Evaluating the Enligtenment Exhibit at the British Museum

TEAM MEMBERS
HENRY BALL
MARYNA ILYANOK
MAXWELL SMITH
NATHANIEL WESTFALL

ADVISORS
ESTHER BOUCHER-YIP
SARAH STANLICK

Job, Son of Solliman Dgiallo, High Priest of Bonda in the Country of Foota, Africa

WPI

The British Museum

SPONSOR: MR. STUART FROST, HEAD OF INTERPRETATION & VOLUNTEERS AT THE BRITISH MUSEUM

An Interactive Qualifying Project submitted to the faculty of Worcester Polytechnic Institute in partial fulfillment of the requirements for the Degree of Bachelor of Science

This report represents the work of four WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its website without editorial or peer review.

ABSTRACT

In this project, we researched the engagement and retention of visitors at The British Museum, specifically in the Enlightenment Gallery (Room 1). Our findings are based on data gathered from interviews with subject matter experts, visitor observation, and visitor survey responses. We used a custom computer program, observational notes, and a survey deployed through Qualtrics. Through this, we were able to evaluate the efficacy of exhibit design on visitor engagement, information retention, and the associated how and why. We then used our findings to make recommendations for museums in general, our sponsor The British Museum, and for any future gallery evaluation projects. In the supplemental materials booklet, we supplied the code for the tracking program and the questions in our survey.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

INTRODUCTION

Located in the Bloomsbury area of London, the British Museum is an internationally known historical and cultural center. Established by Parliament in 1753 by request from collector Sir Hans Sloane, the museum, according to its website, now serves over six million global visitors each year. On the ground floor of the British Museum stands the oldest room in the British Museum, Room 1, home to the permanent Enlightenment Gallery. Since its last renovation in 2003, the gallery has been used to display how 18th century European collectors organized objects and viewed the world (British Museum, n.d.-a, n.d.-b, 2023; Paine, 2005). In 2020, the museum changed parts of the gallery to address the link between these 18th century collections and the practices of colonialism and slavery of the time. These changes were minor, and the main result was the movement of Sir Hans Sloane's bust from a plinth and into a case that shifted its focus to collecting and empire (Marshall, 2020). As renovations in the Enlightenment Gallery are scheduled for October of 2024, there is a need to evaluate the impact the gallery has on modern audiences so that, where needed, changes can be made. Our project aims to support the British Museum in performing this evaluation by observing and evaluating the efficacy of exhibit design on visitor engagement, information retention, and the associated how and why.

In the next chapter we present key background information, define evaluation metrics, and provide context for the British Museum, its Enlightenment Gallery, and the scheduled renovations.

LITERATURE REVIEW

 The British Museum serves over six million visitors a year and houses the largest collection of artifacts detailing human history in the world. As a nonprofit public institution of this scale, the museum has a large responsibility in ensuring that their exhibits represent featured artifacts in an educational and enticing way. To learn more about the visitor experience in museums, we reviewed literature on professional studies on museum layout analysis, use of technology, and interactive exhibit design. In this chapter, we discuss the history of the British Museum, the Enlightenment Gallery, The Sloane Lab project, visitor engagement and information retention, and the effect museum layout, technology, and interactive media have on said engagement and retention.

History of the British Museum and the Enlightenment Gallery

The role museums play in providing culture and knowledge to their communities and visitors is vital. Museums must, among other things, be "open to the public…[with] experiences for education…and knowledge sharing" (ICOM, 2022). Museums do great service to a community by producing "visual cultural narratives that produce views of the past and thus of the present" (Hooper-Greenhill, 2007). Through historical museums we can connect to other cultures, our own cultures, and learn not just about the past but also tie that information to the present (Hooper-Greenhill, 2007). It is therefore key for a museum to present this culture, heritage and knowledge in a manner that increases public knowledge and allows visitors to see their place in history.

According to their website, the British Museum was the first national museum in the UK open to the public. The Enlightenment Gallery, located on the ground floor, is the oldest still standing room in the British Museum. It was originally designed in 1828 to hold King George III's Library but has, since 2003, been used to show how 18th century Europeans organized objects and thought about their world (British Museum, n.d.-a, n.d.-b, 2023; Paine, 2005).

Among the artifacts in this gallery is a collection from a major benefactor to the British museum, Hans Sloane. The British Museum website details his life journey and role of his collection in the British Museum. He was born in 1660 in Killyleagh, Ulster and at 27 sailed to Jamaica where he worked as a doctor on slave plantations. Here he began his collecting career, gathering preservations of over eight hundred plant species. His collection grew as he received items from friends and bought more using profits from slave labor. In his will, more than 80,000 artifacts were donated to the British government for £20,000 on the condition

Bust of Hans Sloane before being put in a case

that the collection would be used to create a public museum. The British Parliament accepted this offer, and the British Museum was established on June 7th, 1753. (Britannica, 2024; British Museum, n.d.-e).

Within the 163 days (about five and a half months) in 2020 the museum closed due to the COVID-19 pandemic and following the murder of George Floyd in the United States in 2020, the Enlightenment Gallery underwent changes to address the Museum's links to colonialism and slavery. These changes resulted in the bust of Hans Sloane (see photo 1 and 2) moving from a nondescript pedestal to a display case where he was named a slave owner and surrounded by other slave trade related objects (Marshall, 2020).
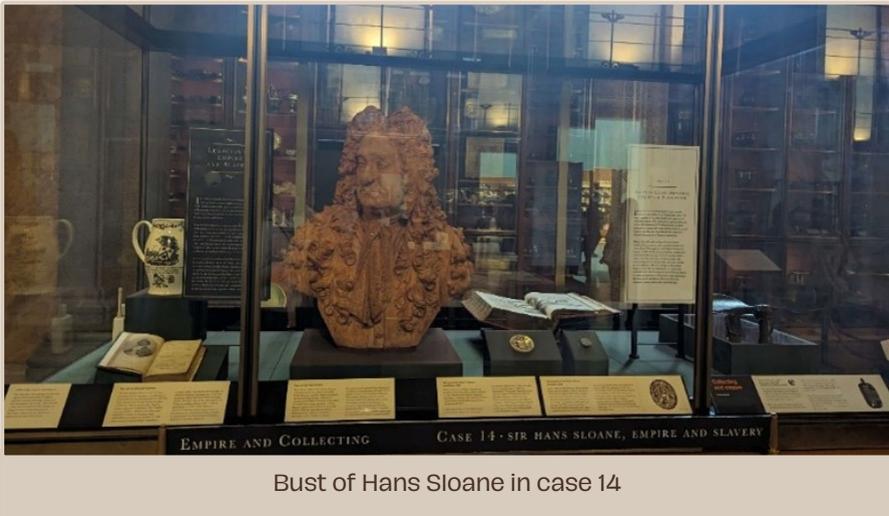
Bust of Hans Sloane in case 14

The Sloane Lab project

The Sloane Lab project is a collaboration between the British Museum, the British Library, and the Natural History Museum to evaluate their respective collections on Sir Hans Sloane and compose a more cohesive look into his history. Alongside aiming to create a more standardized, publicly available, digital library of Sloane's work, The Sloane Lab project team hopes to take advantage of the upcoming renovations and draw more focus to Hans Sloane and his initial collection. The project acknowledges that this allocation of Sloane's history presents an opportunity to spread awareness and spark debate on the controversial aspects of the British Museum's history and the origins of its artifact collection. They also want the display to acknowledge how museum acquisition is

often rooted in colonialism, slavery, empire, and how the process of acquisition can misrepresent the collection. In the Enlightenment Gallery some of these changes have already been implemented, the movement of Sloane's bust into a display case with better historical context being one example. The Sloane Lab project hopes to continue to bring forward a range of perspectives that will encourage the public to engage more with this aspect of history.

