to talking” when typing, or that it was a more “manual” form of interaction, much like building or arranging elements in other physical exhibits. Similar to the assumption that typing would be easier, one participant did not favour typing as a first but a second choice, based on the reasoning that it would be a “more accurate and precise” way to transmit information.

Some ranked touchscreens and typing adjacent to one another, often not seeing a great deal of difference between them. One participant felt that “using a touchscreen will be more…reliable than voice”, and that there was “nothing really wrong with keyboard, although if the system was designed effectively, it could mean that the touch screen can be more effective”. Another noted that they preferred touchscreen and keyboard typing to voice recording as they “don’t like recording/hearing” their voice, showing a personal bias that other visitors could well share. Another similarly suggested a feeling of being put on the spot – that they “always feel dumb when I try to say what I think so typing is easier”, demonstrating that the feelings of the participants also needs to be considered. In addition to this, practical issues with voice recordings were pointed out, namely that it is “difficult to record clearly in a crowded environment”, and that “it is more comfortable to type a response than talk to a recording machine”.

Others chose voice recording because of the immediacy of communication and the relative intimacy of information being transmitted. A participant responded that “if I were in a museum it would be a great experience to listen to a recording…it would be especially handy if visitors could insert headphones”, while they felt that typing on a keyboard “takes away from the experience of visiting a museum”, and another agreed, stating that “recording will make you part of a living history”, but that the “other two media dehumanise the account” in that visitors will not be able to hear the accounts given in the contributor’s own words. There are also practical advantages to taking voice recordings, as most people “can speak faster than typing, so people are more likely to give more of an account”, thus improving the amount of information given. This is arguably an important aspect to consider when weighing up the advantages and disadvantages of each form of media.

One participant summarised the possible relation between all three main options, stating that they “have a personal dislike of touchscreens”, and felt that while “voice recordings have the potential to be extremely rich in personality and detail…most people wouldn’t want to bother with them”, and that “keeping it simple would have the best results”. They also suggested giving an explanation in writing, which could be achieved through the use of a digital pen.

When asked for their preferences for different ways of interacting with an exhibit, a narrow majority preferred keyboard to touchscreen interaction. This is generally consistent with the results of the interviews. Considering the results of both categories and the initial hardware outline for the exhibit given by the IBCC, the most likely choice for visitor interaction is the touchscreen, possibly with an option to allow users to handwrite on the screen.

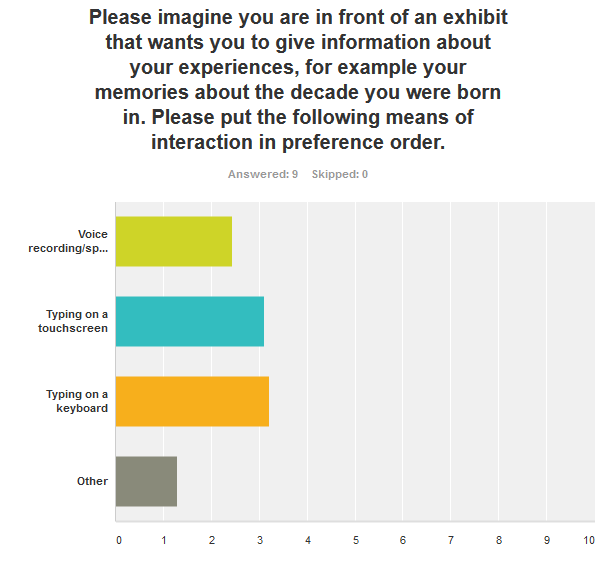


Figure 1 - Direct preference results from Survey Monkey.

