Evaluating Visitor Engagement in the Assyrian Galleries at the British Museum

Authors

Jamie Baines

Rohit Tallapragada

Luke Thomas

Madeline Young

25 June 2024

WPI

The British Museum

Evaluating Visitor Engagement in the Assyrian Galleries at the British Museum

An Interactive Qualifying Project Report
submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
degree of Bachelor of Science

Authors

Jamie Baines

Rohit Tallapragada

Luke Thomas

Madeline Young

25 June 2024

Report Submitted to

Stuart Frost

The British Museum

Shamsnaz Bhada and Ruth McKeogh

Worcester Polytechnic Institute

Abstract

In May 2024, the British Museum implemented new text panels, graphics, and a projection show in Rooms 6, 7, and 10: The Assyrian Galleries. This study evaluated the renovation's effectiveness in improving visitor engagement with the galleries. We conducted visitor observations and exit surveys to determine how visitors interacted with the Assyrian exhibits and their motivations for attending. Our findings indicated the Assyrian Galleries attract a diversely motivated audience and the renovations successfully improved visitor engagement and satisfaction. To further enhance visitor engagement, we suggest the museum continue implementing visual and digital renovations, improve specific exhibits' lighting, and provide visitors with options to learn more about the galleries' content.

Acknowledgments

We would like to thank our sponsor Stuart Frost for his guidance and support throughout our project. We would also like to thank the entire British Museum Interpretation team for their feedback and hospitality during our time at the museum. Finally, we would like to extend our thanks to our advisors and professors Shamsnaz Bhada, Ruth McKeogh, and John-Michael Davis from Worcester Polytechnic Institute for their comments, feedback, and assistance throughout this project, as well as our site director Dominic Golding.

Authorship

Section	Author(s)	Editor(s)
Abstract	Rohit Tallapragada	Luke Thomas
Executive Summary	Rohit Tallapragada & Jamie Baines	Luke Thomas & Madeline Young
1. Introduction	Luke Thomas	Rohit Tallapragada
2. Background	Luke Thomas	Rohit Tallapragada
2.1 Learning in Museums	Luke Thomas	Rohit Tallapragada
2.2 Understanding Museum Visitor Motivations	Jamie Baines	Madeline Young, Rohit Tallapragada
2.3 Using Written Language to Facilitate Learning	Luke Thomas	Rohit Tallapragada
2.4 Interactivity and Digital Media	Rohit Tallapragada	Luke Thomas
2.5 Evaluating Visitor Engagement	Jamie Baines, Madeline Young & Luke Thomas	Rohit Tallapragada
2.6 The Assyrian Galleries at the British Museum	Luke Thomas	Rohit Tallapragada, Madeline Young
3. Methods		
3.1 Objectives	Luke Thomas	Rohit Tallapragada
3.2 Legal Consent	Madeline Young	Jamie Baines
3.3 Observing Museum Visitors	Madeline Young	Jamie Baines
3.4 Visitor Exit Surveys	Jamie Baines	Madeline Young, Rohit Tallapragada
3.5 Data Analysis and Comparisons	Rohit Tallapragada	Luke Thomas
4. Findings	Luke Thomas	Rohit Tallapragada
4.1 Visitor Segmentation in the Assyrian Galleries	Luke Thomas	Rohit Tallapragada

4.2 Attraction of New Text Panels	Madeline Young & Luke Thomas	Jamie Baines
4.3 Increasing Visitor Engagement the New Graphic Panels and Projection Show	Rohit Tallapragada	Luke Thomas, Madeline Young
4.4 Visitor Satisfaction with Current Gallery Layout	Madeline Young	Jamie Baines
4.5 Increased Visitor Knowledge After Visiting the Assyrian Galleries	Jamie Baines	Madeline Young, Rohit Tallapragada
4.6 Crowding and Tour Groups Impact on Visitor Experience	Luke Thomas	Rohit Tallapragada
5. Conclusion and Recommendations		
5.1 Conclusions	Rohit Tallapragada	Luke Thomas
5.2 Recommendations for the British Museum	Jamie Baines	Madeline Young

Table of Contents

List of Figures

List of Tables

Executive Summary

Introduction

Appearing on the British Museum's "Don't Miss" list, the Assyrian Galleries are home to one of the world's largest existing ancient Assyrian collections. In May 2024, the British Museum implemented new text panels, graphics, and a projection show to increase visitor engagement and satisfaction with Rooms 6, 7, and 10. Due to the renovations' recent implementation, the British Museum lacks data on their effectiveness in facilitating higher visitor engagement and providing a positive visitor experience. The renovations' success is crucial in informing the British Museum's master plan to modernize and appeal to its 21st-century audiences.

Methods

Our team had three main research objectives for this project:

1. Assess visitor motives for attending the Assyrian Galleries.
2. Determine the Assyrian Galleries' effectiveness in providing sufficient information to satisfy visitor inquiries through text and graphic panels.
3. Evaluate visitor engagement and satisfaction with the newly added digital display, graphics, and texts.

To assess visitor motives, we utilized exit surveys asking visitors to share who they attended with and their reasons for visiting the Assyrian Galleries. Visitor surveys provided insight into visitor satisfaction with their experience and whether the galleries sufficiently answered visitor inquiries. Using a QR code flyer at the entrances of Room 10a: Lion Hunt, we gathered 101 complete exit survey responses. We gathered 285 visitor observations over three weeks to quantitatively analyze visitor engagement. Visitor observations allowed us to collect data on dwell time, attraction power, and holding power. We then assessed visitor flow and common visitor behaviors in the Assyrian Galleries.

Findings

Sightseers and educational groups had the highest attendance rates in Rooms 6, 7, and 10 while visitors more likely to deeply engage with the material had lower attendance volume.

Visitors' survey responses allowed our team to segment visitors into the seven distinct motivation categories previously outlined by the British Museum. Most visitors visited with others, with 46% stating they came with other adults as shown in Figure I. Similarly, over 30% of surveyed visitors stated they attended as part of a tour group, school group, or with children. When provided with a list of motivations for attending the Assyrian Galleries, 41 visitors responded that the galleries are a popular British Museum exhibition. Visitors who selected this motivation fell in the *sightseer* category.

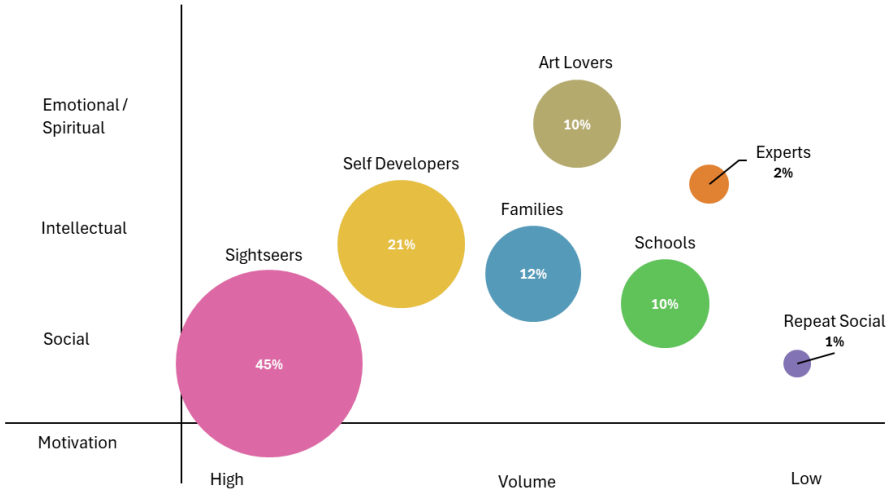


Figure I. Motivational drive vs. visitor volume map for seven segmentation categories in the Assyrian Galleries

Visitors deemed *sightseers* are more likely to engage with the material at a surface level as their attendance is socially motivated. Conversely, visitors in the *self-developer, expert,* and *art lover* categories often engage deeply with exhibition material. These visitors are intellectually, emotionally, or spiritually motivated. Visitor segmentation provided nuance to how various visitors engage with the Assyrian exhibits and affect the dwell time, attraction power, and holding power in the exhibition.

The new text panels, graphics, and projection show implemented in the Assyrian exhibition successfully attracted visitors and maintained their interest. Visitors rated the position, language, text size, and amount of information for the new text and graphic panels on a scale of 1 to 5 stars. The average ratings for each feature ranged from 3.51 to 3.81 stars, indicating strong approval from visitors. Room 10a: Lion Hunt housed the new projection show, which retained the highest holding and attracting power out of all the room's exhibits. The high attracting and

holding power correlates to high visitor engagement. When asked to rate the visibility, duration, volume, amount of information, and engagement of the Lion Hunt projection, visitors responded with mean ratings ranging from 4.03 to 4.32 out of 5 stars each.

Visitor observations indicated that 26% of visitors were classified as walkthroughs. The overall walkthroughs for the Assyrian Galleries have shown a marked increase in visitor engagement in the rooms where the new text panels were installed. Additionally, the average dwell time in each room further supports the claim that the new text panels have significantly enhanced visitor engagement. Room 6a and 6b's average combined dwell times were roughly equal to 10a's average dwell time alone.

Visitors are generally satisfied with the current layout and presentation of the Assyrian Galleries. Survey respondents rated their satisfaction and how well their expectations were met at around 4 out of 5 stars. This presents the gallery exceeding visitor expectations.

A comparison of positive and negative emotions reported by visitors presents a predominance of positive emotions over negative ones. The high ratings indicate visitors found the gallery engaging and felt that their expectations were being met. The survey results suggest that visitors appreciate the attention to detail and the presentation quality. This positive feedback indicates that the gallery's current approach effectively delivers a fulfilling and enjoyable experience for its visitors.

There was an increase in visitors' knowledge about Assyrian history and culture after attending the Assyrian Galleries. In the exit survey, visitors were asked to rate their knowledge of Assyrian content before and after their visit on a 5-star scale. The average before visiting the galleries was 1.91 stars which shows most visitors had little knowledge of Assyrian culture and history. However, after experiencing the galleries, visitors rated their knowledge at an average of 3.98 stars. The increase in visitors' confidence in their knowledge is due to both the amount of first-time visitors and the addition of the new text, graphics, and projection show. When asked if they had visited the Assyrian Galleries before, 79% of survey participants had not. As shown in Figure II, 96% of first-time visitors reported increased knowledge after leaving the galleries. Repeat visitors also showed increased knowledge, as 80% reported a higher knowledge rating than before.

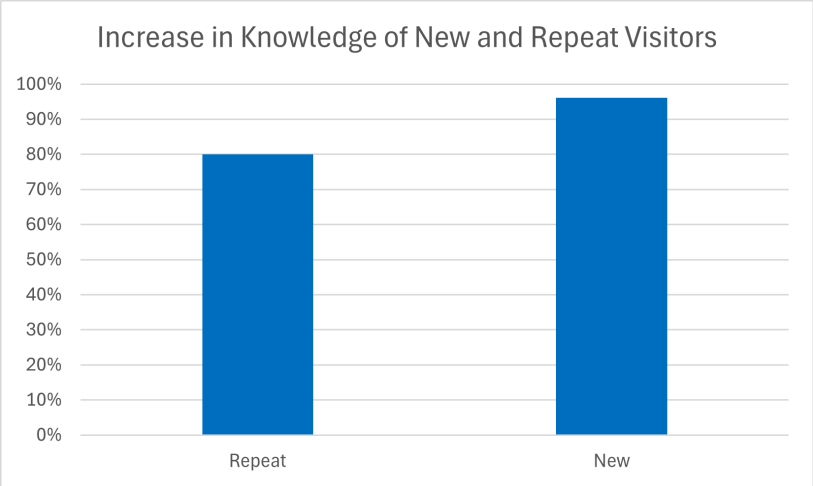


Figure II. Percentage of new and repeat visitors who experienced increased knowledge

Tour group behavior and crowding in the Assyrian Galleries, specifically in Room 10a: Lion Hunts, negatively impacted visitors' interactions with the galleries. Tour groups waiting for the projection to start were a common issue for other visitors. In addition to tour groups, many visitors would stop next to the projection show, resulting in 10a becoming cramped and overcrowded. This made it difficult for visitors to view the entirety of the projection show, lessening satisfaction and engagement with the projection.

Conclusions and Recommendations

The new texts, graphics, and projection show effectively engaged visitors in the Assyrian Galleries. From our visitor observations and exit surveys, we formulated four central conclusions:

1. Sightseers and self-developers are the most common visitor segments attending the Assyrian Galleries.
2. Visitors are leaving the galleries more knowledgeable about Assyrian culture and history.
3. The new graphics and projection show are the highest engaging displays.
4. Visitors are satisfied with the new elements and the overall gallery layout.

To continue increasing engagement in the Assyrian Galleries and other exhibitions, we have four main recommendations for the British Museum:

1. Optimize the timing and frequency of the Lion Hunt projection show and inform visitors of its duration.
2. Adjust the interactive text panel and increase the lighting in Room 10b.
3. Give visitors access to more in-depth information about the Assyrian Galleries.
4. Continue implementing new texts, graphics, and digital displays as the master plan progresses.

To keep visitors engaged and satisfied in the Assyrian Galleries, we recommend the British Museum make a few minor changes to certain rooms. Including signage of show duration, shortening the intermission between showings, and improving the uptime of the lion hunt projection would allow more visitors a chance to view it. Secondly, modifying the interactive text panel on the "Siege of Lachish" graphic to be less disruptive and increasing the lighting would improve visitors' experience in Gallery 10. In addition to these changes, giving visitors a place where they can find more in-depth information about Assyria would be a simple way to increase satisfaction for more highly engaged visitors. Lastly, implementing new texts, graphics, and digital technologies into other exhibitions would increase visitor engagement. Applying these changes will help work towards keeping visitors satisfied and increasing their engagement throughout the museum.

1. Introduction

Home to one of the largest Assyrian collections in the world, the British Museum finished implementing new text panels, graphics, and a projection show in the Assyrian Galleries in May 2024. Museums utilize text or graphic labels to facilitate visitor learning and create an inclusive yet stimulating environment for various audiences. Similarly, innovative digital media and learning forms are becoming increasingly prominent as modern museums aim to increase visitor engagement and provide a more satisfactory learning experience (Aldrich et al., 2016). The British Museum's renovations in the Assyrian Galleries begin a transformative master plan to modernize the museum and appeal to 21st-century audiences (British Museum, 2023). The latest implementations aim to improve visitor experience and engagement by shifting museum displays from traditional text-heavy styles to more inspiring forms.

Written language is essential to a museum's ability to accurately and authentically communicate information to its audiences. Research regarding museum texts suggests authoritative or fact-focused labels leave non-specialized museum visitors overwhelmed or confused about the source material (Purser, 2000). Museums have instead implemented text and graphic labels utilizing language that is simultaneously accessible and interesting (Ravelli, 2007). These labels inspire visitors to think freely about exhibit themes and enhance their understanding of the world. In addition to textual elements, museums often implement digital elements to supplement their content and modernize exhibits to appeal to a larger audience.

Digital displays and interactive exhibit utilization, including audio, visual, or physical representation, enhance the visitor experience and improve visitor learning (Roberts et al., 2018). Science and art museums utilize interactive games, augmented reality, and artificial intelligence to increase audience participation and engagement, captivating visitors and evoking greater emotional responses (Aristova et al., 2021, Behesthi et al., 2017, Horn et al., 2012, Louw & Crowley, 2013). However, historical museums present a unique challenge in presenting historically accurate information while providing a culturally rich and authentic experience. There is little research evaluating digital technologies in historical museums with pre-existing exhibits and displays where cultural artifacts are the focus of visitor attention. Thus, the impact of digital technologies on the visitor experience in these atmospheres is unknown.

This research quantified visitor engagement and satisfaction with Rooms 6, 7, and 10 of the Assyrian Galleries and assessed visitor motives for attending. It determined the galleries' effectiveness in providing sufficient information through text and graphic panels. This study evaluated visitor engagement and satisfaction with the newly implemented projection show, graphics, and texts. Utilizing visitor observations and surveys we determined visitor motivations for attending and analyzed their behavior in the Assyrian Galleries. The collected data provides insight into the renovations' effectiveness in improving the visitor experience and engagement within Rooms 6, 7, and 10.

This report discusses relevant findings from our literature review, the methodologies used to gather and analyze visitor data, the analysis of the study's results, and our conclusions regarding the British Museum's renovations in the Assyrian Galleries. Section 2: Background reviews major intelligence types, visitor motives, and effective modes of facilitating and evaluating museum learning and engagement. Section 3: Methodology discusses our methods for collecting visitor data regarding their experience in the Assyrian Galleries. Section 4: Findings & Analysis categorizes Assyrian Gallery visitors based on their motivations for attending and evaluates the renovations' effectiveness in increasing visitor engagement. Section 5: Conclusions & Recommendations proposes our recommendations for future renovations in the British Museum to provide the most engaging visitor experience.

2. Background

The Assyrian Galleries attract diverse audiences with unique learning styles and attendance motivations. This section begins by reviewing the nine prominent intelligence types that impact museum visitor learning and the motivation categories determining visitor engagement with museum exhibitions. We review the significance of text panels, graphics, and interactive media in creating an engaging visitor experience. Next, we define visitor engagement in the scope of our research and provide definitions for attracting power, holding power, and dwell time. We then highlight common practices for determining these variables. Finally, we discuss the newly implemented text panels, graphics, and projection show in Rooms 6, 7, and 10 of the Assyrian Galleries and the significance of evaluating their success.

2.1 Learning in Museums

Museums are crucial educational spaces that generate curiosity and provide knowledge of various cultural identities, allowing for a better understanding of self and others (International Conference of Museums, 2024). A museum's value comes from its ability to motivate visitor learning and establish an inspiring and innovative environment. To construct stimulating and meaningful exhibits, museums must first establish and understand the nuances of various intelligences to account for their diverse audiences.

Howard Gardner's theory of multiple intelligences offers a comprehensive analysis of the major categories of human intelligence, providing insight into effective ways to convey information (Northern Illinois University, 2020). Gardner's theory originally included six intelligence types but has since added three others as psychologists better understand human intelligence (Northern Illinois University, 2020). Table 1 lists and summarizes the currently accepted intelligence types. Each intelligence type is equally important and visitors develop or change their intelligence types through their experiences with the world around them (Zajaczkowski, 2014). By incorporating learning mechanisms that adhere to multiple intelligence types, museums create engaging and inviting exhibits that communicate information clearly and concisely (Zajaczkowski, 2014).

Table 1. Multiple intelligences with descriptions (Anglia, 2022 & Zajaczkowski, 2014)

Intelligence Type	Description
Linguistic (Verbal)	Refers to one's ability to use words effectively to express oneself and to understand or interpret language proficiently.
Logical-Mathematical	Refers to one's ability to think conceptually, logically, and abstractly such as solving math problems, spotting patterns or trends, and understanding relationships.
Spatial (Visual)	Often associated with creativity and active imagination. Those with this intelligence can easily visualize the world in 3D through mental imagery, spatial reasoning, image manipulation, or artistic skills.
Kinesthetic (Bodily)	Refers to one's coordination and mind-body connection. This intelligence is not measured by athletic ability, but rather by one's ability to physically manipulate the world around them. This includes communication through body language, physical touch, good timing, and efficient movement.
Musical	Refers to one's ability to sense and utilize the various aspects of sound such as pitch, rhythm, and tone.
Interpersonal	Otherwise known as "emotional" intelligence. It can be associated with verbal or non-verbal communication skills and is good at reading people's emotions or motives and empathizing with others.
Intrapersonal	Refers to one's ability to understand one's emotions and why they are feeling them. It involves the idea of treating others the way you would like to be treated.
Naturalist	Refers to one's connection with nature's living and non-living elements. Those with this intelligence often enjoy being outdoors

	and are passionate about preservation.
Existential	Refers to one's ability and comfort with deep and sensitive topics such as the meaning of one's existence. Those with this intelligence are often inspired by philosophy, culture, and history.