Museum Visitor Engagement and Retention

Engagement and methods for engagement are important concepts for museums to consider, mainly as they are key methods for museums to measure their success. In our project, we define 'engagement' as the amount of time spent in front of specific artifacts while reading the information displayed. Methods for engagement include information delivery methods, smaller information blurbs, and/or a more cohesive layout (Gao et al., 2019; Hsu & Liang, 2022). A few methods of measuring this engagement are dwell time, path tracking, and counting the number of stops a visitor makes (Gao et al., 2019). "Dwell time" is defined as the length of time a visitor stays at a display. This can be further split into aspects of engagement such as reading plaques, taking photographs, and engaging in discussion. (Gao et al., 2019; McNeill et al., 2023). "Retention" is defined as the amount of exhibit information a visitor can recall. This was measured right after the visitor left the room through surveys (Tatli et al., 2021). These metrics determine which artifacts or displays a visitor was willing to give their attention to, for how long, and the result of such engagement.

CONCEPT	DEFINTION	SOURCE
Engagement	The amount of time spent in front of specific artifacts while reading the information displayed.	(Gao et al., 2019; Hsu & Liang, 2022)
Dwell Time	The length of time a visitor stays at a single display.	(Gao et al., 2019; McNeill et al., 2023)
Retention	The amount of exhibit information a visitor can recall after visiting.	(Tatli et al., 2021)

Table 1: Gallery evaluation metric definitions

Recognizing the importance of engagement, the British Museum currently conducts some programs within the Enlightenment Gallery. These programs include Friday night spotlight tours and Museum Missions, missions where participants complete goals by finding specific items, posing as sculptures, describing as many objects in the gallery as possible in a minute, and more. (British Museum, n.d.-c, n.d.-d)

Museum Layout Principles

Museum layout is a major influence on how museum visitors perceive an exhibit (Choi, 1999). Layout dictates pathing and the order in which visitors travel between exhibits, and as such can shape the narrative between the items displayed. A historical museum can use layout to enhance visitor experience by highlighting connections between items of similar history. Layout design can also be used to put a focus on items or displays the museum wants to draw attention to (Choi, 1999). Museum layout principles can be split into two sub-topics: grouping of objects and spatial analysis (Choi, 1999).

Grouping of objects

Object grouping focuses on how museums decide to arrange displays relative to each other. This is often done by categories to provide a sense of cohesion and logical flow as visitors move through exhibits. The three main grouping categories are culture/region, chronology, and style of object (Choi, 1999). In a historically focused center, like the British Museum, it is more likely to see the former two groupings, as seen by the rooms specifically labeled by a culture/location, like their Ancient Egyptian section and their collection of rooms on the Roman Empire. Within the British Museum these cultural subsections are frequently further divided by period (British Museum, 2023).

Spatial reasoning

Spatial analysis is the process of analyzing a space in terms of its physical 3D layout (Choi, 1999). In the study of spatial analysis there are a few key terms that can help us begin analyzing museum layout. A 'convex space' is an area in which everything is visible from any point within said area. Separating exhibits into convex spaces makes it easier to analyze each partition as an individual unit of area with no line-of-sight blockers (Choi, 1999). 'Axial lines' denote the longest stretches of visibility within a space along one direction (Choi, 1999). The 'isovist' is the total area visible from one

point (Choi, 1999). While it follows logically that an isovist in any convex space will be able to see everything in the convex space, the isovist remains a useful tool in monitoring what other convex spaces are visible from that point. Put into the context of our project, isovist views allow us to access visibility between exhibits and displays, a critical aspect in monitoring how visitors choose to move between them.

Axial Map

Convex Spaces
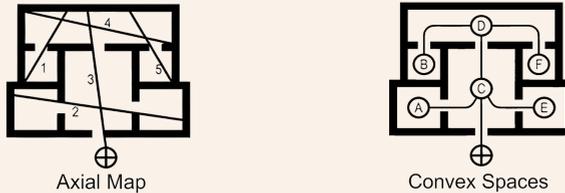
Another study about the importance of room layout was conducted by the Evaluation of the Islamic World Gallery at the British Museum research paper from 2019. The study had several suggested changes with a focus on accessibility. One of their findings was that there were several items that visitors wanted a full round view of but due to their positioning they were partially obscured (Gao et al., 2019). This highlights the importance of object layout within a convex space, and how visibility does not necessarily equate to a proper viewing experience. Another finding by the Islamic Gallery IQP group is that visitors were often tired but had trouble finding open seating.

Improving Visitor Engagement through Interactive Activities

Interactive activities like games and scavenger hunts have been shown to improve museum visitors' engagement, as well as their likelihood of returning in the future (Hsu & Liang, 2022). Furthermore, interactive activities have been proven to be more effective with younger demographics. Not only are younger demographics more familiar, and therefore more proficient, with technology, they have been found to respond better than adults and teens to the reward systems commonly found within games and other interactive activities. A study on the impact of engagement through a mobile phone game found that to get the most effective results, the games incorporated into museums should adapt according to the age group of the user (Hsu & Liang, 2022). While the introduction of games or activities in Enlightenment Gallery could improve visitor engagement, implementing these activities using technology is another method of measuring engagement (Gao et al., 2019; Hsu & Liang, 2022).

Improving Visitor Engagement and Retention with Technology

Museums have long recognized the potential that technology has in aiding daily functionality. Security cameras, online websites, and audio recordings describing displays in multiple languages can be found within many museums worldwide. But as the role played by technology in people's activities is constantly increasing, we believe that the role it plays within museums should too. A study conducted in February 2023 on visitors to the Palace Museum in the Forbidden City of Beijing below the age of 40, showed that when the diversity of digital technologies is properly embraced, digital tools are effective in increasing visiting values (Z. Wang & Meng, 2023). The study also highlighted that adopting versatile presentations, especially those that are highly immersive, interactive, or personalized can yield significant benefits in visitor engagement. Within the lens of information retention, the study suggests that digital tools like video content under an IP or virtual souvenir shops have the potential to increase public engagement, strengthen cultural awareness, and nourish a long-term relationship between the visitor and the museum (Z. Wang & Meng, 2023). This

Screenshot of The British Museum Audio App

desire for digitalization in museums is corroborated by a June 2016 study into tourist preferences into STAs (Smart Tourism Attractions). It found that their preferences are multifaceted and include real-time information access, online booking and tourist-flow forecast before the trip, as well as effective tourist attraction management, personalized itinerary design, efficient transport, and smart safety during the trip (X. Wang et al., 2016).

Despite the visitor desire for and positive effect of technology, museums should consider two key aspects before incorporating technology into their exhibits. First, the museum must ensure that digital infrastructure does not override the museum's mission by maintaining a balance between digital innovation and the museum's social mandate (Taormina & Baraldi, 2022). Second, to effectively incorporate technology the museum must train staff in the maintenance and use of any modern technology. If these

aspects are addressed, the addition of technology to an exhibit can benefit the museum and its visitors.

As we have outlined in our background, there are many considerations and opportunities to explore regarding exhibit design and the eventual redesign of the Enlightenment Gallery. In our methodology section, we will detail our research design, the research questions that guided our process, and the employment of methods such as spatial analysis, observation, and surveying.