Design Points:

* The majority of users from the pilot interview ranked typing on a keyboard the highest, but this is by a narrow margin and follow-up responses often show they have mentally grouped together the keyboard and touchscreen, so they are arguably interchangeable.
* Several participants, even those who preferred other media, acknowledged the human appeal of voice recordings, though there are practical and social issues that should also be considered.
* Writing with a pen is also a potential option, within the constraints of the quality of predictive technology and cost.
* Interaction Preferences

When it came to how users would like to receive information on people’s lives, responses were once again varied. Several users felt that having categories to search through was the best option as “keeping the information organised makes it easier to understand”, and it gives them “control over what…to listen or read about”, and that this would be more enjoyable as they were “being hands on” with the experience. The user then listed other options in terms of how much control they appeared to give the user over the experience. Other participants seconded this approach, stating that “media needs to be categorised…in order for users to find specific information they want”, or that they “like to choose what sections [they] get to see” and they can find exactly what they want to from the exhibits – as another user pointed out, they “don’t have enough time in the day to read everything”.

Some users also recognised that balance could be beneficial – “the information could be randomised if the user allowed it (if they don’t know what to search for and needed inspiration)”, with another backing this statement by saying “there could be an automatic playlist running, but if the visitor chooses they can override it and select the information of their choice”, as the user didn’t believe “an entirely randomised system would be very effective at either catching attention or offering valued information”.

On the other hand, some participants preferred the idea of a random collection as “finding your own way around/through the presentation makes the interaction more fun and means that the facts are more likely to stick in your mind”. Another participant suggested a loss of control could benefit more than the average visitor, but also academics who might otherwise “want to cherry pick what he heard/saw”, and that “having a random selection would give a truer slice of life than people’s prejudice filtered choices”.

One participant felt that choice of information should not be determined by the user or randomised, but instead that it should be “chosen and curated for the exhibit” by those knowledgeable, as the user might “miss the main point of interest the exhibit is trying to display”.

When observing numbers alone, the most popular choice was allowing the user to select media from within multiple categories. The most popular second choice was an automatic display going through highlights. However, as the sample size for the pilot study was so small, it cannot be taken to be indicative of how the majority of users would prefer the format of the exhibit to be.

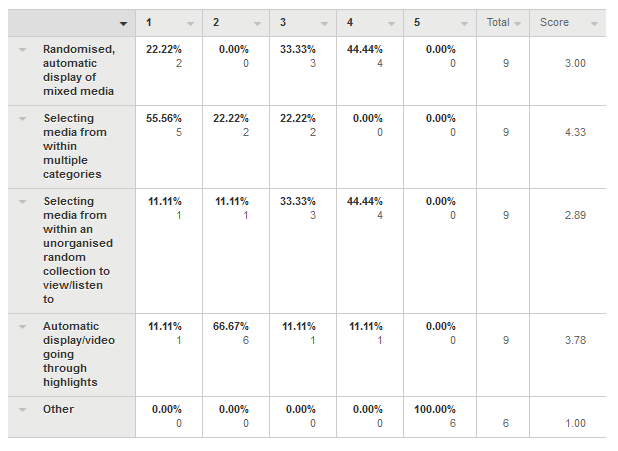


Figure 2- Scores for interactivity preferences.

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Design Points:

* Given that participants provided valid points in favour of using categories to organise information and letting users choose from a random selection/showing a random display, both types of approach should be considered for the application. User centred design and further consultation with the IBCC team will be relied upon to determine the best approach, or both can be kept.
* The exhibit could also have a ‘Recommendations’ feature to point visitors with no real personal interest in terms of content in the direction of something that would hopefully engage them.
* Age Differences in Responses

Unlike the rest of the interviews, the snowball sampling strategy led to a majority of responses from younger respondents. As such, it is difficult to spot any difference between age groups and none of the participants referred to their age as a factor in their responses.

* Preferences for Outside Museum Learning

Respondents suggested a variety of means for taking learning outside the museum. Due to practicality, some of the suggestions will have to be removed or adapted. For example, one participant suggested “trinkets and novelties…where short facts are printed on”. While a physical item or print-out is not practical, some means could be incorporated for allowing users to take snippets of information away with them, such as small facts or information sheets.