A museum's approach to communicating information largely determines its success in facilitating visitor learning and providing a positive visitor experience. In her book *Museum Texts: Communication Frameworks*, Louise Ravelli describes museum communication as "a fundamentally social process." This process allows visitors to build relationships with themselves, other visitors, and the institution. The information provided by museum exhibits allows visitors to engage with the world in new ways (Ravelli, 2007). Although museum information is largely communicated through text, Ravelli proposes that text can be utilized to generate visitor inspiration and appeal to intelligence types other than linguistic. Combining knowledge of the various intelligence types with visitor motivation analysis allows museums to design exhibitions that appeal to and engage with broader audiences.

2.2 Museum Visitor Motivations

Museum visitors cluster into four major groups based on their attendance motivations. The consulting firm Morris, Hargreaves, & McIntyre (MHM) categorized the fundamental reasons for visiting a museum into four primary visitor motive groups, each with distinct subcategories as seen in Table 2. At the bottom of the engagement hierarchy are people with motives falling under the social category. Visitors in this classification tend to have more "social" reasons for visiting, whether for entertainment or simply something to do. Compared to the other categories, social visitors engage the least with museum objects and displays (Morris et al., 2005). Next in the hierarchy are intellectually-motivated visitors. These people visit to fulfill their professional interests or passions. Those who visit with children to facilitate their learning also fall into this category. Higher on the engagement scale are emotionally-motivated visitors. They relate to aesthetics, nostalgia, past experiences, or connection with their personal or cultural identity. Lastly, the highest tier on the engagement hierarchy is spiritually motivated visitors. Spiritual motives include creative expression, religious or spiritual connections, and seeking an

escape from the outside world. These visitors connect and engage with museum objects and displays on a deeper level than the other categories (Morris et al., 2005).

Table 2. Visitor engagement hierarchy and related visitation motives (Morris et al., 2005)

Visitor Engagement Hierarchy	
Spiritual	Escapism
	Contemplation
	Stimulate creativity
Emotional	Aesthetic pleasure
	Awe and wonder
	Moving
	Personal relevance
	Experience the past
	Nostalgia
	Insight
	Sense of cultural identity
Intellectual	Acad/prof interest
	Hobby interest
	Self-improvement
	Stimulate children
Social	Social interaction
	Entertainment
	To see, to do
	Inclusion, welcome
	Access
	Comfort, security, warmth

MHM refined the four primary motivations into seven distinct segmentations to analyze visitor motives at the British Museum. Table 2 highlights the differences between the segments: *art lovers, experts, self-developers, families, repeat social visitors,* and *sightseers*. Additionally, Figure 1 highlights the relationship between visitor segmentation and the motive categories. *Sightseers*, who fall under the socially motivated category, engage with the museum on the most surface level. Moving up Table 3, the engagement from visitors deepens as the motivation type progresses towards spiritual. *Art lovers* experience the greatest spiritual and emotional motivation, engaging with the museum on the deepest level (Morris et al., 2012). Understanding these visitor segments helps museums better curate their exhibits to appeal to their largest motivation groups (Falk, 2008). For example, if *self-developers* are a museum's largest demographic of visitors, the museum can ensure that information on objects and displays is visible and detailed. By doing this, *self-developers* can easily learn more about a topic or theme that piqued their interest. Conversely, if museums know that many visitors are considered *art lovers*, staff can inform visitors about quiet places in the museum so these visitors can have space to engage with museum elements privately.

Table 3. British Museum Visitor Segmentation Categories (Morris et al., 2012)

Visitor Segment Type	Description
Art lovers	People who engage with displays and objects to obtain a deeply moving experience.
Experts	People who specialize in a specific area and want to increase their knowledge after engaging with content related to this area.
Self developers	Visitors who want to improve their knowledge about the content within the museum.
Families	Consists of people of different ages who want to give their children an enjoyable and educational experience.
Repeat social visitors	Repeat visitors who go to the museum for a social experience.

Sightseers	First-time visitors to the museum who want a general experience. This segment consists mainly of tourists.

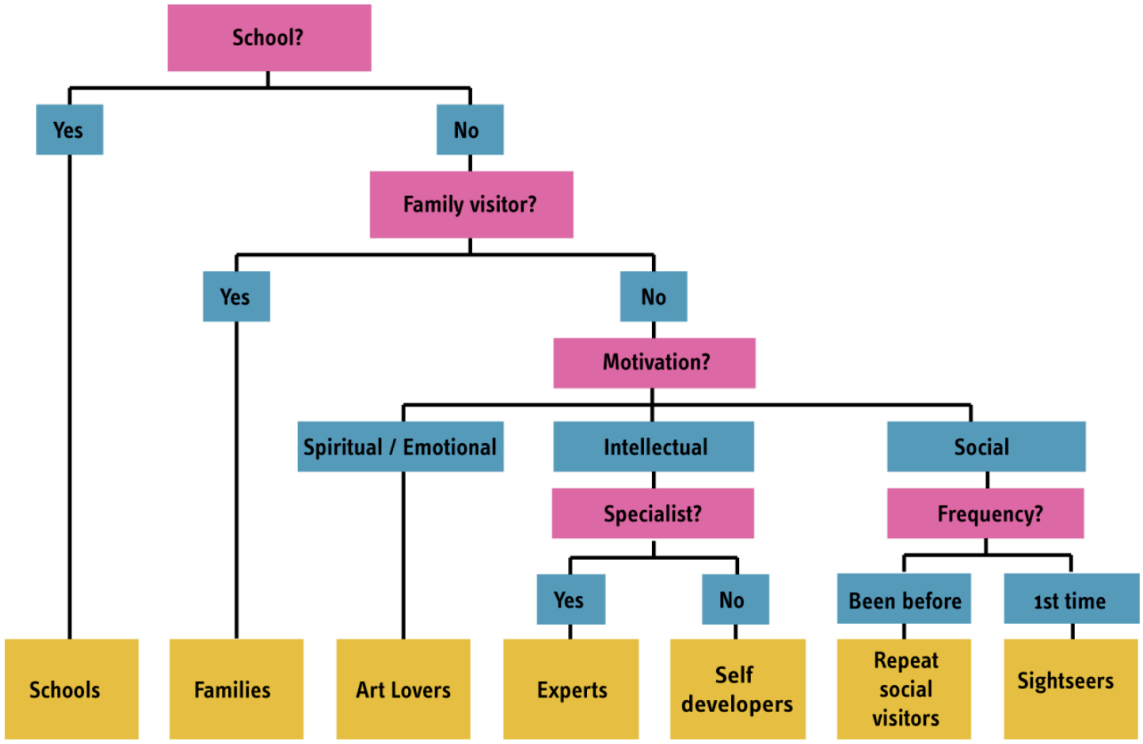


Figure 1. British Museum segment decision tree (Morris et al., 2012)

Similar to intelligence types, museum visitors' motivations are not fixed, they are fluid. This is because visitors' motives are directly related to their identity. People satisfy their identity-related needs by visiting museums (Cotter, 2022; Falk, 2008). For example, individuals who are considered 'curious' will go to a museum to employ their curiosity. Visitors driven by identity-related desire are motivated to discover new objects within a gallery or learn something new (Falk, 2008). However, people's motives for visiting can change throughout their visit. Anything from a new display to an interaction with another visitor can cause motives to change. For instance, a visitor may enter a museum solely to accompany their partner, but leave with a newfound interest in Renaissance art. These examples demonstrate the fluidity of visitors' motives and the importance of understanding the nuances between each visitor category. Figure 2

showcases a map of the motivational drive and the volume of visitors. The largest populations (*self-developers*, *families*, and *sightseers*) had high intellectual and social motivation while *art lovers* had the most emotional or spiritual experience.

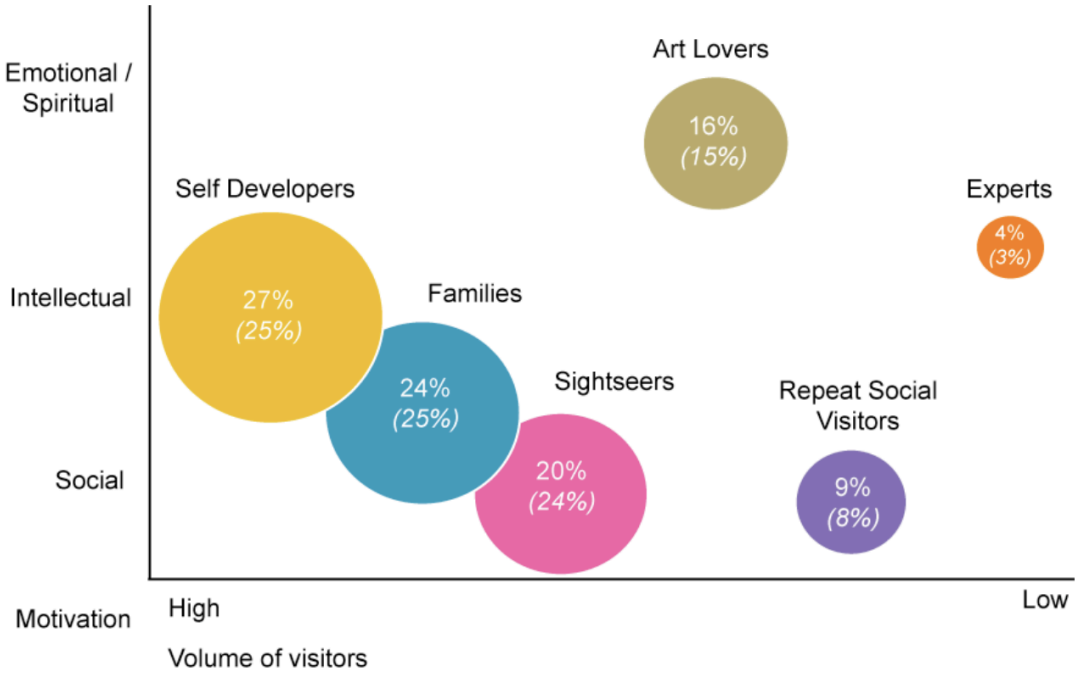


Figure 2. Motivational drive and volume example map (Morris et al., 2012)

Visitor motivations and intelligence types equally influence visitors' interactions with museum exhibitions. Socially motivated visitors often engage with the exhibitions at a surface level and are likely to interact with the most eye-catching or popular exhibits. Conversely, emotional, spiritual, and intellectual visitors often engage most deeply with museum material through reading text panels or pondering about an exhibit. Thus, museums with diverse audience intelligence types and motivations must design exhibits that sufficiently appeal to various visitor learning needs. This can be done by utilizing stimulating language and innovative technologies.

2.3 Written Language to Facilitate Learning

Museums utilize written language such as text labels, extended texts, and brochures or catalog descriptions to communicate information to their audiences (Ravelli, 2007). Ravelli defines communication through text as a meaning-making process rooted in human interaction.

Thus, it is necessary to account for the implications of specific language and established relationships when presenting information through text.

Ravelli differentiates between text that authoritatively states information and text that encourages visitor inquiry on the presented material. Although the former offers a more academic and intellectual style, it is challenging and discouraging for non-specialized museum visitors to comprehend. For example, the text labels in the Berlin-Dahlem Museum's Indigenous Pacific Cultures exhibition left general visitors confused and overwhelmed with information due to their highly academic tone (Purser, 2000). Conversely, specialists in Australian Studies were also displeased as the text labels misrepresented Indigenous Pacific peoples and emulated racist and ignorant undertones (Purser, 2000). To avoid these issues, museums implement inclusive language that focuses on contextualizing the object and making the basis for its interpretation explicit to the audience (Ravelli, 2007). By making information accessible while simultaneously interesting and challenging, museums inspire visitors to respond to an exhibit's historical, cultural, or artistic themes.

Utilizing inclusive yet stimulating language in museum texts encourages visitors to connect with exhibit content meaningfully and engagingly. Text or graphic labels that facilitate critical thinking and deeper emotional responses appeal to a wider variety of visitor intelligence types such as linguistic, spatial, interpersonal, intrapersonal, and existential. Creating text labels that enable visitors to reflect on the object in front of them allows museums to adhere to their audiences' broad intelligence types. Combined with new and more innovative digital, interactive, or multi-sensory exhibits, innovative text increases visitor engagement with the subject material and provides a more fulfilling and inspiring museum experience.

2.4 Interactivity and Digital Media

The shift towards incorporating digital media and interactive exhibits signifies a transformative approach to enhancing museum experiences. Notably, the National Museum of Singapore found that digital media implementation revitalized many of its exhibits and changed the museum's overall perception to be more modern and relevant (Dong, 2023). The implementations included simple elements like touchscreen displays, audio headsets explaining exhibits, and more complex additions called "multisensory experiences". Immersive "multisensory" experiences combine different implementations to allow the visitor to

simultaneously experience various stimulus forms, such as audio and visual stimulation. These innovative technologies again target a broader range of intelligence types, including kinesthetic, spatial, and musical.

Museum audience diversity is highlighted by varied engagement with digital and interactive media across different visitor demographics. In particular, elements offering tactile interaction, such as touch screens, augmented reality (AR) stations, and virtual reality (VR) setups often attract younger individuals. (Lessa, 2019). Digital features also allow museums to t significantly improve accessibility for various audiences. Through multilingual support, museum exhibitions can transcend language barriers and provide an enriching educational experience for international visitors. Similarly, digital media provides alternative engagement methods for visitors with disabilities, including audio descriptions, haptic feedback, and other adaptive technologies, broadening the museum's inclusivity (Smithsonian Institution (SI), 2023). Strategic digital integration is key to engaging and retaining a diverse audience as museums evolve.

2.5 Visitor Engagement

Understanding visitor engagement is integral to a museum's success regarding visitor satisfaction. Engagement refers to visitors' interest in overall museum content or an exhibit's specific topics or themes. Visitor motives and intelligence types are crucial for understanding the visitor experience fully. MHM developed models that use the British Museum's visitor segmentation system to showcase visitor engagement. The firm conducted research at different temporary exhibitions in the museum to learn about their visitors' motivations. As seen in Figure 3, the recorded percentages of the six visitor segments are shown for each exhibition; not only can models of visitor engagement show the size of each motive category, but also the level of engagement and quality visitors are experiencing in a museum.

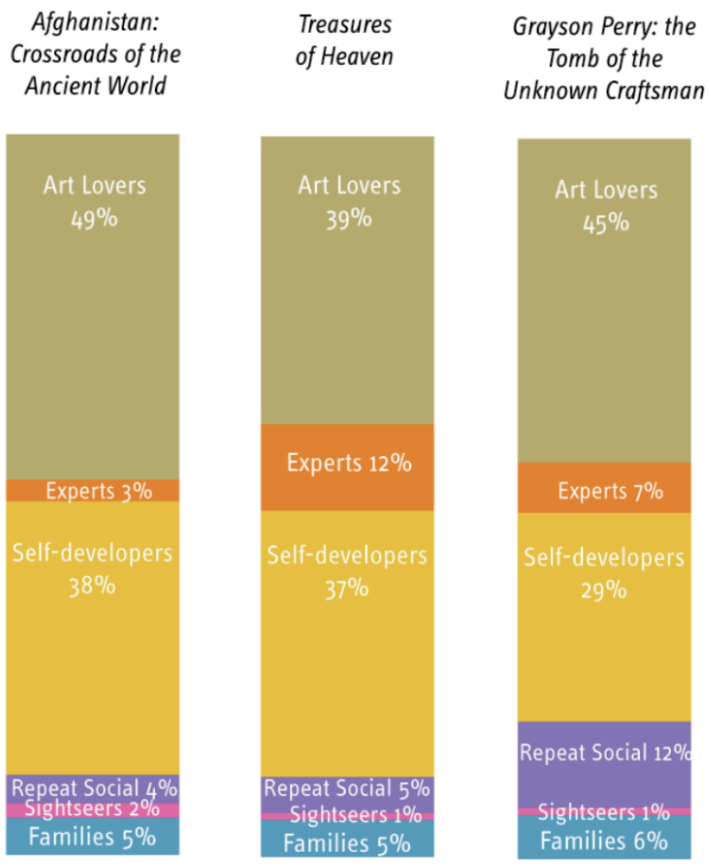


Figure 3. Visitor segmentation for various exhibitions at the British Museum (Morris et al., 2012)

Differing visitor segmentation types all engage with museums in varying ways. Three variables are commonly used to understand visitor engagement in museums: dwell time, attraction power, and holding power. Dwell time refers to the total time a visitor spends engaging with an exhibition or a specific exhibit (Rock, 2015). For entire exhibitions, dwell time is quantified by the amount of time a visitor spends in the respective rooms. For specific exhibits, dwell time is quantified by the amount of time a visitor reads a text panel, discusses with other group members, or visibly ponders, gestures to, and interacts with the exhibit. An exhibit's attracting power refers to its ability to capture people's attention. An exhibit with high attractive power would have numerous visitors stopping to look, read, or interact. Attraction power is

quantified by dividing the number of visitors who stop at an exhibit by the total number of visitors to the museum or respective room (Lanir et al., 2017). Finally, holding power represents an exhibit's ability to hold visitor interest. Holding power is quantified by calculating the average time visitors spend observing or interacting with an exhibit (Lanir et al., 2017). Determining these variables allows researchers to evaluate the most engaging exhibits and visualize visitor movement throughout an exhibition.

To identify patterns and trends in dwell time, attraction power, and holding power, museums have employed various visitor observation and tracking techniques to accurately and efficiently evaluate visitor behavior. Aside from manually tracking visitor paths and noting visitor behaviors, museums have implemented five distinct sensor technologies to ease the data collection process and allow more visitors to be observed (Mygind &, Bentsen, 2017). These sensor technologies include Bluetooth, infrared, RFID, UWB, and Zigbee, with each approach offering unique strengths and limitations. Table 4 provides the advantages and disadvantages of each sensor technology:

Table 4. Advantages and disadvantages of various sensor technologies (Cueller et al., 2020)

Tool	Advantages	Disadvantages
Bluetooth	● Accessible for various devices (mobile phones, laptops, desktops, etc. ● Inexpensive ● Can be used in various-sized spaces	● Limited accuracy due to signal interference ● Bring Your Own Device (BYOD) required for data collection - may jeopardize anonymity or confidentiality
Global Positioning System (GPS)	● Allows for maximum coverage in largest spaces ● Compatible with many devices ● Inexpensive	● Only available outdoors.

Light Detection and Ranging (LIDAR)	• Inexpensive	• Difficult to analyze collected data • Requires installation and upkeep of multiple sensors
Radio Frequency Identification (RFID)	• Can be used indoors and in rooms with complex floor plans • Inexpensive	• Requires installation and upkeep of multiple infrastructures
Ultra-wideband (UWB)	• High accuracy • Offers coverage for large rooms • Can accommodate many users at once	• Expensive • Complex installation and upkeep • Sensors often require recalibration

Dwell time, attraction power, and holding power provide museums insight into visitor behavior and engagement inside an exhibition. Higher values for these variables indicate that visitors engaged more deeply with the respective exhibit or display. Similarly, standardized metrics such as the Sweep Rate Index (SRI) can be calculated to compare visitor behavior across exhibitions of different sizes and layouts (Yalowitz & Bronnenkant, 2009). SRI is defined as an exhibition's area divided by the average dwell time of its visitors (Serrell, 2010). Lower sweep rates indicate that visitors engaged more deeply with the exhibits and experienced greater levels of learning (Serrell, 2010). Collecting, measuring, and calculating various visitor-related variables allows museums to determine which exhibits receive the most visitor engagement and establish an accurate narrative for the visitor experience. The Assyrian Galleries contain a plethora of different exhibits, all with their own varying dwell time, attraction power, and holding power.