Layout of the Enlightenment Exhibit

When analyzing the layout of the Enlightenment Gallery we can make use of the spatial analysis terms we researched. The exhibit is rectangular with very few sight blockers. From the museum map as well as scouting from a virtual tour the exhibit can be split cleanly into three convex spaces (British Museum, 2023). There are exceptionally long axial lines running the length of the exhibit, where a visitor can see everything, the exhibit offers from one straight line path.

In the Enlightenment Gallery, the British Museum has placed a lot of significance on the importance of the Piranesi vase and the four central display cases (British Museum, 2023). The Enlightenment Gallery also has many display cases that are lower to the ground than other exhibits. This might make the gallery more accessible to children or people with certain disabilities while other visitors might have trouble leaning down to properly view the items. As seen by the virtual tour, Enlightenment Gallery has four small seating areas along that main axial path through the entire exhibit (British Museum, 2023). These layout considerations are all significant factors that we will need to monitor so we can aid in informing the British Museums renovation of the Enlightenment Gallery.

Full map of the Enlightenment Gallery
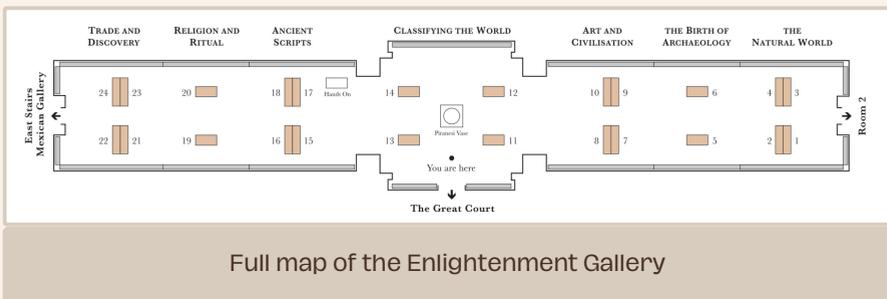
METHODOLOGY

The goal of this project was to observe and evaluate the efficacy of museum display design on visitor engagement. Our context was working within the British Museum's Enlightenment Gallery as they prepared for permanent exhibit renovations. We partnered with the British Museum's Interpretation Team. Specifically, we focused on the displays in the center of Enlightenment Gallery 1.

We designed a mixed methods research study to address the following questions:

01.

How can a museum gallery more effectively convey the desired message of the displays within?

02.

How does layout and design impact museum visitor engagement?

03.

How does the display of artifacts and informative text affect the information retention of visitors?

To answer these research questions, our team gathered quantitative and qualitative data to understand how and why people engaged with the exhibits. Our team gathered this data by interviewing museum staff, observing museum visitors as they traveled through exhibits, and deploying a survey. In the following sections, we elaborate on our methods: interviews, visitor tracking, observations, and surveys.

Interviews

We decided to interview the staff to first get a good background and understanding of the Enlightenment Gallery and the message the museum was trying to convey. We also chose to interview museum subject matter experts to understand which factors could help the Enlightenment Gallery convey this message. Learning about the background and upcoming renovation of the Enlightenment Gallery allowed us to focus our study on what would be useful to the museum and The Sloane Lab.

Objective 1.1 Obtain background information on museum visitors and past museum studies

Our first interviewee was our sponsor contact, the Head of Interpretations and Volunteers, who shared valuable insight gained from 20 years of experience on the best practices involving visitor metrics. Interviewing our sponsor provided our group with expert insight and advice that allowed us to expedite the finalization of our methodology. We learned more about existing visitor studies and obtained data on visitor demographics which allowed us to refine our survey and visitor observation plan before beginning implementation. We used this method of data collection to accomplish the following objectives.

Photo from our interview with the British Museum's Head of Interpretation and Volunteers, Stuart Frost

Objective 1.2 Determine what The Sloane Lab aims to improve in the Enlightenment Gallery

Our second interviewee was a curator, researcher, and directorate for The Sloane Lab project with a doctorate in history. From this interview we learned that the renovations aim to reduce the number of objects in the central four cases. The Sloane Lab hopes that this will increase the attracting power of the displays and more effectively communicate the history behind Hans Sloane, collecting in the Enlightenment Era, colonialism, slavery, and the British Museum. With insight from this interview, we revised our survey further, including more questions, both open and closed-ended, and key intellectual and personal takeaways that visitors may have gotten from interacting with the four central cases.

Observations

Visitor tracking was our primary method of data collection due to its reliability and efficiency when acquiring substantial amounts of data. While surveys require direct participation and interviews are long and structured, the only requirement for visitor tracking is for visitors to enter the room. On busy days this allowed us to collect up to fifty unique visitor paths with accompanying notes. The path tracking data was useful when visualizing where visitors linger and for the creation of visitor heat maps while the qualitative data collected through notes was useful when recording group size and behaviors we did not previously categorize. These methods were used to accomplish the following objective.

Objective 2.1 Determine how museum visitors engage with the central gallery of Enlightenment Room 1

We conducted observations, which involved viewing and recording museum visitors and their interactions within an exhibit. Our observation of visitor behaviors was made by using a technology originally used in Processing (Fry & Reas, 2001). The team tracked visitor behavior in the exhibits by drawing their observed path into a program that recorded their coordinates, dwell time, visitor type, and any standard behaviors. Standard behaviors include taking photos, discussing, and taking a booklet. The four

Screenshot of the computer program we created for path tracking
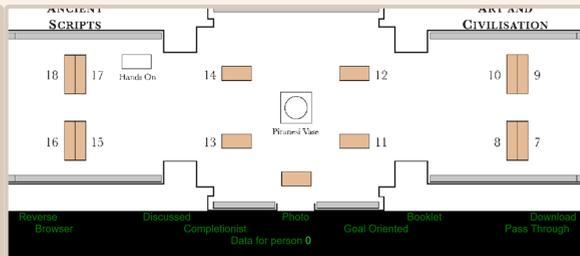
main visitor types include: 'goal-oriented' visitors, those who enter the exhibit to view a specific display; 'completionist' visitors, those who attempt to visit all displays and read their accompanying plaques; 'browser' type visitors, those that enter an exhibit and view the displays in a more casual manner; and 'pass through' visitors, those who just walk through the exhibit to get to another part of the museum. We learned about these visitor types after meeting with the Head of Interpretation and Volunteers at the British Museum, along with what information is considered valuable and what types of visitors they see most often.

The program we used to achieve this tracked the mouse position on a picture of the Enlightenment Gallery 8 times per second. The output was saved as text that was a list of decimals in the form of coordinate points. Due to the need to track people on iPads and phones, which processing apps could not compile, the

Pass Through

Goal Oriented

Browser

Completionist

program was rewritten as an HTML web app. The rate of logging was lowered to four times per second and the output was changed to a binary format to decrease memory size. To document common observations, buttons were added in the program to log visitor behaviors such as discussing, taking a photo, or taking a booklet. Other buttons

were added for visitor type: Browser, Completionist, Goal Oriented, or Pass Through. A last button was added for flipping the image, so the project team did not have to draw the path upside down. The web app was hosted on a personal website (Nate Westfall, 2024a)and the source code can be found at (Nate Westfall, 2024b).

We tested our tracking program when the Enlightenment Gallery was closed January 22nd to February 9th. For two weeks, we observed the Egypt Gallery (Room 4) because it had a similar layout to Enlightenment Gallery (Room 1) and The Collecting the World Gallery because it was connected to and had similar objects as Enlightenment Gallery (Room 1). The opportunity to observe two other galleries helped us improve our observation method for the Enlightenment Gallery.