One user suggested “having a tag that you swiped as you went through the museum at points you wanted to collect data and then checked out at the end, with the results being e-mailed to the account of your choice”, which could be expanded upon to help the museum refine its content. The user could similarly swipe something against the single exhibit to get information, for example “a QR code which can be scanned using a mobile phone which links to more information or directs the user to other areas they may be interested in.”

Design Points:

* Consider QR codes and other ways to allow users to take further information away with them. This will be a stretch goal.

## Documentary Study

Given the similarities in purpose between documentaries and museums – to entertain and educate at the same time – a brief look has been taken at a range of documentaries. These include history documentaries and documentaries relating to other interests in order to get a full impression of the different methods documentary-makers use according to the different audience and purpose.

Documentary One: Extract from Shoah, a film by Claude Lanzmann (Niederschlasing, 2011).

Content: Interview with Jan Karski.

Style: Interview with few cuts, simple pans over parts of Poland (possibly Warsaw/former Ghetto). Uninterrupted, long clip of Holocaust rescue and aid provider giving his testimony about what he saw. Slight production values.

Personal effect: Very intimate, like being told a story. Camera keeps to one continuous shot of the participant as they talk, apart from one cut to a continuous shot through Poland’s houses.

Documentary Two: Living Famously – Karen Carpenter BBC Documentary (CrescentNoon, 2008).

Content: Interview clips spliced between film footage, images and voiceover. Largely friends, family and recording staff contributed clips, except for outside analysis by psychiatrists.

Personal effect: Less emotive and more relevant and engaging to people with an active interest in the subject. Full overview of the performer’s career.

Documentary Three: Bomber Command 1939 to 1945 (Wheldrick, 2016).

Content: More theatrical, dramatic approach – music against black and white archive footage in the opening, fading into a speech by Churchill. More verbose and dramatic in its voiceover, matter of fact tone and focus on presenting statistics and Bomber Command operations.

Personal effect: Factually useful, but creates distance from the subject due to the narrator’s focus on operations and little information on the human cost. Broad overview gives the impression of a great deal of detail being missed, and the documentary being quite old can create the impression that the primary agenda is to present the situation as simpler than it really was.

Documentary Four: Shoah – Simon Srebnik returns to Chelmno – opening sequence of Shoah documentary (Begbie, 2007).

Content: Srebnik was one of the survivors of Chelmno, an extermination camp which killed all but two of the 400,000 people who were sent there. Introduction to topic via scrolling white text and a black background, and complete silence. Sustained shots of Srebnik riding up river in a boat with a film companion. Few cuts, slow panning shots of Chelmno countryside. Unedited reaction footage.

Personal effect: The total silence, sombre subject matter and simple language of the scrolling text is very engaging, emotive and shocking, partly due to the subject matter alone (Srebnik miraculously survived a gunshot to the head) and partly due to the lack of background music to break the tension.

Documentary Five: Interview with a Nazi SS Officer – Franz Suchomel – Discussion of Treblinka Gas Chambers (HistorySpeaks4Itself, 2009).

Content: Previously unseen footage of an interview with an SS officer. More of a structured interview between two parties. The other side of the Jan Karski interview, as it provides the view of someone who helped empty the Warsaw ghetto.

Personal effect: Both interviewer and participant keep to the facts, but the content is brutally shocking. The participant is noticeably uncomfortable with the implication that he might have been aware that the camp was a death camp, and insists he was only told to guard a workhouse at first.

Documentary Six: Death Camp Treblinka: Survivor Stories Documentary (BBC Documentaries, 2016).

Content: Combination of usual BBC documentary style and a style more similar to the Shoah film. Mixture of fact-based, archive clips, photos and interviews with survivors of Treblinka.

Personal effect: The personal interviews are incredibly emotive and harrowing, while the joining clips give an overview of how the camps work. The interviews with the two survivors are incredibly effective at showing the human suffering beyond numbers, photos and statistics.

## Other Information Sources

# Glossary

HCI – Human Computer Interaction

IBCC – International Bomber Command Centre

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