2.6 The Assyrian Galleries at the British Museum

Home to one of the world's largest and oldest Assyrian collections, the British Museum is one of seventy-six museums globally to hold and display objects from the cities of ancient Assyria (The Nimrud Project, 2015). Located on the museum's first floor, the Assyrian Galleries receive heavy foot traffic from various visitor types including tourists, school groups, and specialists. In May 2024, the British Museum installed a new projection show (see Figure 4) in Room 10a: Lion Hunts and new graphic panels in Room 10b: Siege of Lachish (see Figure 5). According to Stuart Frost, Head of Interpretation and Volunteers at the British Museum, the Assyrian Galleries are one of the first British Museum exhibitions to receive renovations as the museum begins its modernization plan to appeal to 21st-century audiences. The new implementations aim to increase visitor engagement by providing a more interactive and accessible experience, encouraging visitors to take an interest in Assyrian culture and history.

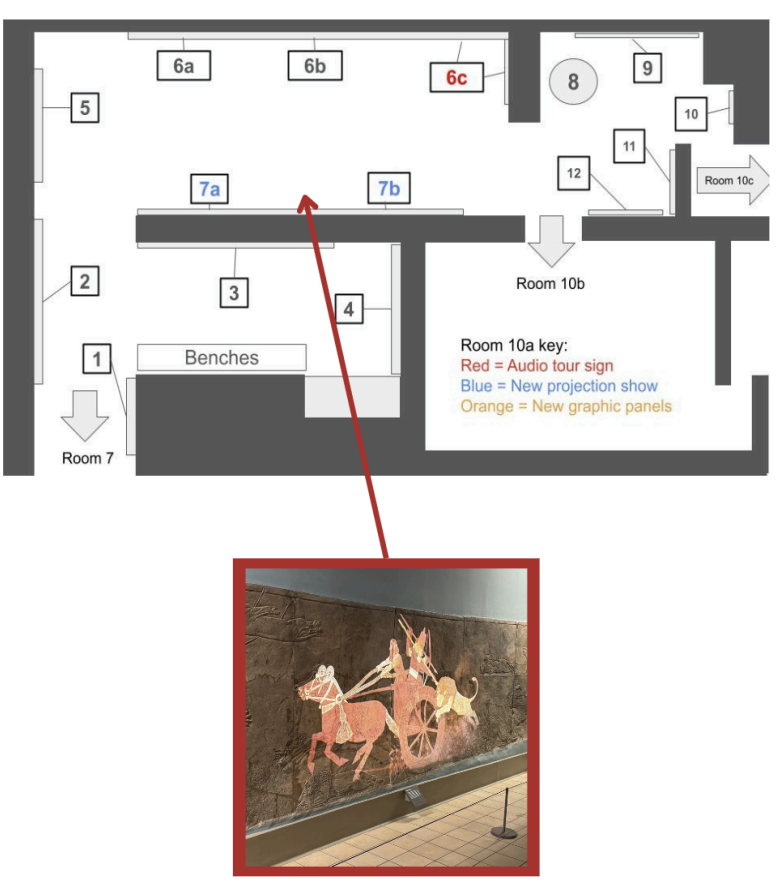


Figure 4. Location of new projection show in Room 10a: Lion Hunts

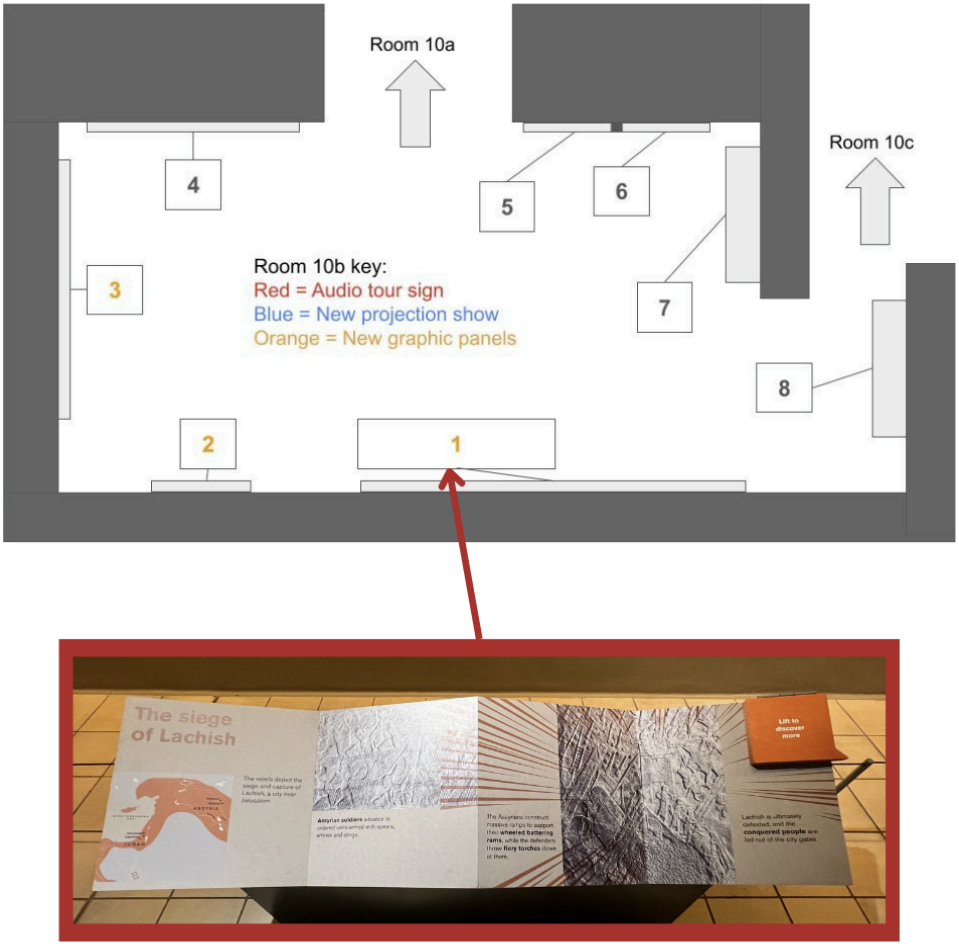


Figure 5. Location of new graphic panel in Room 10b: Siege of Lachish example

The Assyrian Gallery's original iteration of text panels was unstimulating and overly academic. Figure 6 shows the oldest text panels in the Assyrian Galleries which are distinguishable by their white background and black text. These panels are currently located solely in Room 6a. These older panels were later updated to display a more comprehensive portrayal of Assyrian art, culture, and history. Figure 7 shows the second iteration of text panels in the Assyrian Galleries, distinguished by their black background and white text. The black text panels are located in every room evaluated(excluding Room 6a). The new iteration of graphic panels in Room 10b aims to increase visitor engagement with the Assyrian reliefs through eye-catching displays and engaging text. The projection show in Room 10a seeks to increase visitor attendance in the gallery and visitor dwell time. Appendix A displays the floor plans for

Rooms 6, 7, and 10; exhibits containing the newest implementations are highlighted. Appendix B provides a guide for the naming and numbering of the exhibits in each room.

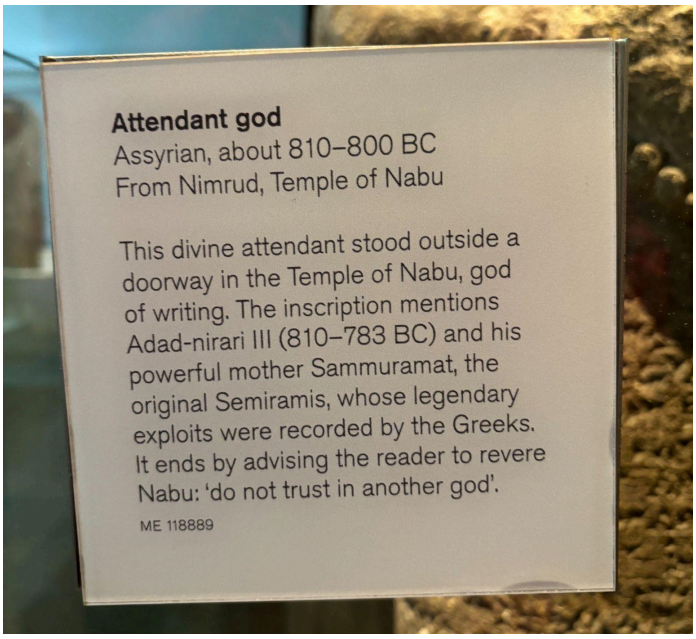


Figure 6. Oldest existing text panels in Room 6a example

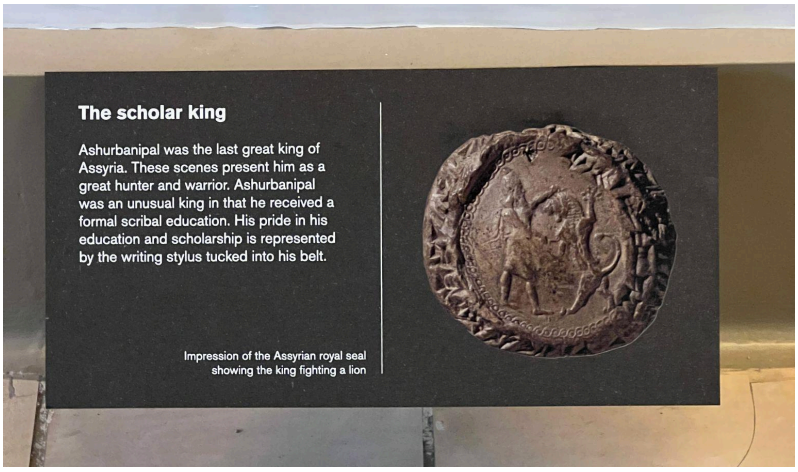


Figure 7. Second iteration text panels in Rooms 6, 7, and 10 example

Research regarding digital display and interactive exhibit utilization, including audio, visual, or physical representation, suggests visitor experience enhancement and improved learning (Roberts et al., 2018). The British Museum is unique in that little research has been done on implementing these texts or technologies into pre-existing historical exhibits. In

historically or culturally significant exhibitions, updated texts and technologies must be carefully implemented to avoid deflecting focus from the historical artifacts and mitigating their authenticity. The British Museum's commitment to distributing accurate historical information and its range of diverse audiences requires that new text or technological implementations do not impede visitors' ability to engage with the exhibits. It is crucial for the new text and digital renovations to successfully improve visitor experience and satisfaction as the museum continues to adapt to its diverse and ever-changing audiences.

The British Museum lacks data regarding the renovations' effectiveness due to the recency of the implementations. This research thus provides the British Museum with updated visitor engagement data in the Assyrian Galleries, specifically of visitors' interactions with the texts, graphics, and projection show. Our team investigated visitor engagement through two methods: visitor observation and visitor surveying.

3. Methodology

3.1 Objectives

This project evaluates visitor engagement in the British Museum's Assyrian Galleries, focusing on the new digital projection in Room 10a, and the text and graphics additions across Rooms 6, 7, and 10. We provided the museum with sufficient data describing the types of visitors attending the Assyrian Galleries and determined the renovations' impact on the visitor experience. Our research had three primary objectives:

1. Assess visitor motives for attending the Assyrian Galleries.
2. Determine the Assyrian Galleries' effectiveness in providing sufficient information to satisfy visitor inquiries through text and graphic panels.
3. Evaluate visitor engagement and satisfaction with the newly added digital display, graphics, and texts.

This study utilized visitor observations and surveying to achieve these project objectives. These methods collected quantitative and qualitative data that provided insight into visitor motives and experiences in the Assyrian Galleries and the effectiveness of the new elements. Quantitative data included visitor demographic factors of the visitors, attracting and holding power of exhibits, and average dwell time. Qualitative data included visitor motives for attending and their personal levels of satisfaction with their experience in the galleries. We were additionally required to take into account legal consent and research ethics when procuring data about the visitors.

3.2 Legal Consent

To gauge visitor behavior and engagement in the Assyrian Galleries, we employed both observation and exit surveys as our primary data collection methods. These methods allowed us to gather direct data on museum visitors in a natural setting. Both observation and exit surveys relied on direct data about museum visitors. Assessing individuals in public areas depended heavily on timing and tracking. Ethical considerations outlined by the British Psychological Society and the Belmont Report emphasize consent and voluntary participation (Yalowitz,

Bronnenkant, 2009). Institutional Review Boards (IRBs) were involved in ensuring research compliance. Encounters where visitors notice data collectors presented a possible challenge, requiring our team to be prepared to explain the study's purpose. Additionally, all data collected from our methods falls under the principles of the General Data Protection Regulation (GDPR), ensuring privacy and anonymity for all study participants. Our visitor exit survey consent form can be found in Appendix E. It states our team is a student-led team conducting a voluntary survey that visitors can opt out at any time.

Effective data analysis and reporting methods were essential for translating timing and tracking data into practical insights. Timing and tracking techniques help identify patterns and trends, aiding in optimizing visitor experiences and engagement through exhibit design. By analyzing this data, we could pinpoint specific areas in the museum that accumulated high interest or frequently overlooked areas. Ultimately, these timing and tracking methodologies served as valuable tools in visitor evaluation. This will provide a comprehensive understanding of how to enhance the museum experience effectively. Transitioning from data collection to practical application, these insights lay the groundwork for continuous improvement and innovation in the Assyrian Galleries.

3.3 Visitor Observations

We conducted an observational study of museum visitors to gain insights into their behaviors and interactions with exhibits. Using visitor tracking, we effectively assessed the flow through the gallery and measured the breakdown of time spent observing specific exhibits. Tracking these visitors provided quantitative data to understand visitors' engagement in the galleries (e.g. star ratings of personal satisfaction with the exhibits). We conducted visitor observation for four weeks, with an average of five days per week, during the hours the Assyrian Galleries were open. Our criteria for observation is in Appendix C: Visitor Observations Form. The form was constructed based off the gallery floor plans, which can be found in Appendix A: Assyrian Galleries Floor Plans.

Observing visitors can provide valuable insights into their behaviors, preferences, and interactions with exhibits. Strategies for manual tracking vary, encompassing various methods to ensure a comprehensive understanding of visitor dynamics. We used both direct and roaming observation techniques while gathering our data. Direct observation is stationary, where

observers position themselves at strategic points such as entrances, exits, and popular exhibits to monitor visitor flow. Another direct observation is roaming, where observers move through the museum following visitors to understand their navigation patterns and time spent at each exhibit (Centorrino, 2021). During our visitor observations, we utilized both direct and roaming observation techniques as the rooms were different sizes with varying visibility (or lines of sight). Behavioral mapping involves techniques like heat mapping, which tracks and records areas with the highest foot traffic. Interaction analysis focuses on engagement metrics, noting how visitors interact with exhibits, such as reading labels, touching interactive elements, or discussing with other visitors (Centorrino, 2021). This analysis also considers group dynamics, observing how different groups, such as families, school groups, and solo visitors, interact with the exhibits and each other. It also identifies whether a group composition affects engagement levels.We conducted this analysis to quantify how visitors were engaging with the Assyrian Galleries.

Utilizing time sampling methods, such as interval recording, choosing specific time intervals to record observations, and peak versus off-peak analysis, produced structured data on visitor activities, allowing comparisons of behaviors during different times of the day. Additionally, monitoring responses to new or recently changed exhibits during openings helped us gauge the success and visitor interest in these installations (Centorrino, 2021). Using observation tools such as checklists and rating scales allowed systematic recording of specific behaviors and interactions. This provided detailed field notes documenting observations, insights, and patterns that gave us a more comprehensive understanding of visitors' experience. Together, these techniques allowed us to gauge the effectiveness of displays in their ability to capture and hold visitor interest.

3.4 Visitor Exit Surveys

We conducted a series of exit surveys with visitors leaving the Assyrian Galleries to understand their motivations for visiting and their satisfaction with the newly implemented digital projection and textual elements. By conducting these surveys, we were able to gather both quantitative and qualitative information from visitors. To comprehensively evaluate all three rooms of the Assyrian Galleries, we systematically conducted surveys in one room at a time. Over the course of two weeks we collected 120 responses, surpassing our goal of a minimum of

100 responses. At the entrances and exits of the galleries, signs with a QR code were posted informing visitors that surveys were being offered so they could scan and be directed to the survey link. These signs were on display throughout the gallery's operating hours, encouraging maximum engagement from visitors.

The survey included three main categories of questions: visitors' motivations, knowledge, and satisfaction. The questions generated answers that covered expectations, outcomes, and the main takeaways from the visitors' experience; these questions can be found in Appendix F: Visitor Exit Survey. From these questions, we gathered data about visitors' motives, learning, overall satisfaction, and which elements of the exhibits that captured the most interest. With this information, we determined visitor motivations and found supporting evidence of high engagement in the Assyrian Galleries.

We utilized Qualtrics's surveying tools to collect and organize our observation and survey data. We created two separate forms for observation and surveying. After gathering our survey data, we exported it to an Excel file, which allowed us to manipulate the formatting and more closely examine our data. Additionally, we used Qualtrics to create visual representations such as pie charts.

3.5 Data Analysis and Comparisons

Trends in visitor responses and interactions with the Assyrian Gallery exhibits were determined through a comprehensive analysis and comparison of the observation and survey data. We compared qualitative survey data with quantitative observation data to determine which exhibits visitors found most engaging and satisfying. Based on the British Museum's previous segmentation report, we segmented survey respondents according to their motivations for attending the Assyrian Galleries. This allowed us to compare visitor behavior outlined by the visitor categories with what we observed during our time in the galleries. The quantitative observation data allowed us to quantify the dwell time, holding power, and attraction power for different exhibits in the Assyrian Galleries. Heat map models, presented in Section 4: Findings, were used to represent and compare the holding and attraction power in Rooms 6, 7, and 10.

The data gained through our visitor observations and exit surveys allowed us to analyze how audiences receive the Assyrian Galleries, specifically the newly implemented text, graphics, and projection show. Visitor feedback and observation trends provided insight into the visitor

experience and their satisfaction with the galleries. In Section 4: Findings and Analysis, we formulated six claims regarding the gallery renovations' effectiveness. These claims informed our recommendations for the British Museum to further improve visitor engagement in the Assyrian Galleries and later renovation projects. Our recommendations are presented in Section 5: Conclusions and Recommendations.

4. Findings and Analysis

We begin this section with segmenting the 101 complete survey respondents into the seven distinct visitor segmentation categories previously outlined by the British Museum. Then, we analyze the new renovations' effectiveness in improving visitor engagement, learning, and satisfaction as indicated by our 285 visitor observations and exit surveys. We finish through discussing the effects of large tour groups and overcrowding observed during our time in Room 10a.

4.1 Visitor Segmentation in the Assyrian Galleries

Sightseers and socially motivated groups had the highest attendance rates in Rooms 6, 7, and 10, while visitors more likely to deeply engage with the material had lower attendance volume. To understand visitors' motivations for attending the Assyrian Galleries and categorize them according to these motivations, we asked visitors to share who they attended the exhibition with and the motivation that best described their visit. Visitor responses allowed for segmentation into the British Museum's seven motivation categories. Most visitors responded that they attended the Assyrian Galleries with others, indicated by Figure 8. 46% of visitors stated they attended with other adults. Similarly, over 30% of surveyed visitors stated they attended as part of a tour group, school group, or with children. Groups with children were considered part of the *family* segmentation category, while those who selected the "school group" option were placed in the *school group* category. Only 18% of visitors stated they attended alone, signifying that the Assyrian Galleries attracted a large socially motivated audience.