Surveys

To gather data directly from visitors we deployed a survey about the Enlightenment Gallery (Room 1). Our main reason for choosing to conduct a survey rather than an interview or focus group was to reduce the burden on participants and obtain a larger sample size. The survey filled in many of the gaps within our data by giving us insight into the visitor information retention, opinions, and key ideas. We used this method of data collection to accomplish the following objective.

Objective 3.1 Determine visitor retention and perceptions regarding the central section of the Enlightenment Gallery

The survey collected information on what visitors remember from the exhibit, their current country of residence, and their display preferences. Surveys were provided at the room exits through QR codes and through a pre-downloaded version on phones The survey contained twenty-seven questions with four open response questions (Supplementary Materials pg.2). We used Likert Scales for thirteen questions as they were easy to answer and

Survey screenshot

Example of how we deployed the survey

provided quantitative data that could be efficiently analyzed to graphically represent what the data showed. The few qualitative questions were short answers. Surveys made our data set more robust as simple observation does not paint a complete picture of the visitor experience.

Ethics

As our methods of data collection involved human participants, ethical concerns involving informed consent, data collection, and data storage needed to be addressed. Within our survey, all questions were optional and participants were informed what the data was used for. We did not observe children. Any identifying information obtained was properly secured, handled, and disposed of. All collected data was used for the purpose disclosed to the participant. Our project was presented to an IRB and was only implemented once approved (Heimlich, 2015).

Challenges

We identified five main challenges: survey participation, data collection bias, time constraints, and the closing of the Enlightenment Gallery for two weeks. These challenges were identified early, and we were able to form a plan to address them.

To address issues with survey participation the survey was designed with minimal burden on the participant. When asking for participation we were honest about the duration, and average completion time of five to seven minutes. This honesty made visitors more inclined to participate, allowing us to reach a large enough sample size for our data to be considered valuable.

Bias in data collection was reduced by implementing the British Museum's tried and true method of observing every fifth person to pass a certain entry point to the exhibit. This ensured that the visitors selected for observation were truly random. Survey bias was addressed similarly. We implemented no selection criteria and asked every visitor leaving the exhibit to take a few moments to let us know their thoughts. We also hoped this would further reduce the non-response bias. Despite these measures, we recognize that no data is perfect, and bias still exists within our data.

Sign showing Gallery closure

Our project group had some limitations when considering which methods to use for our data collection. Chief among these considerations was the feasibility of conducting our research within the project's time constraints. With seven weeks and four participants, we needed to adjust the scope of our methods to ensure they could be realistically implemented. We did this by adjusting visitor tracking to only the central portions of Room 1 and Room 4. Another primary concern was the utility of the data collected. To sufficiently cover our research questions, we needed both a mix of qualitative and quantitative data references. Our project team drafted a diverse range of method choices that allowed us to fulfill these requirements and obtain a valuable data set.

The largest challenge we encountered was the unexpected closing of Enlightenment Gallery 1 for two of the seven weeks our team was in London. While this was a planned event, both the museum website and our sponsor contact let our team know only once the room had already been closed. While we originally planned only to collect data in Room 1 and to do so for 4-5 weeks, we were only able to do so for half of the expected time. The team overcame this obstacle by collecting data in other rooms during the closing, selecting Egyptian Room 4 for its similar design to Room 1, and Room 2 for its similar subject matter. This shift ended up being highly beneficial as we were able to compare the attractive power of the Enlightenment Gallery to the Egyptian Room, the dwell time and attractive power of the displays in Room 2 when compared to Room 1, and the impact the closing of a Gallery has on its neighboring rooms.

There were many challenges we needed to address in implementing our project, but we believe they were properly addressed. In the next section, we discuss our findings and our suggested changes for the Enlightenment Gallery.

FINDINGS
&
ANALYSIS

From the data collected we put together fourteen main findings. In this section we go through these findings and their supporting evidence. It starts with our interview findings, moves onto the findings from observations, and finishes with survey findings. It was organized this way to allow the evidence under each finding to be easily discernible by type and origin.

Interviews

Finding 1: The British Museum has conducted prior visitor research

In an interview with our British Museum contact, we were given the language distribution of museum visitors from 2018/19. The top languages spoken by museum visitors were English at 54% and Spanish, French, Italian, Mandarin, German, Cantonese, Japanese, Portuguese, Polish, Korean, and Dutch all individually at less than 10%. Next, we discussed past surveys conducted in the museum and methods that worked best for deploying those surveys. We were told the best way that the museum has found to get people to take the survey is by being honest about the duration of the survey, and to have a prepared blurb stating "Hello, I am a researcher with the museum and was wondering if you would take a brief 5-7 minute survey to help improve this exhibit." When we implemented these methods, we were able to obtain ~20% completion rate of people who took the survey compared to those asked. This interview also helped shift our survey's focus towards the emotional impact of the Enlightenment Gallery and the information visitors retained from their visit.

We were also able to review original research done by the British Museum to compare past data about the Enlightenment Gallery. Our sponsor provided us with an evaluation of the Enlightenment Gallery conducted in 2005 under The British Museum Gallery Evaluation Project. The goal of this research was to assess the gallery in terms of appeal and visitor impressions by measuring visitor satisfaction, intellectual intelligibility (referred to as retention within our report), design, and presentation. Researchers conducted twelve in-depth, hour long interviews with visitors who had been to the British Museum in the past year across both demographic and attitudinal splits. These participants were briefed in advance with an audio-guided visit to the gallery. From these interviews, researchers found that: there was a low level of gallery awareness prior to visiting but it increased post visit; most visits to the gallery were unplanned; overall impressions focused on atmosphere and artifact content; both signage and labeling recognition was low and felt to be extraneous in the context of the number of objects to be viewed; visitors understand the historical context of the gallery.

Finding 2: The Sloane Lab plans to use the Enlightenment Gallery to display the history of Hans Sloane more clearly

Our interview with one of the researchers in The Sloane Lab project gave us a better grasp on the upcoming fall renovation and how it is related to Hans Sloane's history. The renovation would primarily focus on the middle portion of the Enlightenment Gallery with a primary interest on the case of Sir Hans Sloane. Their aim is to streamline the story of his collection by reducing the number of artifacts in the case (though there are no plans to remove the bust of Hans Sloane). Our interviewee highlighted how the British Museum hopes to use the Enlightenment Gallery to spark meaningful discussion about the origins of the museum collection. In the interview, an interaction with the diversity advocacy group Voices from the Edge, was highlighted due to their positive reacted well reaction to a display created by The Sloane Lab in Northern Ireland. It was mentioned that the display started a dialogue and made them feel "heard." The Sloane Lab now hopes to spark similar dialogue within the British Museum.