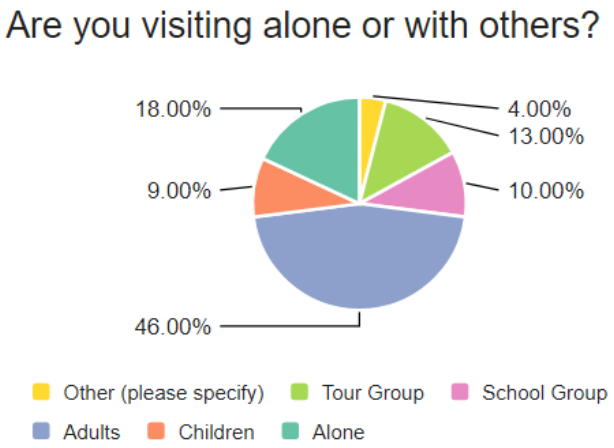


Figure 8. "Are you visiting [the Assyrian Galleries] alone or with others?" pie chart

Our survey also indicated that the largest visitor segmentation category in the Assyrian Galleries was *sightseers*. When presented with a list of motivations for attending the Assyrian Galleries, 67% of visitors selected socially motivated responses as seen in Figure 9. Of the socially motivated categories, *sightseers* accounted for the largest visitor portion at 45%, followed by *families* with 12% and *schools* with 10%. Categories more likely to engage deeply with the exhibits, such as the *self-developers*, *art-lovers, and experts*, accounted for 33% of respondents. This emphasizes that the Assyrian Galleries generally attract socially motivated visitors, who have a higher likelihood of surface level engagement.

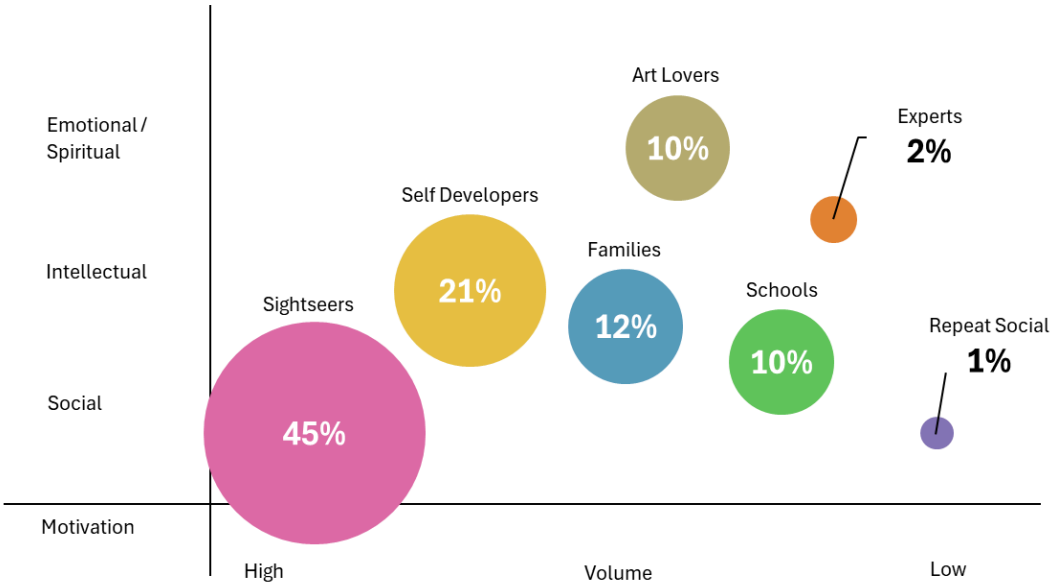


Figure 9. Motivational drive vs. visitor volume map for seven segmentation categories in the Assyrian Galleries

Finally, exit survey responses indicated that the Assyrian Galleries had much higher volumes of socially motivated visitors compared to temporary exhibitions. Figure 10 displays the visitor segmentation in Rooms 6, 7, and 10: The Assyrian Galleries (left) vs. the British Museum's temporary Afghanistan: Crossroads of the Ancient World exhibition (right). The Afghanistan exhibition received a far greater percentage of deeply engaged visitors, with 90% of visitors falling in the *art-lover, expert,* and *self-developer* categories compared to 33% in the Assyrian Galleries. The temporary Afghanistan exhibition likely had two advantages that

attracted visitors inclined to engage deeply with the material. Firstly, the Afghanistan exhibition's relatively brief presence likely made those interested in the material more urgent to visit. This is opposite to the Assyrian Gallery's permanence at the museum. Secondly, visitors must either have a membership or pay extra to attend the temporary British Museum exhibitions. This would deter visitors or tourists who are looking solely to attend the museum as an activity, rather than to engage deeply with the exhibits. The Assyrian Galleries are located on the main floor and towards the front of the museum. Therefore, many visitors making day visits are likely to pass through whether or not they are interested in ancient Assyria. These advantages allow the temporary exhibits to attract more specialized and deeply engaged audiences.

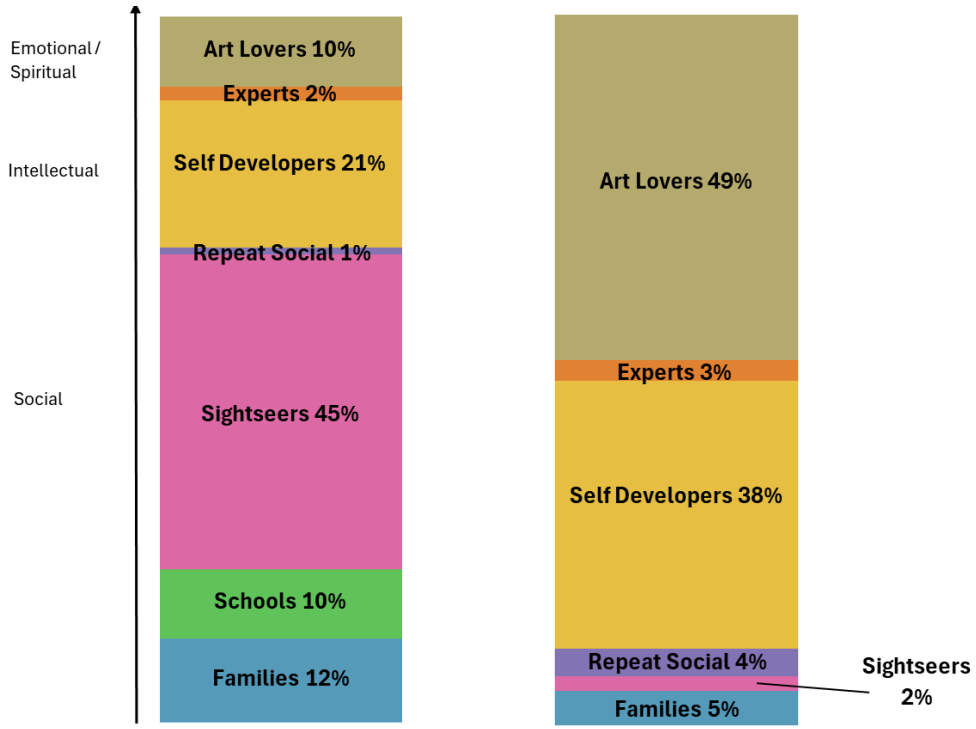


Figure 10. Visitor segmentation in the Assyrian Galleries (left) compared to previous Afghanistan temporary exhibition (right) (Morris et al., 2012)

The dominance of socially motivated visitors in the Assyrian Galleries requires that the exhibits, text and graphic panels, and projection show are sufficiently engaging without being overwhelming. However, it is equally important to provide an engaging and satisfactory experience to more specialized visitors. Strategies to do so are provided in Section 5: Conclusions and Recommendations.

4.2 New Text Panels Increase Attraction

As shown in Figure 11, the new text panels in the Assyrian Galleries have significantly attracted visitors and maintained their interest. Our team conducted exit surveys where visitors rated various features and attributes of the new text panels on a scale of 1 to 5 stars (1 being bad, 5 being good). These features included the position of the panels, the language used, the size of the text, and the amount of information provided. The results were positive, with the average ratings for each feature hovering around 4 stars, indicating strong approval from visitors as seen in Figure 12. These panels have not only improved the informational aspect of the exhibit, but also enriched the overall visitor experience. The data combined with qualitative observations paint a picture of how these improvements have resonated with visitors. The overall ratings for the new text panels demonstrate a high level of visitor appreciation and engagement.

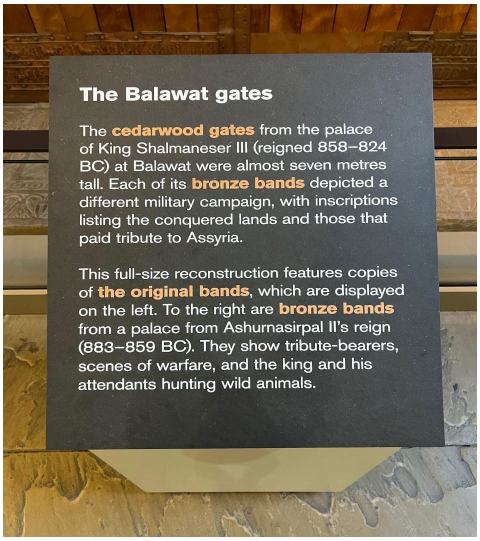


Figure 11. Picture of new text panel

Figure 12. Mean ratings for text panel features

The effectiveness of the new text panels is also noticeable in the visitor engagement metrics. The average overall walkthroughs, as well as a detailed breakdown of average walkthroughs for each room, are shown in Figure 13. Visitor observations indicated that 26% of visitors were classified as walkthroughs. This signifies high engagement. The overall walkthroughs for the Assyrian Galleries have shown a marked increase in visitor engagement in the rooms where the new text panels were installed. Figure 14 clarifies the breakdown of the overall walkthrough in each room. These have very little walkthroughs compared to other galleries in the museum. Comparatively, according to a report from the British Museum, Room 64 of the Egyptian Galleries had a walkthrough rate of 43%. The Assyrian Galleries' lower walkthrough rate displays the renovations' success in catching visitor attention and garnering engagement.

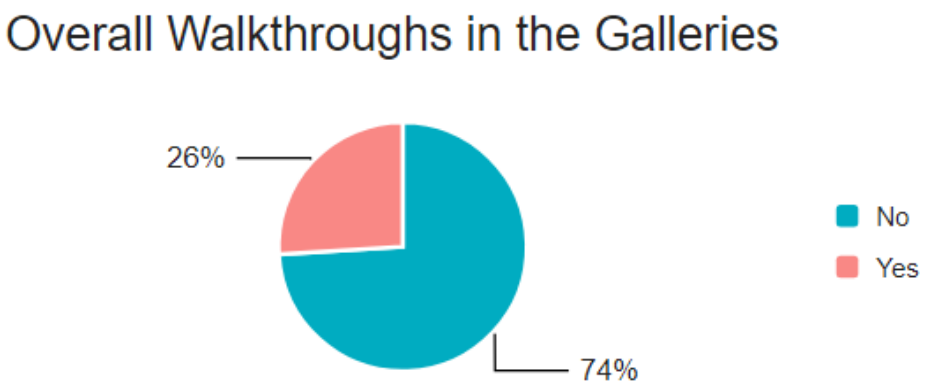


Figure 13. Overall walkthroughs in the Assyrian Galleries

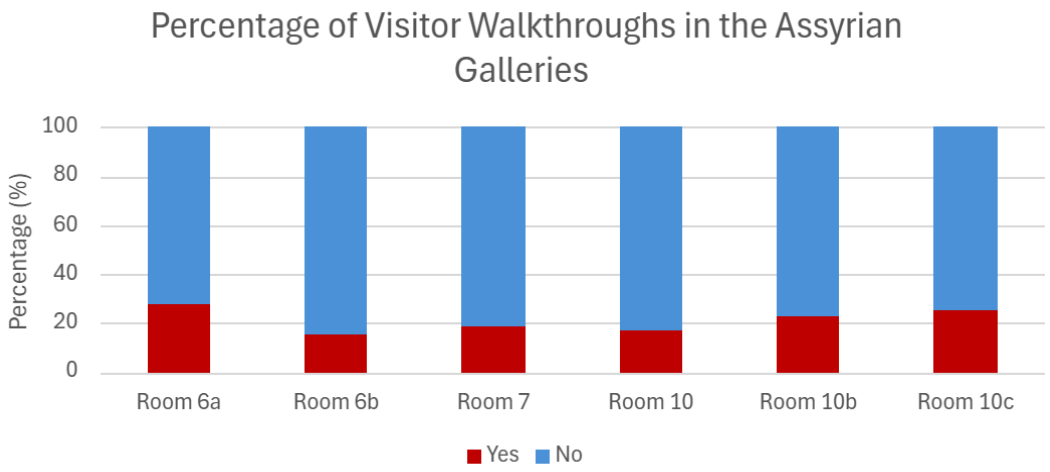


Figure 14. Average walkthroughs in each room

Additionally, the average dwell time in each room further supports the claim that the new text panels have significantly enhanced visitor engagement. Room 10a received the highest dwell time of any single room in the Assyrian Galleries, averaging nearly 200 seconds. This suggests the projection show successfully increased visitor dwell time as many visitors stopped to watch the entire projection. In Figure 15, Room 6 displays the highest dwell time of the observed rooms. However, our data did not separate visitor dwell times in Rooms 6a and 6b respectively, thus it can be assumed that the individual rooms would have lower times. Although Room 10b received the new graphic panels, the average dwell time was not significantly higher than Room 10c and much lower than Room 7. This could be due to the new graphic panels' "less-is-more" approach. Since the panels have less text and more visual art, visitors may finish reading the panel quickly before observing the reliefs and moving to the exhibit.

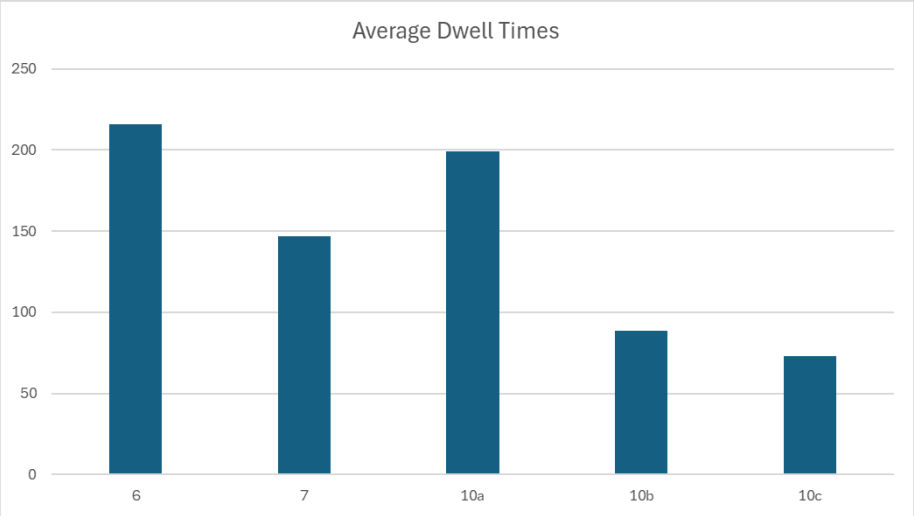


Figure 15. Average dwell times in Rooms 6, 7, and 10

While dwell times offer broad insight into how long visitors spend in each room, stoppage percentages display how many exhibits receive visitor attention. Visitor stopping percentage was calculated by counting the number of exhibits visitors stopped at and dividing by the total number of exhibits in the room. Figure 16 displays the average percentage of exhibits that visitors stopped and interacted with in Rooms 6, 7, and 10. Although Room 10b received the lowest dwell time, it retained the highest visitor-stopping percentage at 42%. This shows that the graphic panels were successful in drawing and holding visitor attention. Conversely, Room 10a had the lowest visitor-stopping percentage at 28%. This could be attested to the room's length and visitors lacking mental stamina to engage with the entire room. During observations, it was noticeable that many visitors entering Room 10a through Room 7 often skipped the exhibits closest to Room 10c. As seen in Appendix A: Floor plans for the Assyrian Galleries - Rooms 6, 7, & 10, exhibits 8 through 12 were the furthest from the Room 7 entrance and were easily skippable if visitors entered directly to Room 10b. These exhibits had much less attraction and holding power, indicating that few visitors engaged with them.

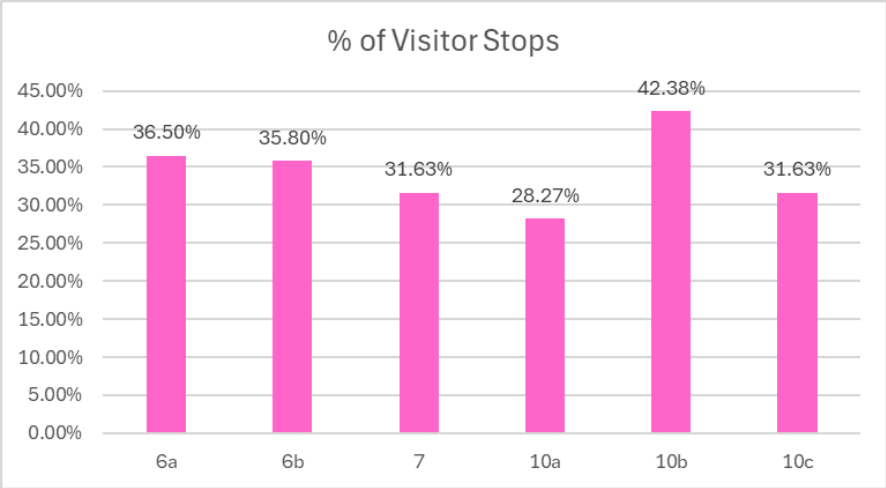


Figure 16. Percent of exhibits that visitors stopped and interacted with in Rooms 6, 7, & 10

The heat maps in Appendix G illustrate the attraction and holding power for Rooms 6a, 6b, 7, and 10c. As seen in Appendix G, Room 6a: Assyrian sculpture, Exhibit 6 (Kurkh Stela, Stela of Ashurnasirpal II, Stela of Shamshi-Adad V) had the highest attracting power at 57%, followed by Exhibit 5 (The capture of Astartu + "Austen Henry Layard" Wall Sign) at 48%. When examining holding power, Exhibit 10 (The Black Obelisk of Shalmaneser III, The White Obelisk) had the highest at 3 seconds following Exhibit 5 (The capture of Astartu + "Austen Henry Layard" Wall Sign) at 33 seconds. Appendix G presents the following attracting and holding power for Room 6b: Balawat Gates. Exhibit 5b (Gateway guardians) had the highest attracting power at 79% followed by Exhibit 5a (Gateway guardians) and Exhibit 3 (The Balawat gates) at 61%. When analyzing holding power, Exhibit 5a (Gateway guardians) had the highest at 39 seconds followed by Exhibit 5b (Gateway guardians) at 37 seconds. As seen in Appendix G, Room 7: Nimrud, Exhibit 9 (Power behind the throne) had the highest attracting power at 55% followed by Exhibit 4c ("The camp…" to "The king reviews…" text panels) at 45%. Exhibit 4a ("The King and his troops…" text panels) had the highest holding power at 30 seconds followed by Exhibit 4b ("The King charges…" to "The Assyrian cavalry…" text panels) at 26 seconds. These depict the increased attraction and retention in the rooms equipped with the new panels. These heat maps provide a clear visual confirmation of the greater interest and interaction levels in these areas.

The new text panels have made a significant positive impact on visitor engagement and satisfaction. The data collected from the exit surveys, walkthrough analysis, dwell time

measurements, and the heat maps suggest the new implementations were successful. aThe high average ratings, attraction power, and holding power indicate that visitors find the new text panels more appealing and informative.

4.3 New Graphic Panels and Projection Show Increase Engagement

Upon data analysis, we deduced that the new graphic and text panels implemented within Room 10a and the Lion Hunt projection show added to Room 10b were both successful in increasing visitor engagement.

As seen in Appendix G: 10b Heat Maps, Exhibit 1 (The Siege of Lachish Graphic Panel) had the highest attracting power at 73%, followed by Exhibit 2 (The Aftermath) and Exhibit 3 (The King is Victorious) at 59% and 51% respectively. When examining holding power, these same three exhibits were again the highest, with Exhibit 1 at 38 seconds, Exhibit 2 at 18 seconds, and Exhibit 3 at 23 seconds. None of the other exhibits in 10b containing the older text panels managed to achieve the same levels of holding nor attracting power.