Observations

Finding 3: Visitors do not frequently engage with Case 11, King George III's Library

After collecting 150 unique visitor paths, we compiled a heat map around the Piranesi vase and each of the four central display cases. The boundaries around the displays become redder for every point a visitor is recorded to be within the radius. This was meant to serve as a gauge of visitor interest with each display, with visitors staying longer around a display as an indication of

Photo of us actively observing a museum visitor

interest. The heat maps are broken up by which entrance the visitor entered from, with the average across all visitors in the center. As seen from this heat map, Case 11, King George III's Library is the least popular display. Both Case 14, Sir Hans Sloane: Physician, Collector, Slave Owner, and Case 13, Understanding Greek Vases had similar interest, with case thirteen being more popular between the two. The case that had by far the most points tracked around it was Case 12, The Revolution in Science. From the split map showing points tracked by entrance, we can see that visitors were more likely to spend time around the cases closest to the entrances they came from.
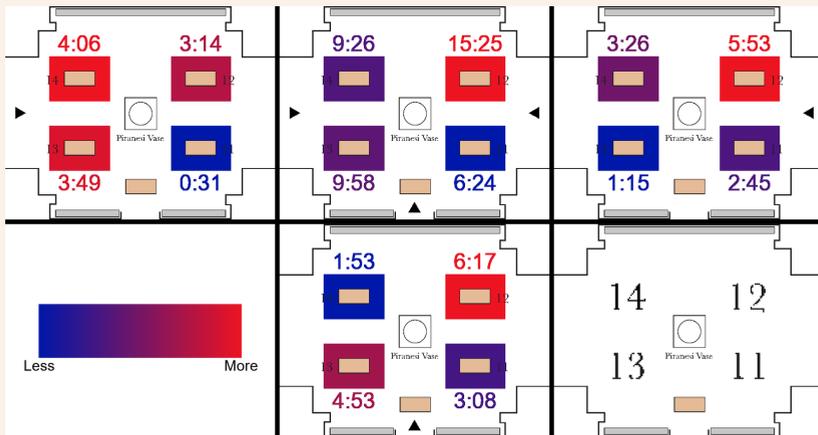

Figure 1, Total time spent at each of the 4 central cases

Finding 4: Visitors within the center of the Enlightenment Gallery behave similarly to those in Room 4
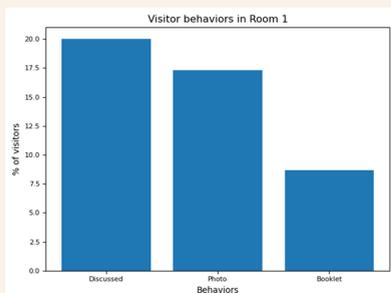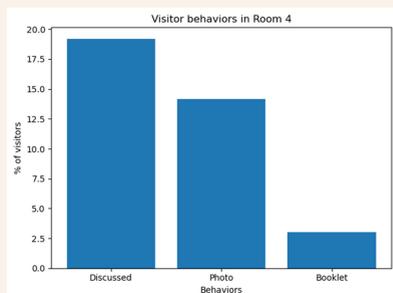

Figure 2, Behaviors in Room 1

Figure 3, Behaviors in Room 4

Within the Enlightenment gallery 20% of visitors, we tracked had a discussion and 17.5% took photos. In Room 4 18% of visitors had a discussion and 14% took pictures. We found this particularly interesting as the rooms are similar in size, but Room 1 has four central cases whereas Room 4 only has one.

Finding 5: The dwell time for visitors in the Enlightenment Gallery was significantly lower than museum average

The average dwell time in the central part of the Enlightenment Gallery for the 150 visitors that we tracked was 57 seconds. This is significantly shorter than the average dwell time spent in all other galleries across the museum, which was 3 minutes and 19 seconds according to a full museum study from 2016 (Gao et al., 2019). While this comparison is not entirely accurate due to the central zone of the Enlightenment Gallery being a small area, it still shows most visitors do not engage with many of the displays. The box and whisker plot below shows that visitors who spent longer than two minutes in the middle portion of the gallery were outliers.
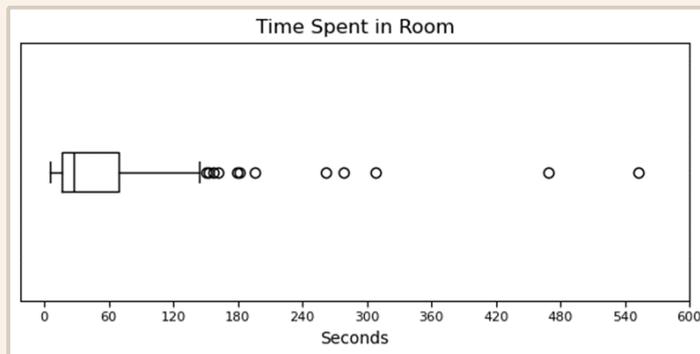
Figure 4, Box and Whisker chart of time visitors spent in Room 1

Finding 6: The Hans Sloane Case was the least likely case to be visited first

As a measure of case attractiveness, we measured which of the four central display cases visitors gravitate towards first. In our analysis, this was defined as the first case in which a visitor spends over four consecutive seconds within a certain distance of. On the heat map below a red tint indicates that the case was frequently visited first, a blue tint indicates the opposite, and no tint means no visitors viewed those cases first. Each display shows the results from each entrance, with their combined total in the

center. Visitors overwhelmingly visit the cases closest to the entrance they came from. Combined between all entrances, the four cases were mostly even in distribution for attracting visitors first. Case fourteen containing the bust of Hans Sloane attracted the fewest first-time visitors.
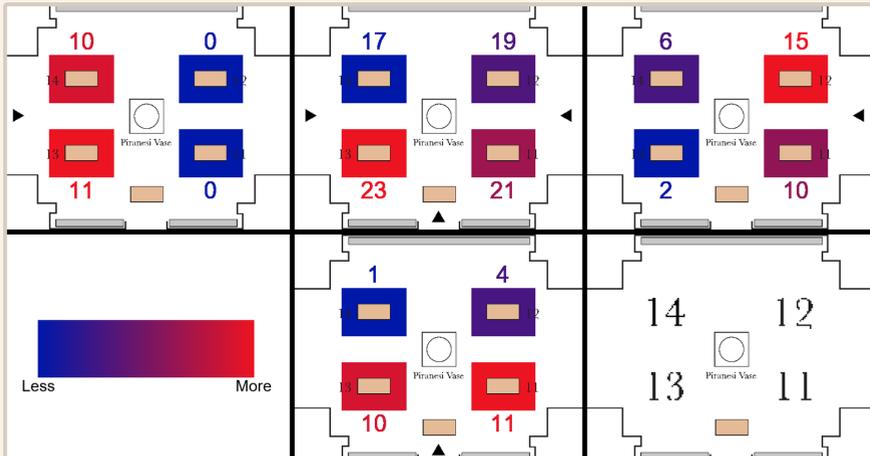
Figure 5, Heat map showing the first visited case, separated by entrance

Finding 7: Case 13 had the most foot traffic

In the opacity map below Figure 6 we see that many visitor paths take them near case thirteen, as the ancient scripts entrance and the great hall entrance are the most common. We can also see from Figure 7 that there is a hot spot for time spent right next to Case 13.
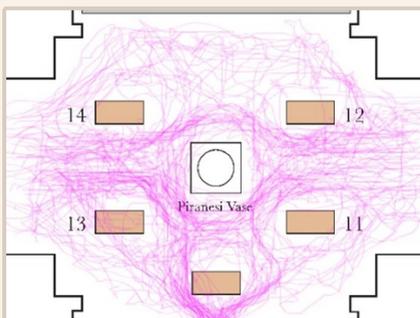
Figure 6, Opacity path drawing
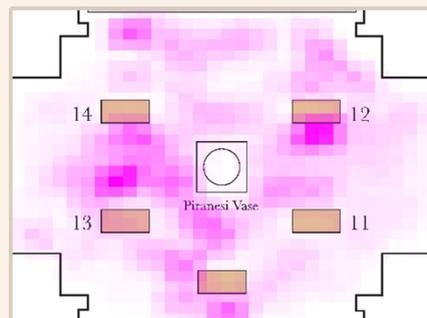
Figure 7, Hotspots of time spent in Room 1

Finding 8: The amount of time visitors spent in the center of the Enlightenment Gallery increases slightly with group size

When tracking time spent in the center of the Enlightenment Gallery, it was determined that group size only has a small impact on dwell time with a slight upwards trend the larger the group size. From our tracking data we observed thirty-four solo visitors, sixty-seven groups of 2, 13 groups of 3 and 20 groups of four or more. Solo visitors spent the least amount of time in the central gallery, spending an average of 49 seconds. Both Groups of 2 and 3 had the same average time in the central gallery at 53 seconds. Groups of four or more people spent the longest time in the gallery at an average of 1 minute and 23 seconds. It is likely that the dwell time average for groups of two and groups of four or more are skewed a little higher by outliers. Overall, the similar averages for dwell time might indicate that the central Enlightenment Gallery was more appealing to larger groups.

Figure 8, Dwell time based on group size
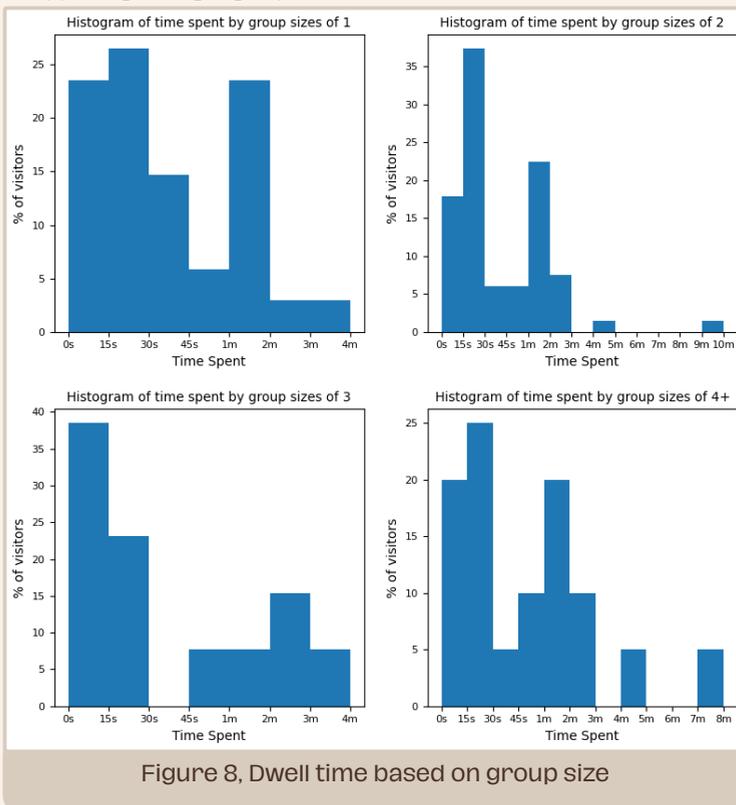
Survey

Finding 9: Most visitors to the Enlightenment Gallery wandered into the room

Our survey data shows that 67% of the Enlightenment Gallery visitors wandered into the room. Only 12% of visitors found the room from signage and maps within the museum.

Reasons for visiting Room 1 60

67% (40)   10% (6)   12% (7)

■ I just wandered in ■ I came specifically to visit this room ■ The British Museum website ■ Recommendation from friends/family
■ Map/sign from within the Museum ■ Press, magazine, or social media ■ Other:

Figure 9, Dwell time based on group size

Finding 10: Visitors mostly ignore or skim the Introductory Panel at the entrances to the Enlightenment Gallery

At all three Enlightenment Gallery entrances, there is an introductory Panel that contains information about the room's historical context. Our survey data suggests that the panel is quite visible as 76% of visitors claimed to have noticed the panel. Despite this, only 9% read the text in detail, with 40% skimming the text and 28% ignoring it after noticing. If the data from the survey holds true, this suggests that only 49% of visitors to the gallery benefit from the presence of the panel. Over half of the visitors not receiving context on the background of the Enlightenment Gallery upon entering can influence how they perceive the overall focus and design of the gallery.

Visitor interaction with the introductory panel in Room 1 59

24% (14)   27% (16)   39% (23)   10% (6)

■ No, I didn't notice the panel ■ No, I noticed the panel but did not read the text ■ Yes, I noticed the panel and skimmed the text
■ Yes, I noticed the panel and read the text in detail

Figure 10, Percentage of visitors that interact with the intro sign
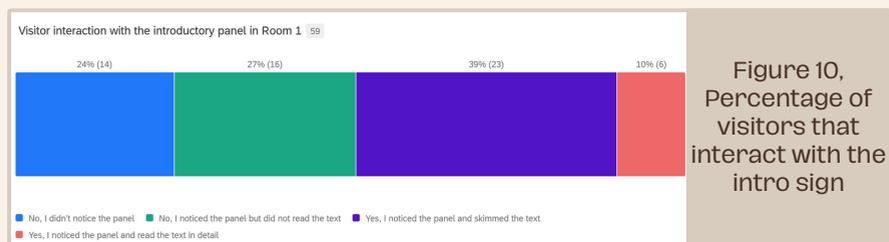
Finding 11: Visitors have varied perspectives about the theme of the Enlightenment Gallery

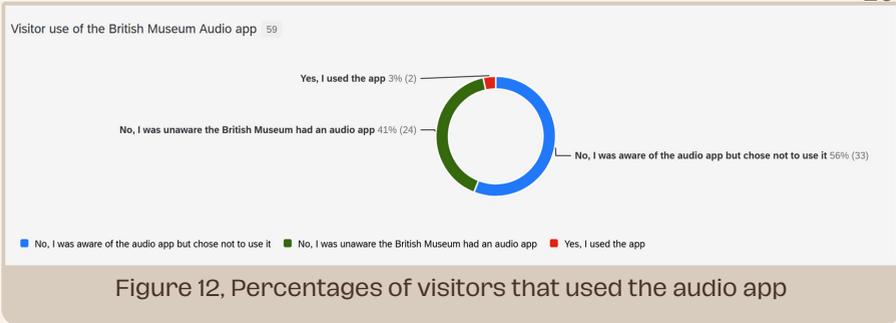When asking survey participants what they thought the Enlightenment Gallery was about, the most used terms were "History," "Britian," "Enlightenment" "Greece" and "world." Thirteen of the thirty-three responses to this question expressed that they thought this gallery was about the museum's history, the collection and empire of Britain or the historical design of the exhibit. Three survey participants who read the introductory panel in detail had insight on the historical design of the Enlightenment Gallery, with responses of "show up early items that were given to the museum when it started", "The way old museums were laid out and how we got to the modern models" and "The collection of George 111 and the beginning of the British museum". This means that the introductory panel primes the visitor to recognize the old museum style of the gallery and how it was the start of the British Museum's collection. Visitors who only skimmed the introductory panel had less consistent responses, with some responses saying that the gallery was about "Random things" or "roman empire, greek, worldwide." Only skimming or ignoring the introductory panel led to the most variance in interpretation of the gallery.

Figure 11, Frequently used words for what visitors think Room 1 is about

Finding 12: Visitors rarely use the British Museum Audio App in the Enlightenment Gallery

Our survey data shows that only 3% of participants used the British Museum Audio App in the Enlightenment Gallery. The data shows that 59% of the participants knew the audio app existed despite the small number of participants who chose to use it. This indicates that most visitors did not experience what additional information the audio app would provide about the displays. It might also indicate that technology is underutilized in the Enlightenment Gallery.