Room 10a housed the Lion Hunt projection show, an attraction that caught the attention of the majority of visitors in the room. The projection show, represented as Exhibit 7a and 7b in Appendix G: 10a Heat Maps, held an attracting power of 78%, the highest in all of Room 10a by a wide margin. Comparatively, the second highest attracting power was only 42%, belonging to Exhibit 6. Regarding holding power, Exhibit 7 still led, with 7a at 34 seconds and 7b at 72 seconds; this difference is likely due to the projection show's placement being centralized at 7b rather than 7a. Regardless, the Lion Hunt projection show had the highest holding and attracting power out of all of 10a's exhibits.

In addition to numeric data, qualitative observations and exit survey responses also show there was a high amount of visitor engagement for the new implementations. When asked to rate various properties of the Lion Hunt projection (visibility, duration, sound volume, amount of information, and engagement), visitors responded with a mean rating of approximately 4 out of 5 stars for each, as shown in Figure 17. These ratings is comparative to the texts and graphics ratings, as stated in Section 4.2: Attraction of New Text Panels.

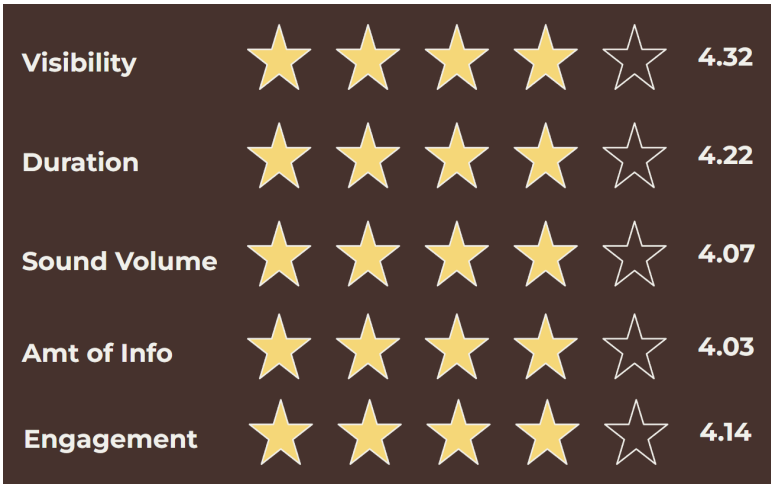


Figure 17. Mean ratings for Lion Hunt projection features

Furthermore, we made note during our periods of visitor observation of their behavior towards the additions. Many visitors would watch the entire projection show through, and some would remain in Room 10a even after the animation had finished, as well as stay to rewatch the animation if they had entered 10a after the animation had already started. As for Room 10b's new text panels, visitors displayed a tendency to overlook exhibits that did not contain the new text panels, despite these other exhibits being similarly intricately designed and well-lit (e.g. Exhibit 7: Weapons From The Siege). Thus, the new text & graphic panels clearly had a substantial effect on captivating visitors.

This data displays conclusive evidence that the new text panels and the Lion Hunt projection both contributed greatly to visitor engagement within Room 10, containing the highest holding and attracting power by far.

4.4 Visitor Satisfaction with Current Gallery Layout

Visitors are generally satisfied with the current layout and presentation of the gallery. This satisfaction is supported by detailed survey data. On average, visitors rated their satisfaction and expectations around 4 out of 5 stars. The average rating for overall satisfaction was 4.04 out of 5, while the average rating for meeting expectations was even higher, at 4.31 out of 5. These ratings suggest that the gallery not only meets but slightly exceeds visitor expectations.

Specific elements of the gallery experience such as projection quality, text panels, and graphics, were all highly rated, each receiving around 4 out 5 stars. The quality of projections,

the engagement of the new text panels, and the well-received graphical elements all contributed to the high satisfaction levels. Additionally, a comparison of positive and negative emotions reported by visitors present a predominance of positive emotions over negative (see Figure 18). This indicates an overall positive experience for visitors provided by the gallery.

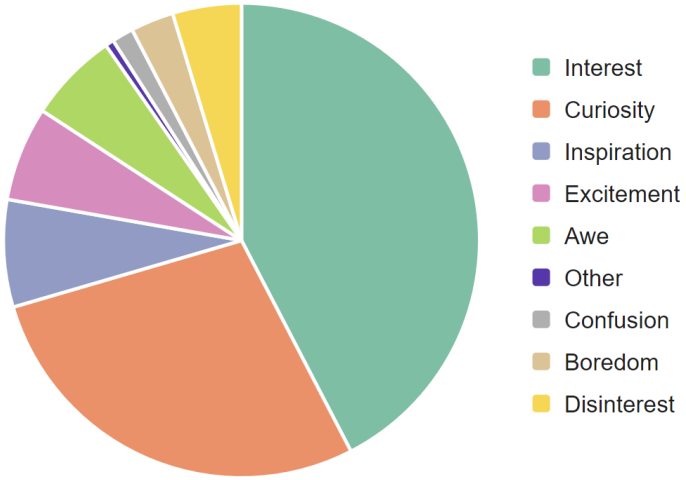


Figure 18. Observed visitor emotions in the Assyrian Galleries

The exit survey data provides a clear picture of visitor satisfaction and the effectiveness of the gallery's current layout and presentation. The high ratings across various aspects of the gallery's efforts in improving text panels, projection quality, and graphics have been successful. Visitors not only find the gallery engaging but also feel that their expectations are being met. The high levels of satisfaction and positive emotional responses shows the success of the gallery's recent updates. The survey results suggest that visitors appreciate the attention to detail and the quality of the presentation. This positive feedback indicates that the gallery's current approach is effective in delivering a fulfilling and enjoyable experience for its visitors. By maintaining and building on these elements, the gallery can continue to provide an engaging and satisfying experience that resonates with its audience.

4.5 Visitor Knowledge Increases After Visiting the Assyrian Galleries

From our findings, we saw an increase in visitors' knowledge about Assyrian history and culture. In the exit survey, visitors were asked to rate their knowledge of the content in the Assyrian Galleries before and after their visit. The rating was based on a 5 star scale, with 1 star

being not very knowledgeable and 5 stars being very knowledgeable. Out of 101 responses, visitors rated their knowledge before entering the galleries with an average of 1.91 stars (see Figure 19). However, after experiencing the galleries, visitors rated their knowledge to be an average of 3.98 stars, suggesting that visitors are leaving the Assyrian galleries more knowledgeable.

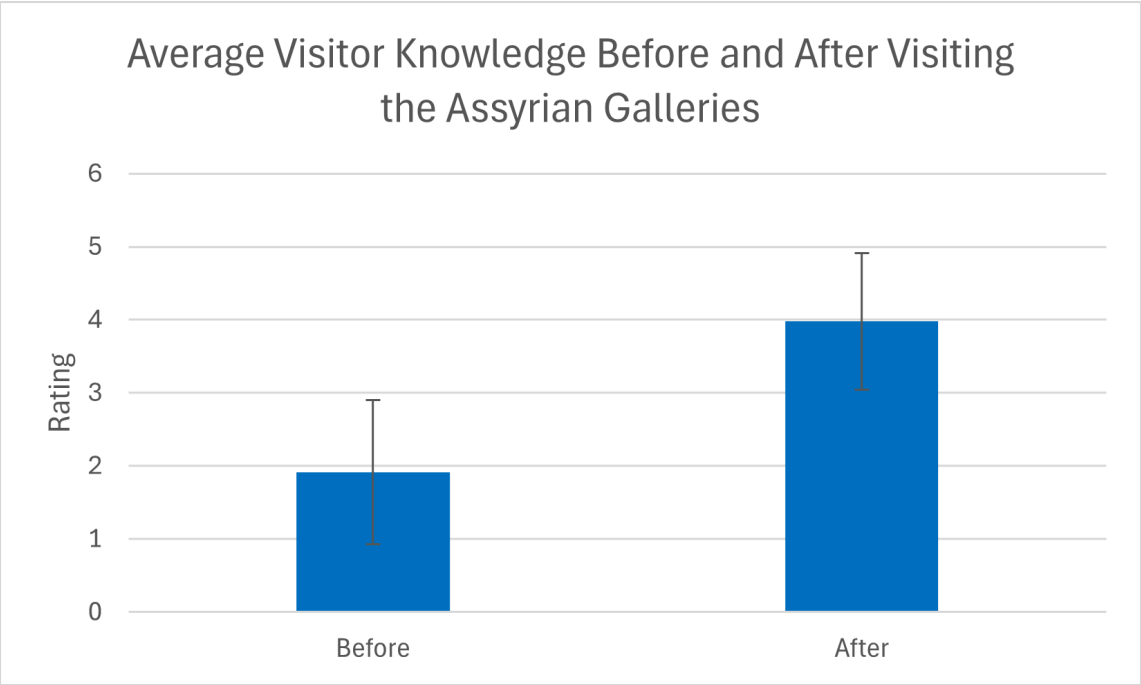


Figure 19. Average visitor knowledge before and after visiting the Assyrian Galleries

We believe this significant increase in visitors' confidence in their knowledge is due to both the amount of first-time visitors and the addition of the new text panels, graphics, and projection show. In addition to asking visitors to rate their knowledge, we asked them to report if they had visited the Assyrian Galleries before. As shown in Figure 20, 79% of visitors that participated in the survey had never visited the galleries before. Of the new visitors, 96% of them reported an increase in knowledge after leaving the galleries. Repeated visitors also showed an increase of knowledge, as 80% reported a higher knowledge rating than before (see Figure 21).

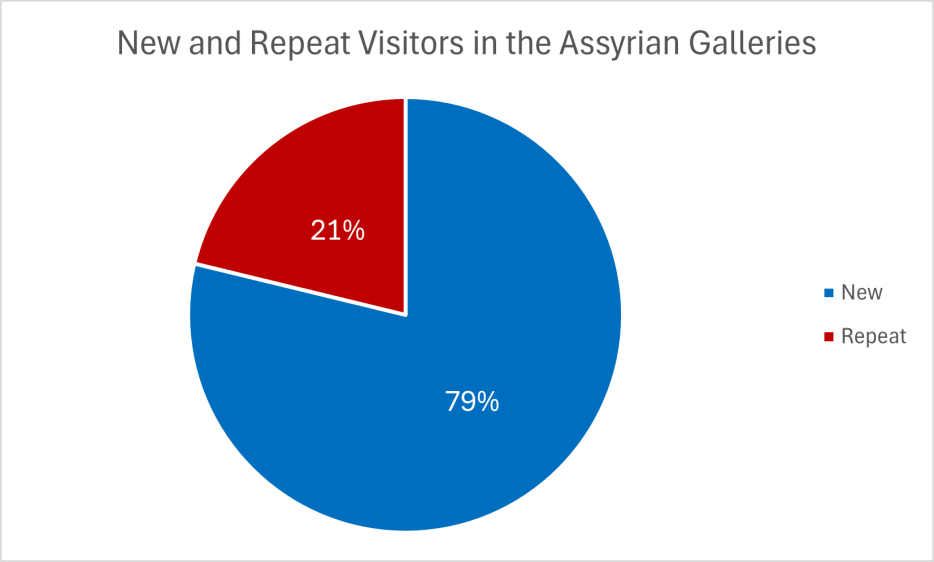


Figure 20. New and repeat visitors in the Assyrian Galleries

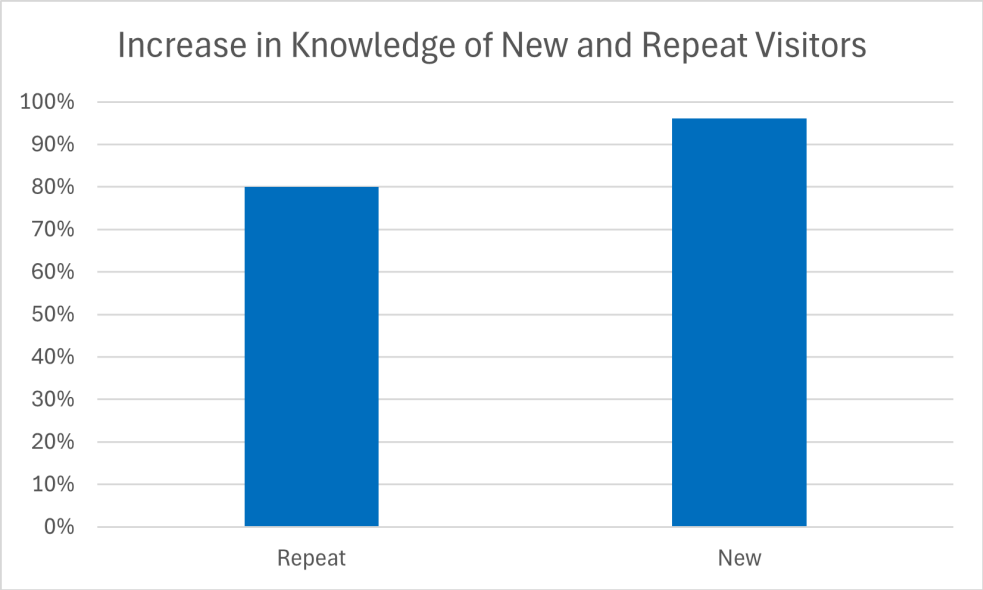


Figure 21. Percentage of new and repeat visitors who experienced an increase in knowledge

The high percentage of first-time visitors reporting an increase in knowledge demonstrates that visitors were not knowledgeable prior to visiting the galleries. The significant increase in knowledge rating in both new and repeat visitors suggests that visitors that engage with the newly implemented texts and graphics are subsequently learning more about Assyria, and are eager to go deeper into the subject; feedback from the exit surveys supports this, as there

was a common complaint that there was not enough educational or supplementary content in the galleries.

Although our findings reflect that visitors are becoming more knowledgeable after leaving the Assyrian Galleries, this claim has limitations. The data that supports this claim was gathered from surveys taken electronically and offered solely in English. This method of data collection biases people who are comfortable with the English language and proficient with technology. Additionally, the survey was only offered through a QR code on a flyer (see Appendix D), appealing to visitors who were most likely interested in the Assyrian Galleries already and thus had greater motivation to participate in the survey.

4.6 Crowding and Tour Groups Influence Visitor Experience

Tour group behavior and crowding in the Assyrian Galleries, specifically in Room 10a: Lion Hunts, negatively impacted visitors' interactions with the galleries. Although the projection show successfully drew visitors' attention to Room 10a, many individuals, tour groups, or other large groups stopping to watch commonly led to severe crowding. This was especially true between 11 am to 1 pm when the Assyrian Galleries were frequently the busiest. Figure 22 depicts a common overcrowding occurrence resulting from the projection show.

Figure 22. Image of crowding around projection show in Room 10a: Lion Hunts

Visitors attending alone, in smaller groups, or with children displayed two most common reactions when crowds began to form. First, some visitors would attempt to persist through the crowd while the projection was showing. This led to little engagement with any of the reliefs as the visitor's primary focus was moving through the room rather than interacting with the exhibition. The second common reaction to crowds was to avoid the room entirely. Upon entering, some visitors saw the crowding and immediately exited the same way they came. These crowding occurrences were also commented on in the observation walkthrough data. When asked to provide final feedback regarding their visit, one visitor stated:

> *"The guided tour groups are too large. I'm a large man (6'2"). I'm not sure how a smaller person would navigate around them."*

This comment and the observed visitor actions when presented with crowds shows their negative influence on the visitor experience. Even if visitors decided to stay in the room, their interactions and engagement with the reliefs often became rushed or pressured. The crowding also impeded on Room 10a's quiet and secluded atmosphere, diminishing the exhibition's authenticity.

These analyses and findings were inferred from the research data we gained through observation and surveying. From these findings, we have formulated a series of recommendations for the British Museum as it moves forward with the master plan.

5. Conclusions and Recommendations

5.1 Conclusions

The British Museum's new texts, graphics, and projection show implemented in 2024 successfully improved visitor engagement in Rooms 6, 7, and 10: The Assyrian Galleries. From the data collected through visitor observations and exit surveys, we formulated four central conclusions about the visitors to the Assyrian Galleries and the new additions.

First, we found *sightseers* and *self-developers* were the most common visitor segments attending the galleries. As stated in Section 4.1: Visitor Segmentation in the Assyrian Galleries, *sightseers* represented the largest quantity of our sample at 45%. *Self-developers* followed as the second-highest, at 21%. Social and educational visitor categories made up the majority of the Assyrian Galleries' visitor population. This could likely be due to the Assyrian Galleries' location in the museum, being on the main floor, near the front entrance, and connecting with other popular exhibitions such as Egypt, Greece, and Rome. The lack of *art lovers* and *expert*s may also result from a lack of content for visitors who enjoy more deeply connecting to exhibits. The new texts and graphics follow a "less-is-more" approach regarding the amount of text on each respective panel which may dissuade or bore specialized visitors. However, for general audiences, the new texts and graphics effectively improved knowledge and generated interest in ancient Assyria.

We also found that visitors possessed a considerable intellectual connection with the Assyrian Galleries. Both first-time and returning visitors left the galleries more knowledgeable about Assyrian culture and history than they entered. When asked to rate their level of knowledge before and after visiting the galleries, the average star rating improved from 1.91 to 3.98 out of 5 stars. Visitors also expressed curiosity about further Assyrian content such as where the objects come from, why they are at the museum, and the object's cultural significance. Visitor interest and curiosity in the material were also visibly noticeable during observations as many visitors read from text panels, discussed with other group members, or gestured to the reliefs. Successful visitor learning was largely attributed to the new implementations' effectiveness in catching and holding visitor attention.

Next, based on the data we procured from visitor observations, the new text, graphics, and projection show retained the highest attention and engagement by a significant margin. As

previously stated in Section 4.3: Increasing Visitor Engagement Through the New Graphic Panels and Projection Show, the projection show and new texts and graphics led in both dwell time and number of stops. Response and observation trends displayed that the renovations were well received by visitors and contributed to a positive experience in the Assyrian Galleries. The projection show increased the holding and attraction power of Room 10a due to the sound effects and music drawing people towards the projection. This helped 10a's popularity among visitors, but also led to the overcrowding issues mentioned in 4.6: Crowding and Tour Groups Impact on Visitor Experience.

Finally, from star ratings from the exit surveys, we concluded that visitors are enjoying the new projection show, texts, and graphics. As mentioned in Section 4.4: Visitors Satisfaction with Current Gallery Layout, when asked if their expectations for the gallery were met, the average star rating from visitors was 4.31 out of 5. When asked about their level of satisfaction with the gallery, the average rating was 4.04. From these average ratings, we inferred that visitors to the Assyrian Gallery were satisfied with the layout and presentation of these new additions.

5.2 Recommendations for the British Museum

After reviewing our findings, our team would like to propose a few recommendations that we believe would further visitor learning and engagement in the Assyrian Galleries. The first is changes to the newly added lion hunt projection show in Room 10a. Although this display garnered the most engagement from visitors, there are some changes to make it even more successful. Currently, the projection show has a three minute pause between runs. Room 10a has an average visitor dwell time of just over 3 minutes. Therefore, if visitors are entering the room at the tail end of the projection show, they are most likely leaving before it runs again. Shortening the duration between shows would ensure that more visitors are in the room when the projection starts. In addition to shortening the breaks between the shows, we suggest increasing the uptime of the show would increase visitor engagement and satisfaction. During our observations, our team noticed that the lion hunt projection show would have prolonged breaks between runs or stop entirely while the galleries were still open to the public. There were a few comments from disappointed visitors who were looking forward to seeing the show. Fixing this issue and having the show to run for the entirety of the galleries' opening will allow more

visitors to experience the lion hunt projection and hopefully satisfy them. Lastly, our team suggests adding signage in Room 10a with information about the duration between the lion hunt projection showings would be beneficial. As mentioned before, some visitors would enter and leave the room before seeing the projection show. By giving them information about when the projection starts, more visitors can experience the lion hunt. This addition may also increase visitors' dwell time in the room as they wait for the show to begin.