Visitor use of the British Museum Audio app 59

Yes, I used the app 3% (2)

No, I was unaware the British Museum had an audio app 41% (24)

No, I was aware of the audio app but chose not to use it 56% (33)

■ No, I was aware of the audio app but chose not to use it   ■ No, I was unaware the British Museum had an audio app   ■ Yes, I used the app

Figure 12, Percentages of visitors that used the audio app

Finding 13: Case 13, Understanding Greek Vases and Case 12, The Revolution in Science are the most impactful of the Enlightenment Gallery's four central cases

One of the main goals within our survey was to understand more about visitor perception of the central display cases within the Enlightenment Gallery. To achieve this we asked many questions, a key one being Question 9. This question presented the participants with pictures of each of the four display cases and asked which one was most impactful. Of the forty-three who selected a case, a combined thirty-three chose either the "Understanding Greek Vases" or "The Revolution in Science" cases, overwhelmingly making these the most impactful cases to visitors.

Which of the center displays was most impactful? 53

8% (4)   34% (18)   28% (15)   11% (6)   19% (10)

■ Sir Hans Sloane: Physician, Collector, Slave Owner   ■ Understanding Greek Vases   ■ The Revolution in Science   ■ King George III's Library   ■ N/A

Figure 13, Cases that visitors found the most impactful
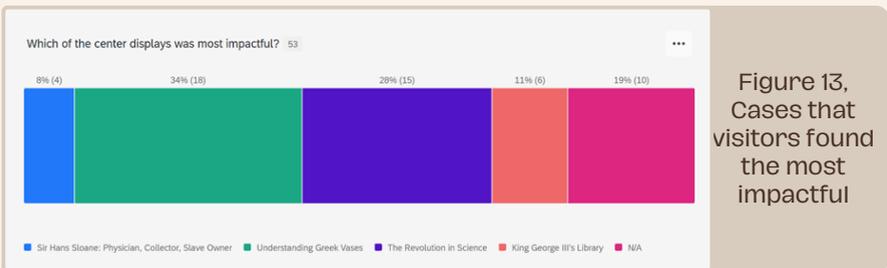
Finding 14: For a case to be widely impactful it must display a variety of appealing traits

If the survey participant answered Question 9 without selecting N/A, a follow-up question appeared. This follow-up asked participants to select up to three reasons as to why the case they selected was impactful. Of the listed options, the two most selected were visual appeal and historical significance, with an even split between the

combined 55% selection rate. Yet once this result is broken down by case, it is evident that the more impactful cases have a larger variety of appealing traits. The bar graphs displaying the reasoning selections for the Sciences and Greek Vases cases both contain eight of the possible ten reasons, compared to the four or five in the selections for the Hans Sloane and King's Library cases. This implies that while visual appeal and historical significance are vital to making a display case impactful, more is needed to increase the appeal.

Figure 14, The distribution of reasons behind the impact for the selected case

RECOMMENDATIONS

Based on our findings from our data collection we have compiled recommendations for three separate groups. Recommendations for all Museums and Museum professionals which will be applicable to any style of museum recommendations; The British Museum for their specific renovation to the Enlightenment Gallery; Future Projects and Studies for researchers who plan to conduct similar museum studies. We created these recommendations aiming to help anyone who may be interested in learning about museum visitor engagement how to best design a gallery to increase visitor retention and impact.

Recommendations to Museums & Museum Professionals

1 Move important displays to high traffic areas

To increase engagement, we recommend moving cases of high importance to high traffic areas. Finding 7 shows that high foot traffic correlates with more dwell time, increasing the likelihood that a visitor will interact with an exhibit/case and learn about the message within.

2 Promote the use of audio guides

To increase engagement and understanding of museum displays we suggest promoting the use of audio guides. Finding 12 shows that few visitors used the museum audio guide and Finding 11 shows that few visitors knew what the gallery was about. Visitors that used the audio guide had a more accurate view of the gallery's theme, something supported by the gallery evaluation from Finding 1. We therefore recommend museums to advertise their audio guides to increase their usage and increase exhibit comprehension among visitors.

3

Use visually appealing and historically significant objects to attract visitors

Our findings support the conclusion that visitors gravitate towards displays with visual interest, leading displays without to become overlooked and the information within them to be lost. Finding 6 shows the displays with visual interest attract visitors initial interest and finding 3 shows that visitors linger at these displays longer. Finding 14 shows that visitors consider visual appeal to be a prevalent factor in making a display impactful. Visually attractive objects prompt visitors to stop and interact with displays, reading the plaques, learning more, and potentially exploring related objects while the communicated historical significance makes the display more memorable.

4

Have a variety of traits present to make a display impactful

While visual appeal is effective at drawing in first time visitors, several of our findings suggest that more factors are needed to make a case seem impactful to a visitor. Finding 14 suggests that displays most commonly frequently chosen as most impactful also have the widest variety in which factors make them impactful. Finding 14 also shows that cases chosen as impactful the least were almost exclusively considered impactful due to their visual appeal. Finding 3 supports this, as the displays with the largest variety of selected factors generated the most dwell time.

5

Encourage discussion

According to Finding 4, around 20% of visitors to both Room 1 and Room 4 had a discussion, making it the most common visitor behavior. We recommend encouraging this method of engagement by posing questions that promote discussion and deeper consideration of the gallery.

Recommendations to The British Museum & The Sloane Lab team

Swap the locations of Case 14 and Case 13

We recommend moving Case 14, Sir Hans Sloane to the location of Case 13, Understanding Greek Vases. Finding 7 shows that the path between the left side entrance to the central Enlightenment Gallery and the Great Court had the highest amount of foot traffic. Based on Finding 6, we can see that Case 13 had the highest number of visitors who visited it as their first display, we believe this to be a result of this foot traffic. Finding 5 shows that visitors spend an average of 57s in the central Enlightenment Gallery. This highlights the need to guide visitors to higher priority cases, such as Case 14, first. Therefore, we recommend switching the locations of Case 13 and 14.

2 Promote the British Museum Audio App

In the evaluation conducted under The British Museum Gallery Evaluation Project, interview participants were briefed via a visit to the gallery with a provided audio guide. These participants had a high rate of understanding the gallery's purpose, especially compared with those in our survey. Finding 11 and 12 respectively show that few survey participants knew the historical context of the gallery and few used the museum audio guide. We therefore recommend for the British Museum to advertise the audio app to it's usage rate and reach a larger audience.

3 Add more visual appeal to Case 14, Sir Hans Sloane

Despite the historical importance of Case 14, we found that many visitors overlook it. Based on Finding 6, the display that generated the least first interest in visitors was the Hans Sloane display. Based on Finding 3, Case 12, The Revolution in Science, was the display that visitors spent the most time around. Case 12 consists of few, large, shiny objects. This finding implies that visitors remained at the display after the initial approach. Another display that generated a lot of interest was the Merman display behind the case of Sir Hans Sloane. This can be seen in Figure 7 from Finding 7. From these findings we believe that the addition of large visually interesting objects to the Hans Sloane case would increase both the initial draw and the dwell time.

4 Highlight diverse perspectives on the history present in Case 14

While visual appeal is effective at generating initial interest in displays, our survey data in Finding 14 suggests that the most impactful cases in the central Enlightenment Gallery had a higher variety of appealing factors. The case most frequently listed as most impactful, Case 13 Understanding Greek Vases, had the most varied responses for why this was the case. In contrast, the case selected least, Case 14, Sir Hans Sloane, relied entirely on visual appeal and historical significance. Including factors that visitors consider important such as a compelling story, information that can shift a visitor's perspective on history, and items that may create a personal or emotional connection can increase the effectiveness of this case. We recommend providing more diverse perspectives on the history of the British Museum and the formation of its collections in Case 14 because of Hans Sloane's position as a prominent figure in this discussion.