Moving on to recommendations for Gallery 10 of the Assyrian Galleries, we believe adjusting the mechanism on the flippable text panel of the "Siege of Lachish" graphic panel would be beneficial to visitors' experience and their safety. While conducting our observations, we noticed that if visitors were not attentive enough when moving the flippable text panel, the panel would fall back into place and the sound would echo throughout the room. The sound disrupted other visitors' experience in the galleries, causing them to break their focus and look in the direction of the graphic panel. The current mechanism for the flippable text panel also poses potential injury to visitors, such as younger children, as fingers could get easily jammed underneath the falling panel. The second change we recommend for Room 10b is the lighting for display 8, the Tribute and Prisoner reliefs. Most of the room is lit very well as the artifacts and text panels are easily seen. However, the lighting for display 8 (see Appendix A (Room 10b floor plan)) is extremely dim. During visitor observations, we noticed that visitors tended to walk right past this display consistently. Our findings support this claim as display 8 had a significantly lower attraction power than any of the other displays in Room 10b. Adjusting the lighting for display 8 will highlight it better and hopefully increase its attraction power.

For the galleries overall, our team has two recommendations. Firstly, we suggest alerting visitors to where they can find more information about the content of the galleries. Although we found that most visitors were satisfied with the galleries, we received a few comments asking where they could find more information about the Assyrian Galleries. As mentioned previously, we discovered that the most common visitor segments were sightseers and self-developers. Despite these segments making up a majority of the visitor population, it is important to cater to the art lovers and experts that fall under the minority of visitors. Incorporating a place where these types of visitors could learn more, such as a QR code or touch screen, would be a simple solution to satisfy these visitors' needs. Lastly, our team recommends implementing new texts,

graphics, and more projection shows in the other rooms of the Assyrian Galleries. According to our findings, visitors engaged the most with the new elements added to Rooms 6b, 7, and 10.

From the new additions to the Assyrian Galleries, the British Museum successfully continues to impress visitors and cultivate interesting experiences. Through visitor observations and exit surveys, we identified six major trends regarding visitor motivations, engagement, and satisfaction. These trends informed our recommendations to the British Museum as they continue renovating other exhibitions. Overall, the addition of the new texts, graphics, and projection show have been overwhelmingly successful in increasing visitor engagement and attendance, improving their satisfaction and expectations for the Assyrian GalleriesBy developing these additions further and implementing them across the other exhibitions the British Museum will continue to garner attention and interaction from diverse audiences.

References

Aldrich, E., Bessette, K., Mueller, P., Prakash, M. (2016). British Museum: Digital Learning. Worcester Polytechnic Institute. https://wp.wpi.edu/london/projects/2016-projects-spring/british-museum-d16/

Anglia, N. (2022, December 21). *What are the nine types of intelligence that should be considered in all school curricula?* Prague British International School. https://www.nordangliaeducation.com/pbis-prague/news/2020/12/09/the-nine-types-of-intelligence

Aristova, U., Rolich, A., Staruseva-Persheeva, A., Rolich, A. (2021, January 9). Digital Museum Transformation: From a collection of exhibits to a gamut of emotions. Communications in Computer and Information Science, 1242, 419-435. https://doi.org/10.1007/978-3-030-65218-0_31

Behesthi, E., Kim, D., Ecanow, G., Horn, M. (2017, May 2). Looking Inside the Wires: Understanding museum visitor learning with an augmented circuit exhibit. Association for Computing Machinery, 1583-1594. https://doi.org/10.1145/3025453.3025479

Centorrino, Corbetta, Cristani & Onofri. (2021). Managing crowded museums: Visitors flow measurement, analysis, modeling, and optimization. Journal of Computational Science, 53(5), 1-36. https://doi.org/10.1016/j.jocs.2021.101357

Cotter, K. N., Fekete, A., & Silvia, P. J. (2022). Why Do People Visit Art Museums? Examining Visitor Motivations and Visit Outcomes. *Empirical Studies of the Arts*, *40*(2), 275-295. https://doi-org.ezpv7-web-p-u01.wpi.edu/10.1177/02762374211011740

Cuellar, K., Jambor, E., Sorornejab, P., Samuel, T. (2020). Improving Visitor Evaluation at the British Museum. *Worcester Polytechnic Institute.* https://digital.wpi.edu/pdfviewer/3n204149z

Dong, S. (2024). Research on the application of digital media technology in museum exhibition design: A case study of the national museum of Singapore. *SHS Web of Conferences, 181*, 4031-. https://doi.or/10.1051/shsconf/202418104031

Falk, J. H. (2008). Viewing Art Museum Visitors Through the Lens of Identity. *Visual Arts Research*, *34*(2), 25–34. http://www.jstor.org/stable/20715472

Horn, M., Leong, Z., Block, F., Diamond, J., Evans, E., Phillips, B., Shen, C. (2012, May 5). Of BATs, and APEs: An interactive tabletop game for natural history museums. Association for Computing Machinery, 2059-2068. https://doi.org/10.1145/2207676.2208355

International Conference of Museums. (2024). *International Museum Day*. https://icom.museum/en/international-museum-day-2/

Lanir, J., Kuflik, T., Sheidin, J. et al. (2017). Visualizing museum visitors' behavior: Where do they go and what do they do there?. Pers Ubiquit Comput 21, 313–326. https://doi.org/10.1007/s00779-016-0994-9

Lessa, J. (n.d.). Water Museums and Digital Media: Two Case Studies on Digital Media in Water Museums. Advances in Ergonomics in Design, 349–358. https://doi.org/10.1007/978-3-030-20227-9_32

Louw, M. & Crowley, K. (2013, January 7). New Ways of Looking and Learning in Natural History Museums: The use of gigapixel imaging to bring science and publics together. The Museum Journal, 56(1), 87-104. https://doi.org/10.1111/cura.12009

Morris, Hargreaves, & McIntyre. (2005). Never mind the width; feel the quality. https://www.culturehive.co.uk/wp-content/uploads/2013/04/Never-mind-the-width.pdf

Morris, Hargreaves, & McIntyre. (2012). Segmentation report 2011/12: Annualised findings of the British Museum rolling survey.

Mygind L., Bentsen P. (2017) Reviewing Automated Sensor-Based Visitor Tracking Studies: Beyond Traditional Observation Methods. *Visitor Studies,* 20(2), 202-217. https://doi.org/10.1080/10645578.2017.1404351

Northern Illinois University University Center for Innovative Teaching and Learning. (2020). Howard Gardner's theory of multiple intelligences. *Instructional guide for university faculty and teaching assistant*. https://www.niu.edu/citl/resources/guides/instructional-guide

Purser, E. (2000). Telling Stories: Text analysis in a museum. *Universität Potsdam Discourse and community: Doing functional linguistics*, *21*, 169-198. https://books.google.co.uk/books?hl=en&lr=&id=Z7K2oVqLaM4C&oi=fnd&pg=PA169&dq=text+museum+history&ots=neVlTpzud-&sig=1INz2e6rAR4my6T_mKyw1h2T8VU&redir_esc=y#v=onepage&q=text%20museum%20history&f=false

Ravelli, L. (2007). Museum Texts: Communication frameworks. *Routledge*

Rock, A. (2015). *Dwell on This*. Association of Science and Technology Centers. https://www.astc.org/astc-dimensions/dwell-on-this/#:~:text=Dwell%20time%20usually%20refers%20simply,a%20specific%20exhibit%20or%20activity.

Roberts, J., Banerjee, A., Hong, A., McGee, S., Horn, M., Matcuk, M. (2018, April 21). Digital Exhibit Labels in Museums: Promoting Visitor Engagement with Cultural Artifacts. *Association for Computing Machinery, 623*, 1-12. https://doi.org/10.1145/3173574.3174197

Serrell, B. (2010, March 3). Paying more attention to paying attention. *Serrell & Associates*. https://informalscience.org/paying-more-attention-paying-attention/#:~:text=Sweep%20rate%20index%20(SRI)%20is,in%20more%20learning%2Drelated%20behaviors.

Smithsonian Institution (SI). (2023, September 26). New Publication Shares Ways for Museums To Be Accessible and Inclusive. [News release]. Retrieved May 1, 2024, from https://www.si.edu/newsdesk/releases/new-publication-shares-ways-museums-be-accessible-and inclusive

The British Museum (2013, April 2). *Room 64 Virtual Autopsy Evaluation: A Natural Mummy from Early Egypt.* British Museum.

The British Museum. (2023). *Report and accounts for the year ended 31 March 2023*. The British Museum. https://www.britishmuseum.org/sites/default/files/2023-07/british_museum_annual_reports_accounts_2022_2023.pdf

The Nimrud Project. (2015). *Nimrud: Materialities of Assyrian Knowledge Production*. https://oracc.museum.upenn.edu/nimrud/index.html

Yalowitz, S. S., Bronnenkant K. (2009). Timing and Tracking: Unlocking Visitor Behavior.

Zajaczkowski, E. (2014). Information, Design, and Technology: How they work together to inform a museum visitor [Master's thesis, University of Akron]. *OhioLINK Electronic Theses and Dissertations Center.* http://rave.ohiolink.edu/etdc/view?acc_num=akron1407780595

Appendix A: Floor plans for the Assyrian Galleries - Rooms 6, 7, and 10

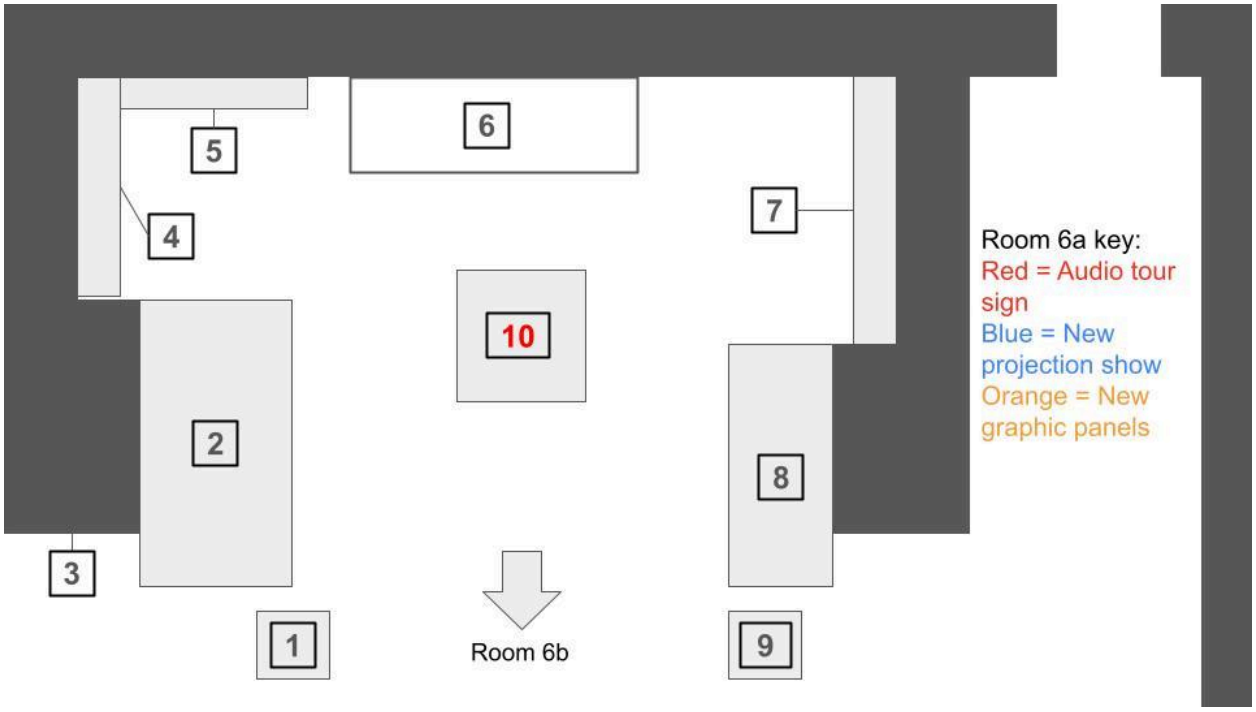


Figure 23. Room 6a: Assyrian sculpture floor plan.

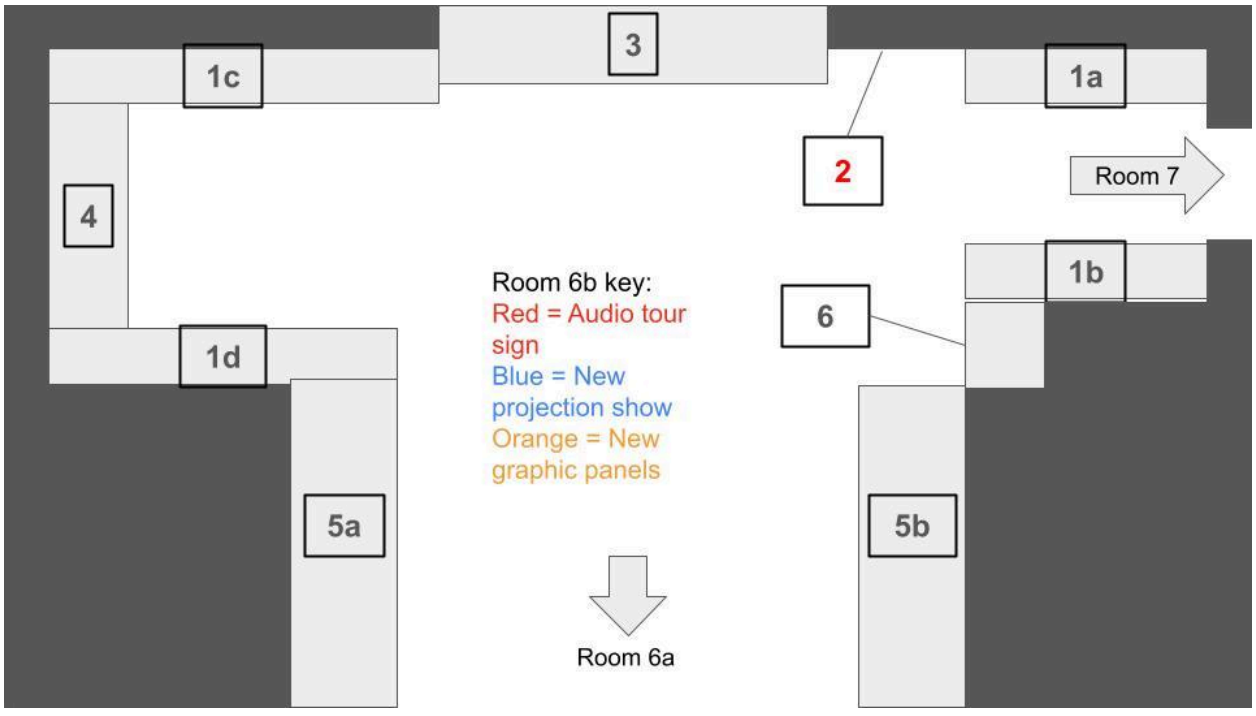


Figure 24. Room 6b: Balawat Gates floor plan.

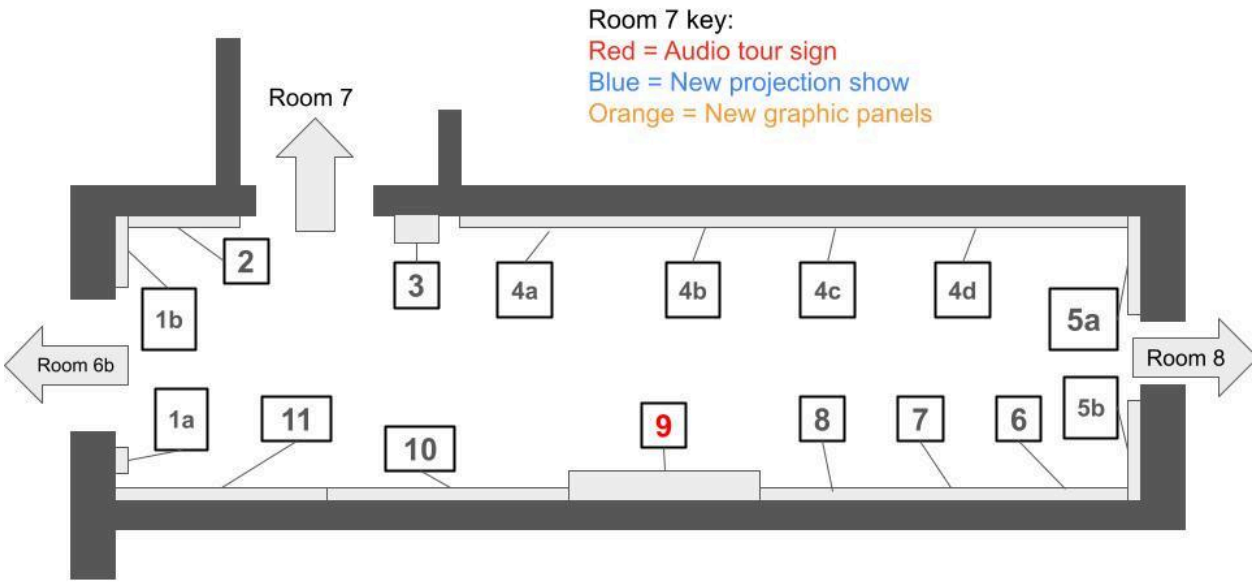


Figure 25. Room 7: Nimrud floor plan.

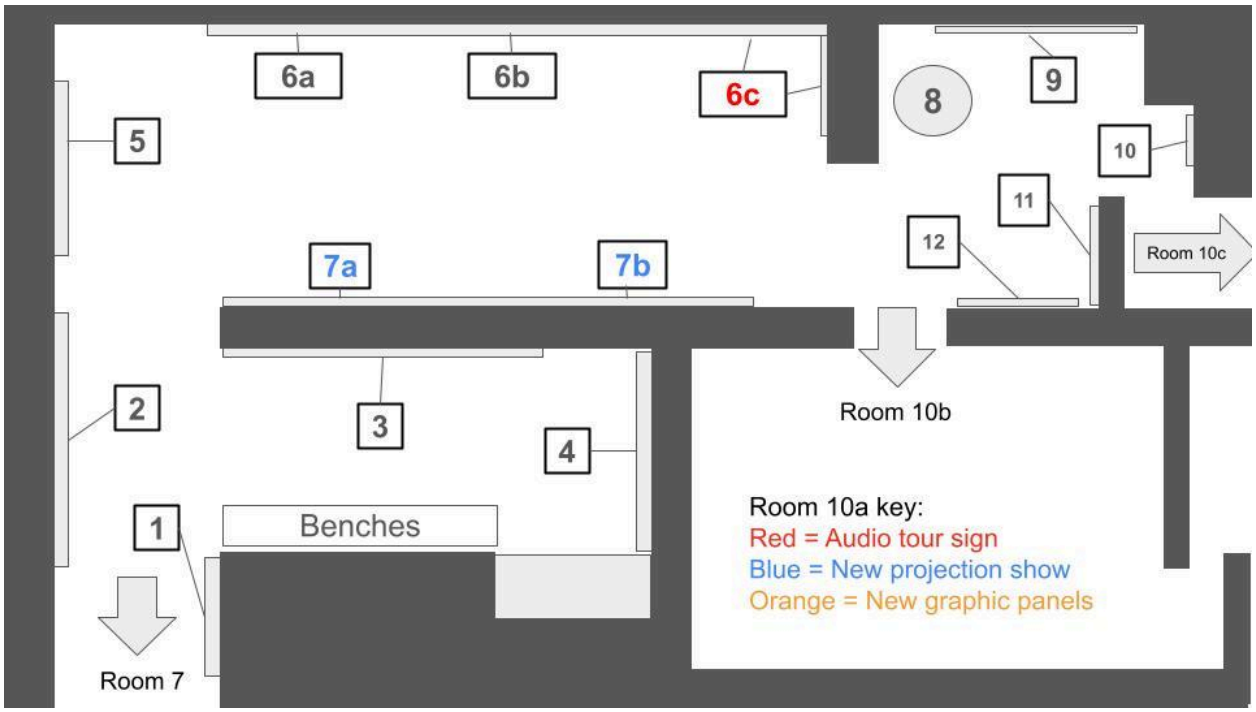


Figure 26. Room 10a: Lion Hunts floor plan.

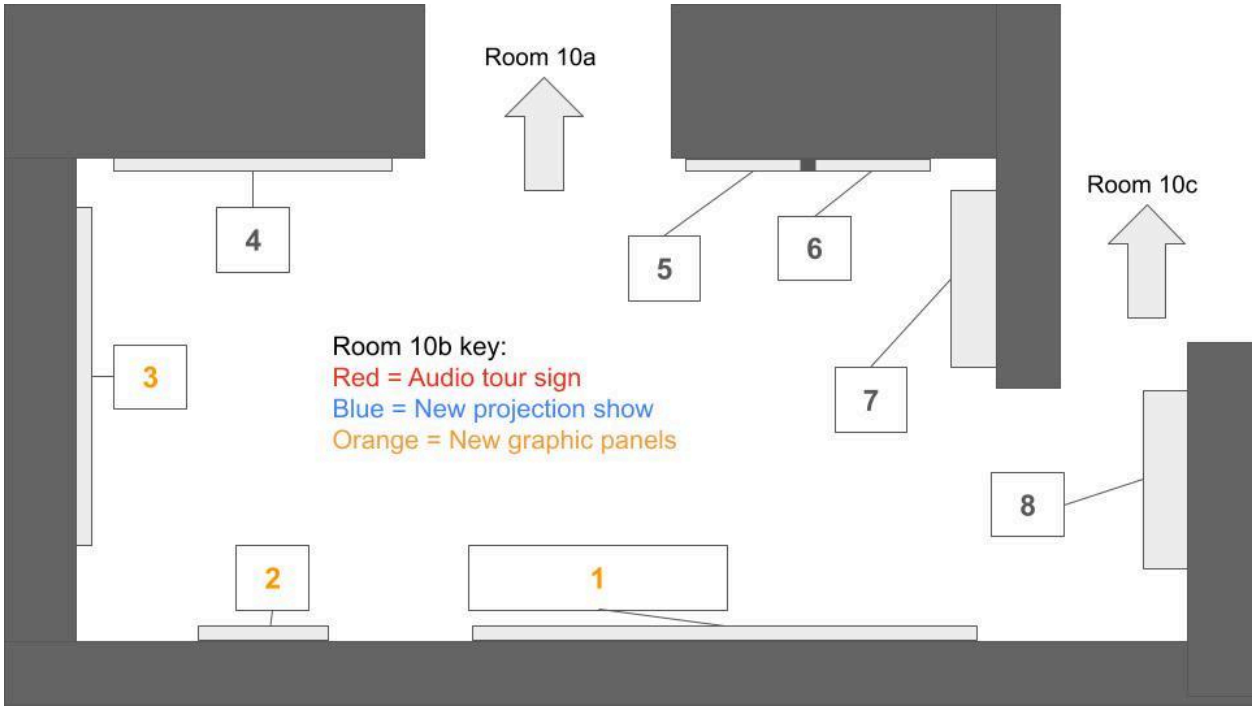


Figure 27. Room 10b: Siege of Lachish floor plan.

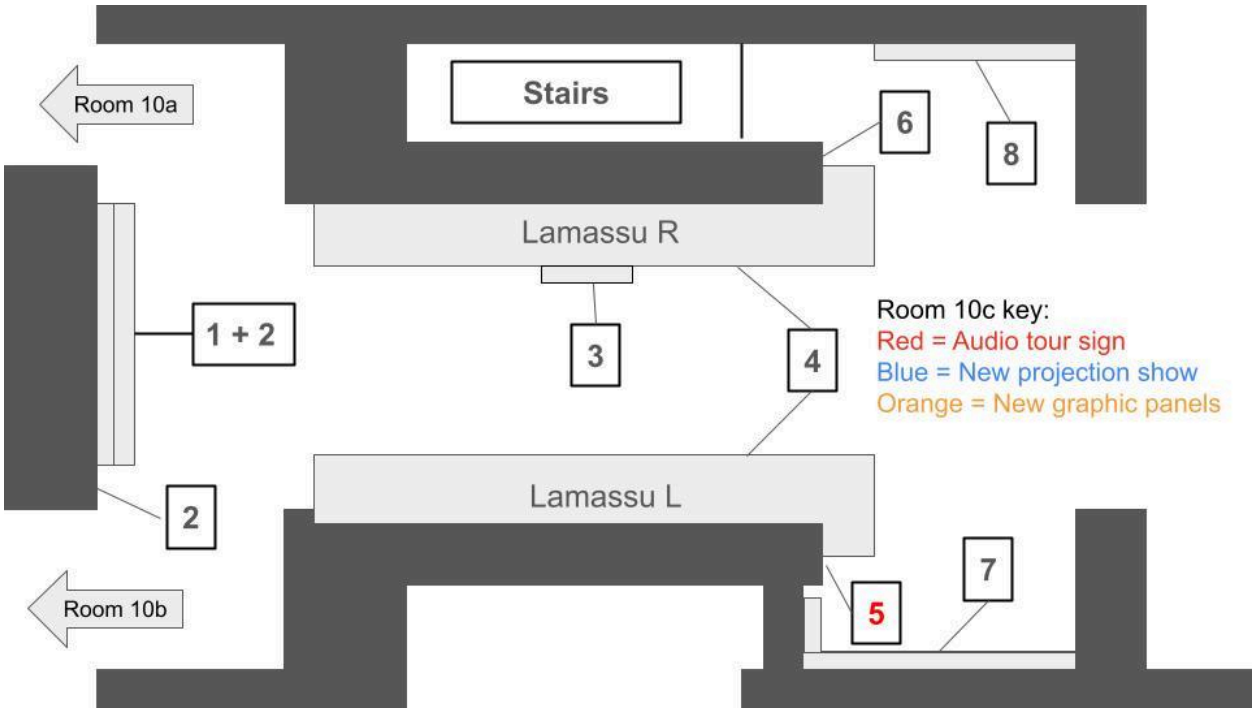


Figure 28. Room 10c: Khorsabad floor plan.

Appendix B: Floor plan exhibit legend

Gallery 6a: Assyrian sculpture

1: Attendant god (left side)

2: Colossal guardian lion

3: "The Assyrian Empire" description and map

4: King Tiglath-pileser II, Review of Prisoners, Captured camels, Captured flocks

5: The capture of Astartu + "Austen Henry Layard" Wall Sign

6: Kurkh Stela, Stela of Ashurnasirpal II, Stela of Shamshi-Adad V

7: Protective spirit wearing a fish cloak + "The Temple of Ninurta" relief and Wall sign

8: Protective spirit, Supernatural beings

9: Attendant god (right side)

10: The Black Obelisk of Shalmaneser III, The White Obelisk

Gallery 6b: Balawat Gates

1a - 1d: Bronze Gates

2: "Enter the palace" Wall sign **

3: The Balawat gates

4: Bronze gate ornaments of Ashurnasirpal II + Assyrian Empire Map

5a/b: Gateway guardians

6: Building of the Temple of Mamu

Gallery 7: Nimrud

1a/b: Protective spirit

2: The Throne Room

3: The King

4a: "The King and his troops…"

4b: "The King charges…" to "The Assyrian cavalry…"

4c: "The camp…" to "The king reviews…"

4d: "The King returns…" to "Assyrian troops"

5a/b: Protective spirit 2

6: Tribute bearers

7: A world of colour

8: Royal Rituals

9: Power behind the throne**

10: Magical protection

11: Royal Rituals

Gallery 10a: Lion Hunts

Nearest Room 7:

1: Magical Protection

2: The scholar king

3: Going out hunting

4: Return from the hunt

Projection Room:

5: The royal lion hunt Wall sign

6a: Preparations for the hunt

6b: A view of the hunt

6c: The king in action

7a: The final blow

7b: The art of dying

Nearest Room 10c:

8: Fine dining

9: Horses and hounds

10: War and peace

11: Royal pursuits Wall sign

12: Pleasure gardens

Gallery 10b: Assyria: Siege of Lachish

1: The siege of Lachish graphic panel

2: The aftermath

3: The king is victorious

4: The Assyrian camp

5: The Assyrian army

6: The siege of Lachish Wall Sign

7: Weapons from the siege

8: Tribute and prisoners

Gallery 10c: Khorsabad

1: “Enter the palace” wall sign

2: Crossing the threshold

3: Guards passing time

4: Lamassu statues (both sides)

5: Gateway guardians**

6: Transporting the winged bulls

7: Grand entrances + Assyrian empire map

8: Sargon II and the founding of Khorsabad

Appendix C: Visitor Observation Form

Who is doing this observation?

- ○ Luke
- ○ Jamie
- ○ Maddie
- ○ Rohit

Date of observation

Observation start time

○ 10am - 11am	○ 2pm - 3pm	○ 5pm - 6pm
○ 11am - 12pm	○ 3pm - 4pm	○ 6pm - 7pm
○ 12pm - 1 pm	○ 4pm - 5pm	○ 7pm - 8:30pm
○ 1pm - 2pm		

What room is being observed?

- ○ Room 6a
- ○ Room 6b
- ○ Room 7
- ○ Room 10a
- ○ Room 10b
- ○ Room 10c

How many people are in the room?

- ○ Very crowded
- ○ Moderately crowded
- ○ Not Crowded

Who did the visitor come with?

☐ Alone	☐ Family (WITH KIDS)
☐ Couple	☐ School Group
☐ Small Group (3-5 people)	☐ Tour Group
☐ Large Group (6+ People)	☐ Other

Was the observed visitor a walkthrough?

- ○ Yes
- ○ No

Room 6a: Which of the following did the visitor STOP and interact with? (Insert time at exhibit)

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10

Room 6b: Which of the following did the visitor STOP and interact with? (Insert time at exhibit)

- ☐ 1a
- ☐ 1b
- ☐ 1c
- ☐ 1d
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5a
- ☐ 5b
- ☐ 6

Did the visitor participate in any of the following?

- ☐ Read from text panels
- ☐ Discussion with other members in group
- ☐ Taking photographs
- ☐ Listening to an audio tour / podcast
- ☐ Other

Which of the following did the visitor STOP and interact with? (Insert time at exhibit)

☐ 1a	☐ 4a	☐ 5a	☐ 8
☐ 1b	☐ 4b	☐ 5b	☐ 9
☐ 2	☐ 4c	☐ 6	☐ 10
☐ 3	☐ 4d	☐ 7	☐ 11

Did the visitor participate in any of the following?

- ☐ Read from text panels
- ☐ Discussion with other members in group
- ☐ Taking photographs
- ☐ Listening to an audio tour / podcast
- ☐ Other

Room 10a: Which of the following did the visitor STOP and interact with? (Insert time at exhibit)

1 - 4 Room Connecting with 7 , 5 - 7b Projection Room , 8 - 12 Room Connecting with 10c

☐ 1	☐ 6a	☐ 8
☐ 2	☐ 6b	☐ 9
☐ 3	☐ 6c	☐ 10
☐ 4	☐ 7a	☐ 11
☐ 5	☐ 7b	☐ 12

Room 10b: Which of the following did the visitor STOP and interact with? (Insert time at exhibit)

☐ 1	☐ 5
☐ 2	☐ 6
☐ 3	☐ 7
☐ 4	☐ 8

Room 10c: Which of the following did the visitor STOP and interact with? (Insert time at exhibit)

☐ 1	☐ 5
☐ 2	☐ 6
☐ 3	☐ 7
☐ 4	☐ 8

Did the visitor do any of the following?

- ☐ Read from text panels
- ☐ Discussion with other members in group
- ☐ Take photographs
- ☐ Sit and observe
- ☐ Listen to an audio tour / podcast
- ☐ Lift the square panel on the graphic display
- ☐ Watch the animated projection of the Lion Hunt
- ☐ Other

If the visitor watched the animated projection, did the visitor do any of the following?

- [ ] Left room before animation ended
- [ ] Stayed for full animation
- [ ] Stayed in room after animation ended
- [ ] Other

Total time spent in room

Which best describe the visitor's path throughout the Room?

- [ ] Wander
- [ ] Briefly read or glanced at text panels
- [ ] Stopped to read multiple times
- [ ] Motivated (Went to a specific object then left)
- [ ] Lead by another member of their group
- [ ] Other

Did the visitor visibly express any of the following emotions?

Positive

- [ ] Interest
- [ ] Excitement
- [ ] Awe
- [ ] Curiosity
- [ ] Inspiration

Negative

- [ ] Disinterest
- [ ] Confusion
- [ ] Boredom
- [ ] Other

Additional notes on visitor emotion or general experience:

Appendix D: Visitor Exit Survey Flyer

Figure 29. Exit Survey Flyer

Appendix E: Visitor Exit Survey Consent Form

We are part of a student-led project team from Worcester Polytechnic Institute working on behalf of the British Museum. We are looking to learn about your experience in the Assyrian Galleries. This survey is entirely voluntary and will take about 5-7 minutes of your time. You may choose not to answer any questions and can stop participating at any time.

Thank you for your time!

Any personal data you choose to share with us will be stored securely and disposed of by September 30th, 2024 in line with the UK General Data Protection Regulation 2018.

WPI and the British Museum will produce research reports and other outputs using the data we collect from the survey. All data will be reported anonymously. If you have any queries about the survey, please contact gr-LonE24.BM@wpi.edu, ssvirani@wpi.edu, or rmckeogh@wpi.edu.

If you have any questions about how the British Museum uses data, please see the British Museum Privacy Policy at https://www.britishmuseum.org/privacy-policy or email info@britishmuseum.org.

Appendix F: Visitor Exit Survey

What is your age?

- ○ 16 - 22
- ○ 23 - 30
- ○ 31 - 40
- ○ 41 - 55
- ○ 56 - 64
- ○ 65+

Have you visited the Assyrian Galleries before?

- ○ Yes
- ○ No

Are you visiting alone or with others?

- ○ Alone
- ○ Children
- ○ Adults
- ○ School Group
- ○ Tour Group
- ○ Other (please specify)

Why did you come to the Assyrian Galleries today? Pick the option that BEST describes you.

- ○ To improve my general knowledge.
- ○ To provide a fun and educational experience for children.
- ○ The Assyrian Galleries is a popular exhibition at the British Museum.
- ○ To be inspired by Assyrian culture and history.
- ○ I specialize in Assyrian culture and history and want to deepen my knowledge.
- ○ To meet others and have a social experience.
- ○ Other (please specify)

Which of the following did you do during your visit? Select all that apply.

- ☐ Look at the statues and artifacts
- ☐ Watch the lion hunt projection show / animation
- ☐ Read from the text or graphic panels
- ☐ Chat with others in my group
- ☐ Listen to a guided/audio tour or podcast
- ☐ Other (please specify)

Rate your knowledge before and after visiting the Assyrian Galleries.

Before ☆☆☆☆☆

After ☆☆☆☆☆

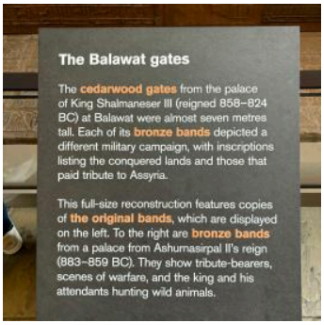
How did you interact with the lion hunt projection show / animation?

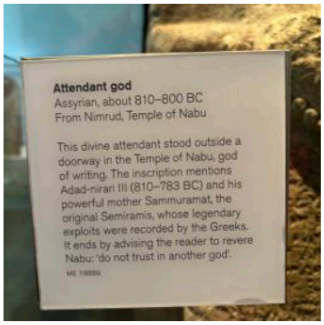
- ○ I watched the entire projection show / animation
- ○ I watched some of the projection show / animation
- ○ I did not watch the projection show / animation

Did you have thoughts on the following topics? Check all that apply.

- ☐ How the sculptures were brought to the British Museum
- ☐ The origin of these objects, sculptures, and panels
- ☐ The cultural significance of these objects, sculptures, and panels
- ☐ Other (answer below)

Below are examples of text panels in the Assyrian Galleries:





Rate the following features of the text panels in the Assyrian Galleries:

Position	☆☆☆☆☆	
Language	☆☆☆☆☆	
Text Size	☆☆☆☆☆	
Amount of Information	☆☆☆☆☆	

Do you have any other comments or concerns regarding the text panels?

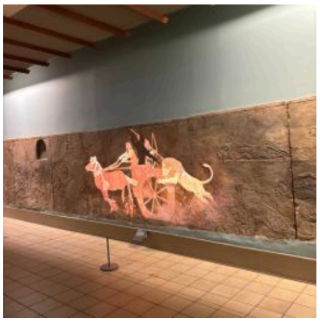
Below are examples of graphic panels in the Assyrian Galleries:

Rate the following features of the graphic panels in the Assyrian Galleries:

Position	☆☆☆☆☆	
Language	☆☆☆☆☆	
Text Size	☆☆☆☆☆	
Amount of Information	☆☆☆☆☆	

Do you have any other comments or concerns regarding the graphic panels?

Below are images of the lion hunt projection show / animation in the Assyrian Galleries:

Rate the following features of the lion hunt projection show / animation in the Assyrian Galleries:

Visibility ☆☆☆☆☆

Duration ☆☆☆☆☆

Sound Volume ☆☆☆☆☆

Amount of Information ☆☆☆☆☆

Engagement ☆☆☆☆☆

Do you have any other comments or concerns regarding the lion hunt projection show / animation?

Rate your level of satisfaction after seeing the Assyrian Galleries.

Rate from 1-5 ☆☆☆☆☆

Were your expectations for the visit met?

Rate from 1-5 ☆☆☆☆☆

Do you have any final suggestions or comments about the Assyrian Galleries?

Appendix G: Attraction and Holding Power Heat Maps for Rooms 6, 7, and 10

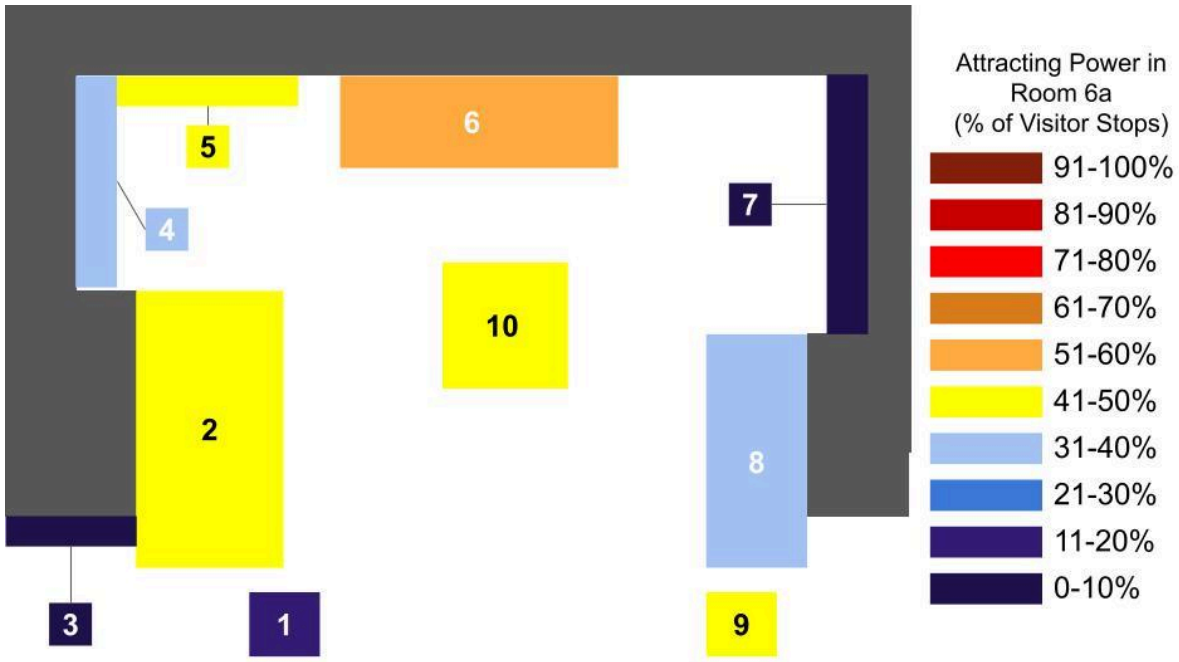


Figure 30. Attracting power heat map for Room 6a: Assyrian sculpture.