5 Pose questions to visitors in the Enlightenment Gallery to promote discussion

According to Finding 4, discussion was the most frequently tracked visitor interaction in the Enlightenment Gallery, with 20% of visitors in the central gallery. This can be further increased by asking questions at the end of plaques, promoting deeper thought on the exhibits and their contents. We recommend asking questions about the perceptions of history and how that develops with time.

6 Advertise the Enlightenment Gallery

Finding 9 shows that 67% of visitors made their way to the Enlightenment Gallery by wandering in. Only 5% went to the museum for the Enlightenment gallery and only 1.67% of visitors came to the exhibit from advertising efforts. The museum should consider increasing the presence of The Enlightenment Gallery on both external and internal advertisement mediums.

Instagram

britishmuseum ✔   Follow   Message

2,898 posts   2.2M followers   508 following

British Museum
🏛 Explore 2 million years of human history
🔗 ow.ly/spaU50QGAcF + 4

← British Museum ✔
24.6K posts

Follow

British Museum ✔
@britishmuseum

A museum of the world, for the world. Book tickets at britishmuseum.org

House rules: ow.ly/Y9zg3O4exDj

📍 London   🔗 britishmuseum.org   📅 Joined January 2009

45.1K Following   2M Followers

CONCLUSION

While measuring every factor that present in the success of a gallery is impossible, we believe that our study has succeeded in gathering data and providing helpful recommendations for the museum's future renovations, as well providing an effective and efficient method for The British Museum to evaluate galleries. We discovered the importance of display placement, especially in a gallery with low dwell time, and the impact a variety of factors have on making a display impactful, increasing initial engagement, and encouraging retention. We also discovered the importance of promoting certain activities, and the use of available technologies, such as an audio app. We will be leaving the British Museum with all our findings, our methodology and accompanying materials, and hope that our report can aid similar research projects.

Our project encountered some limitations that caused our research to deviate from our initial project design. Chief among these setbacks was the two-week closure of the Enlightenment Gallery. While this limited the amount of data our group could collect in Room 1 itself, it gave us an opportunity to spread our research to two additional rooms in the museum. This additional study of Room 2 and Room 4 allowed us to have a more diverse data set to compare with the eventual data we were able to collect in the Enlightenment Gallery itself. Overall, we believe this challenge led us to have a stronger research project in the end, by allowing us to compare to other rooms for a more holistic view of what makes an exhibit impactful.

We recognize that our methodology can improve and hope that future studies take measures to further reduce bias by increasing survey participation and observing more visitors. We recommend future teams to prioritize getting survey translations and prepare for the difficulties surrounding survey distribution by using as many distribution methods as possible.

We would like to once again thank the British Museum for allowing us the opportunity to complete this project, it was a wonderful experience. We hope our report can guide the renovations, future research, and other museums and curators in navigating the impossible path to a perfect gallery.

References

British Museum. (n.d.-a). About us. The British Museum. Retrieved November 13, 2023, from
https://www.britishmuseum.org/about-us

British Museum. (n.d.-b). Enlightenment. The British Museum. Retrieved November 10, 2023, from
https://www.britishmuseum.org/collection/galleries/enlightenment

British Museum. (2023, July). British Museum map July 2023. The British Museum.
https://www.britishmuseum.org/sites/default/files/2023-07/British_Museum_map_July_2023.pdf

Paine, C. (2005). Permanent gallery: The Enlightenment at the British Museum, London. Material Religion, 1(2), 287+.
Gale Academic OneFile.

Marshall, A. (2020, August 27). The British Museum Reopens to a World That Has Changed. The New York Times.
https://www.nytimes.com/2020/08/27/arts/design/british-museum-reopening.html

ICOM. (2022). Museum Definition (p. 3). ICOM. https://icom.museum/wp-
content/uploads/2022/07/EN_EGA2022_MuseumDefinition_WDoc_Final-2.pdf

Hooper-Greenhill, E. (2007). Museums and Education: Purpose, Pedagogy, Performance. Taylor & Francis.
https://books.google.co.uk/books?id=kG6Ip1J6aYIC

Britannica. (2024, January 7). Sir Hans Sloane, Baronet. Britannica. https://www.britannica.com/biography/Sir-Hans-
Sloane-Baronet

British Museum. (n.d.-c). Sir Hans Sloane. The British Museum. Retrieved November 10, 2023, from
https://www.britishmuseum.org/about-us/british-museum-story/sir-hans-sloane

Gao, Y., Mederer, A. C., Wicke, M. R., & Chen, D. (2019). Evaluation of the Islamic World Gallery at the British
Museum. Worcester Polytechnic Institute; Digital WPI. https://digital.wpi.edu/show/db78tf30g

Hsu, T.-Y., & Liang, H.-Y. (2022). Museum engagement visits with a universal game-based blended museum learning
service for different age groups. Library Hi Tech, 40(5), 1226–1243. https://doi.org/10.1108/LHT-08-2020-0198

McNeill, J., Whooley, J., & Ames, J. (2023). Visitor Evaluation at the Freud Museum London. Worcester Polytechnic
Institute; Digital WPI. https://digital.wpi.edu/show/hx11xj776

Tatli, Z., Altinişik, D., Şen, H., & Çakıroğlu, Ü. (2021). Learning via Virtual and Real Museums: A Comparative Study on
Presence and Retention. International Journal of Virtual and Personal Learning Environments, 11(1), 38–53.
https://doi.org/10.4018/IJVPLE.2021010103

British Museum. (n.d.-d). Friday night spotlight tours. The British Museum. Retrieved November 16, 2023, from
https://www.britishmuseum.org/visit/tours-and-talks/spotlight-tours

British Museum. (n.d.-e). Museum Missions Enlightenment. The British Museum. Retrieved November 16, 2023, from
https://www.britishmuseum.org/visit/family-visits/museum-missions/enlightenment

Choi, Y. K. (1999). The Morphology of Exploration and Encounter in Museum Layouts. Environment and Planning B:
Planning and Design, 26(2), 241–250. https://doi.org/10.1068/b4525

Wang, Z., & Meng, J. (2023). Dialogues with cultural heritage via museum digitalisation: Developing a model of
visitors' cognitive identity, technological agent, cultural symbolism, and public engagement. Museum Management
and Curatorship, 1–24. https://doi.org/10.1080/09647775.2023.2269164

Wang, X., Li, X. (Robert), Zhen, F., & Zhang, J. (2016). How smart is your tourist attraction?: Measuring tourist
preferences of smart tourism attractions via a FCEM-AHP and IPA approach. Tourism Management, 54, 309–320.
https://doi.org/10.1016/j.tourman.2015.12.003

Taormina, F., & Baraldi, S. B. (2022). Museums and digital technology: A literature review on organizational issues.
European Planning Studies, 30(9), 1676–1694. https://doi.org/10.1080/09654313.2021.2023110

Fry, B., & Reas, C. (2001). Processing [Computer software]. https://processing.org/

Westfall, N. (2024, February 29). Enlightenment Drawer Github. https://nateguana.github.io/EnlightenmentDrawer/

Heimlich, J. E. (2015). The Ethics of Evaluation in Museums. Journal of Museum Education, 40(1), 20–26.
https://doi.org/10.1080/10598650.2015.11510829