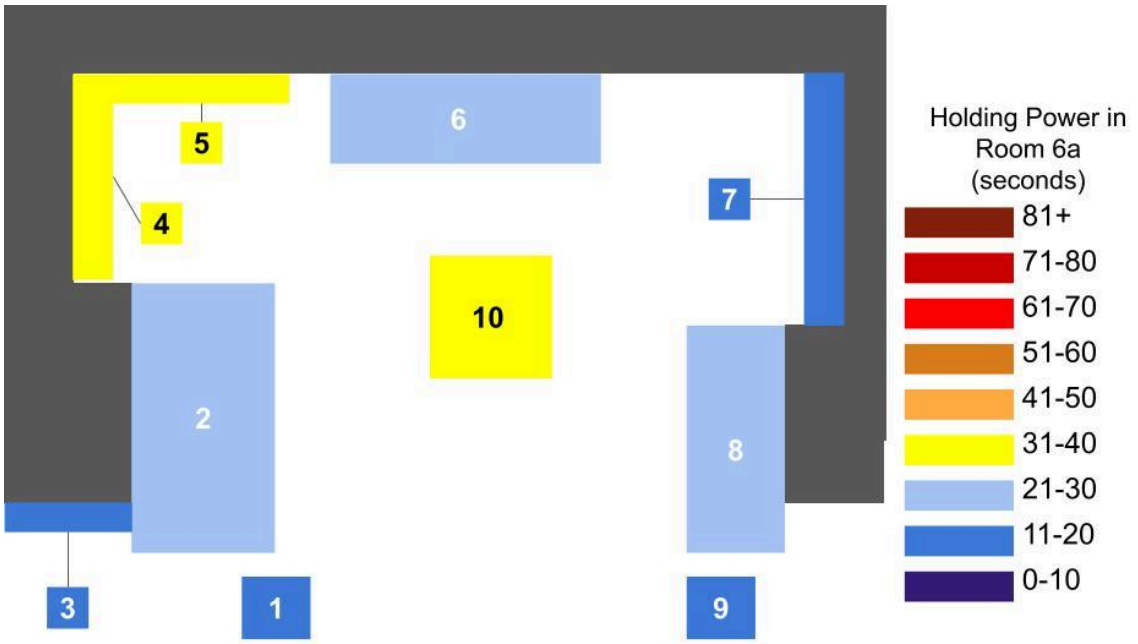


Figure 31. Holding power heat map for Room 6a: Assyrian sculpture.

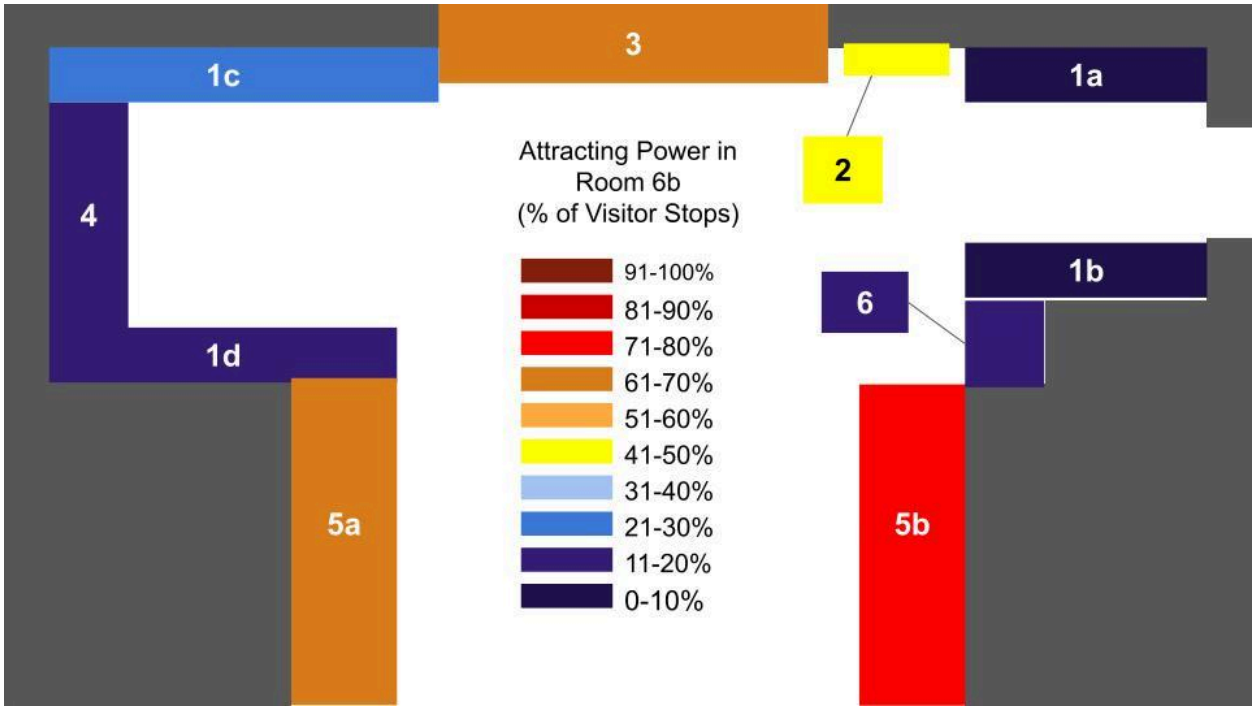


Figure 32. Attracting power heat map for Room 6b: Balawat Gates.

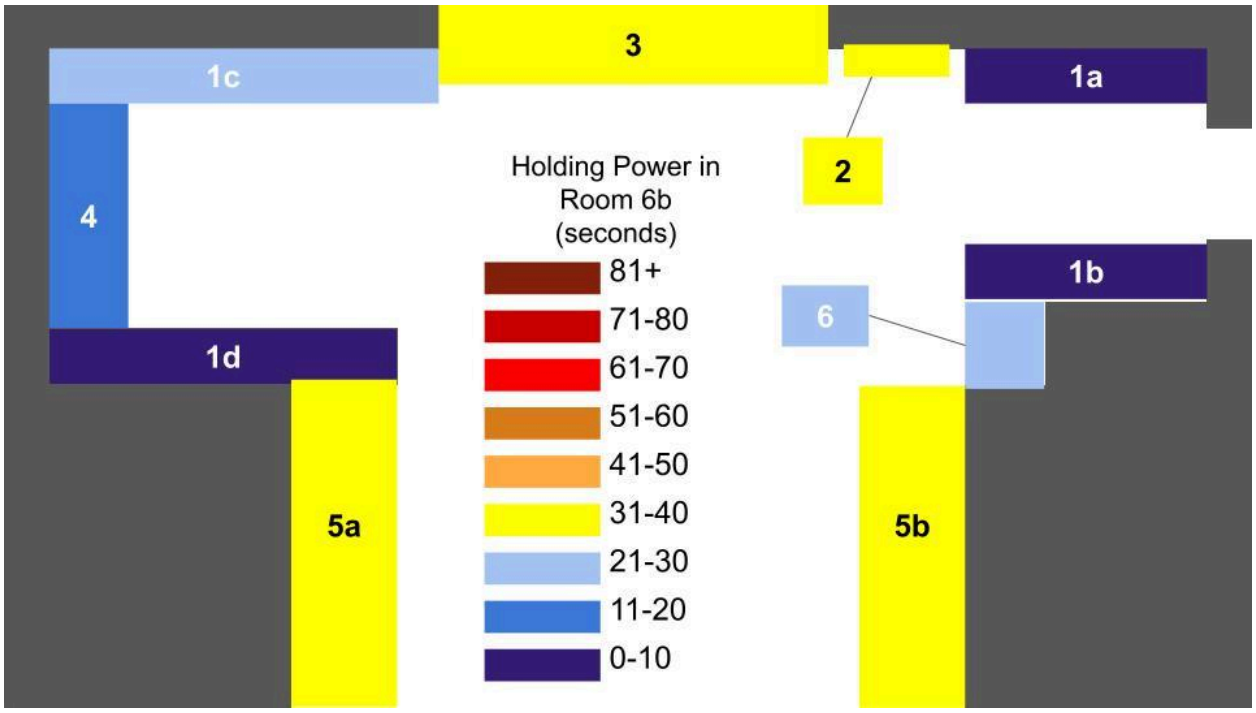


Figure 33. Holding power heat map for Room 6b: Balawat Gates.

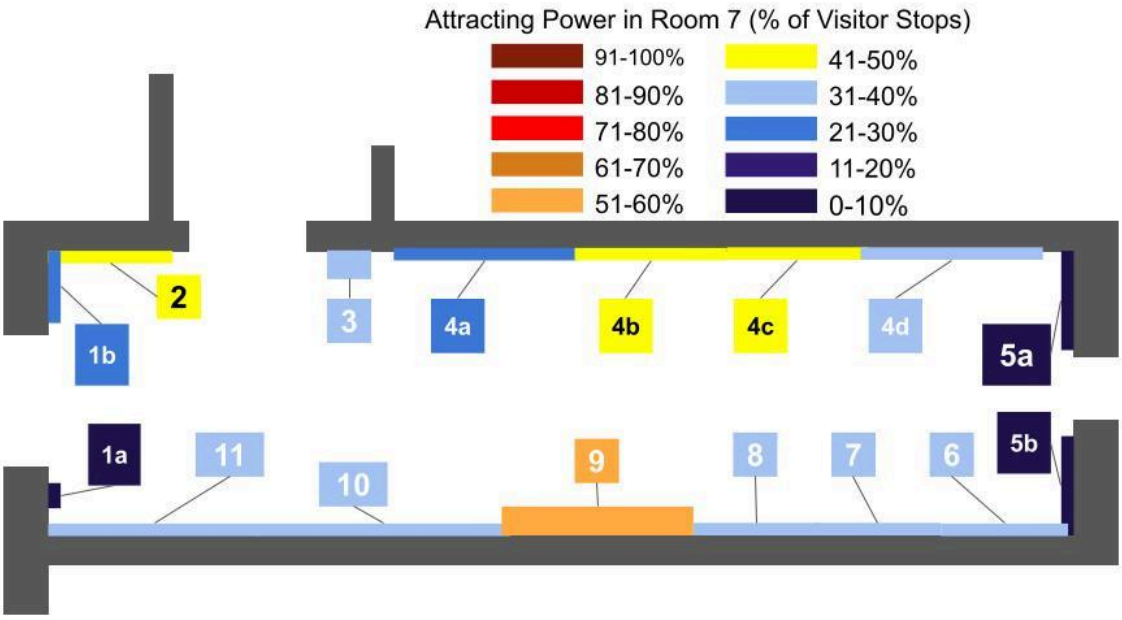


Figure 34. Attracting power heat map in Room 7: Nimrud.

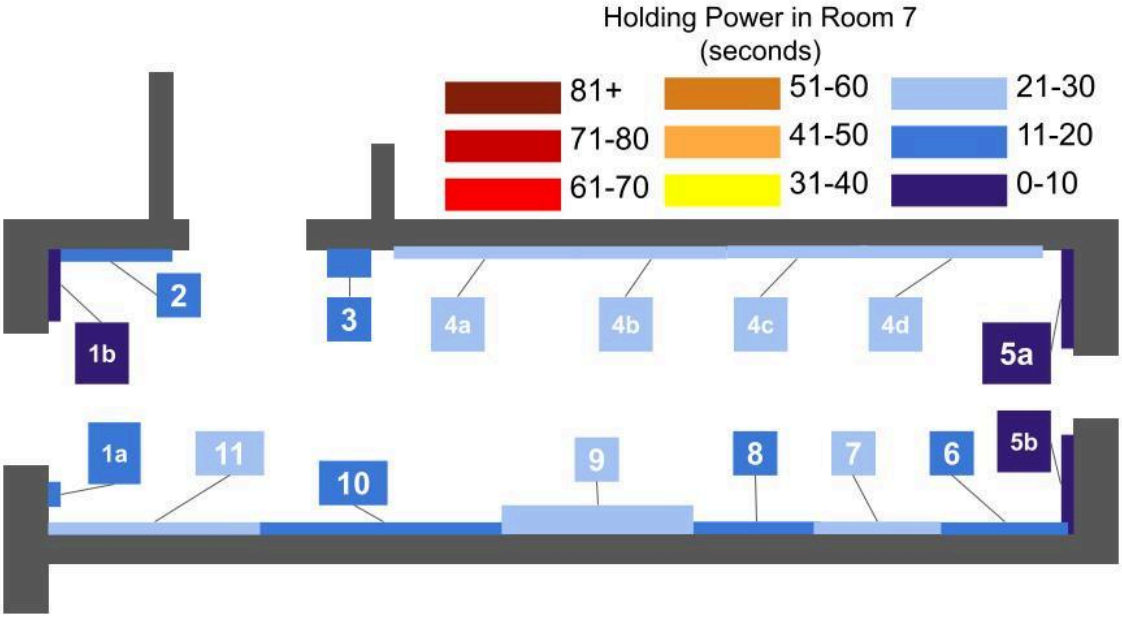


Figure 35. Holding power heat map in Room 7: Nimrud.

Figure 36. Attracting power heat map for Room 10a: Lion Hunts.

Figure 37. Holding power heat map for Room 10a: Lion Hunts.

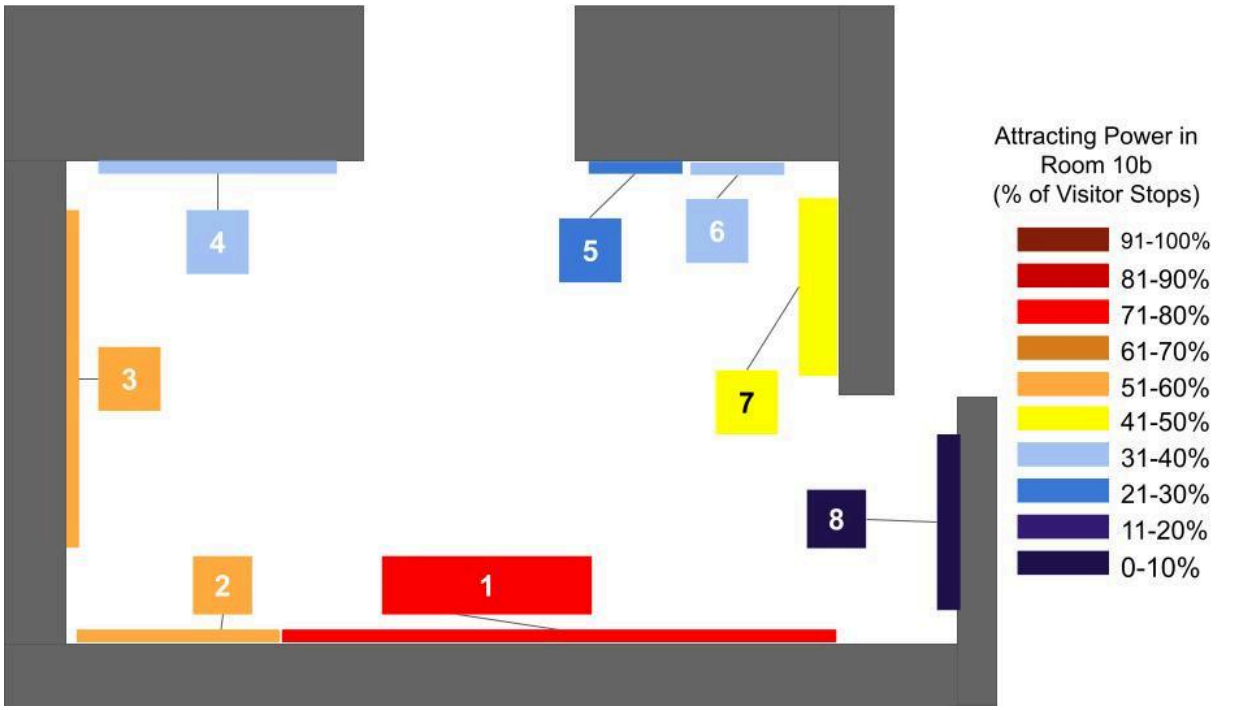


Figure 38. Attracting power heat map for Room 10b: Siege of Lachish.

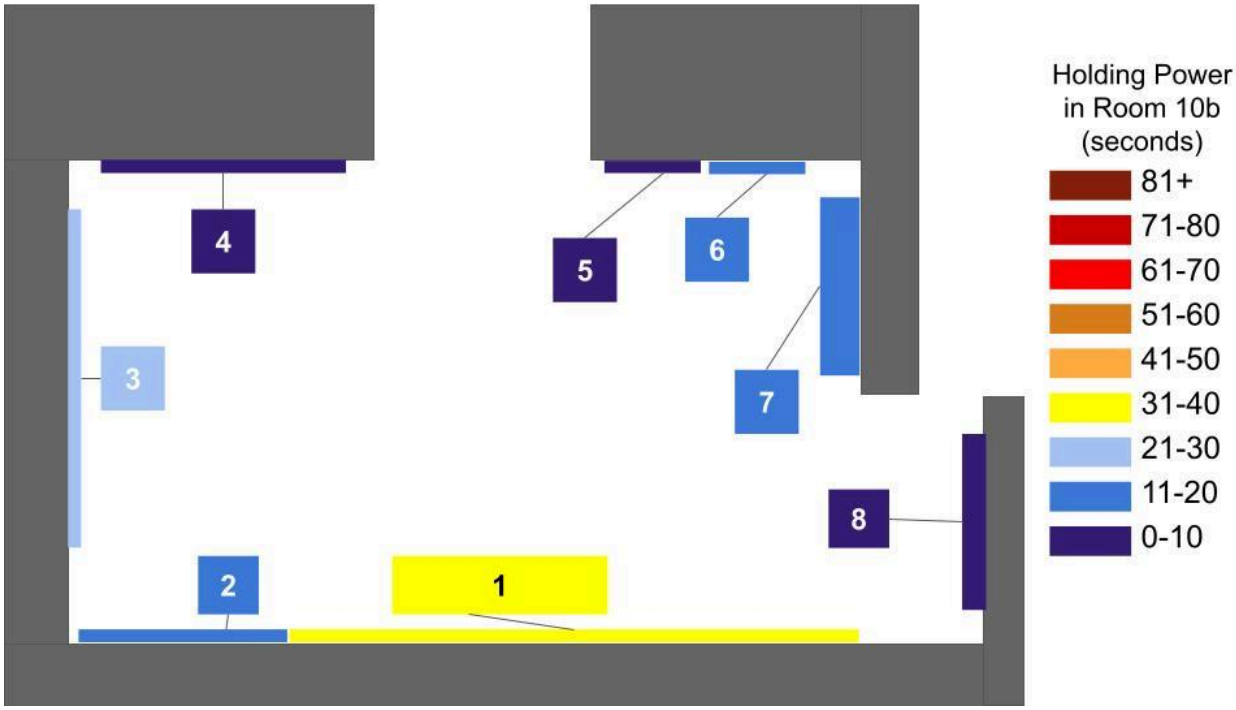


Figure 39. Holding power heat map for Room 10b: Siege of Lachish.

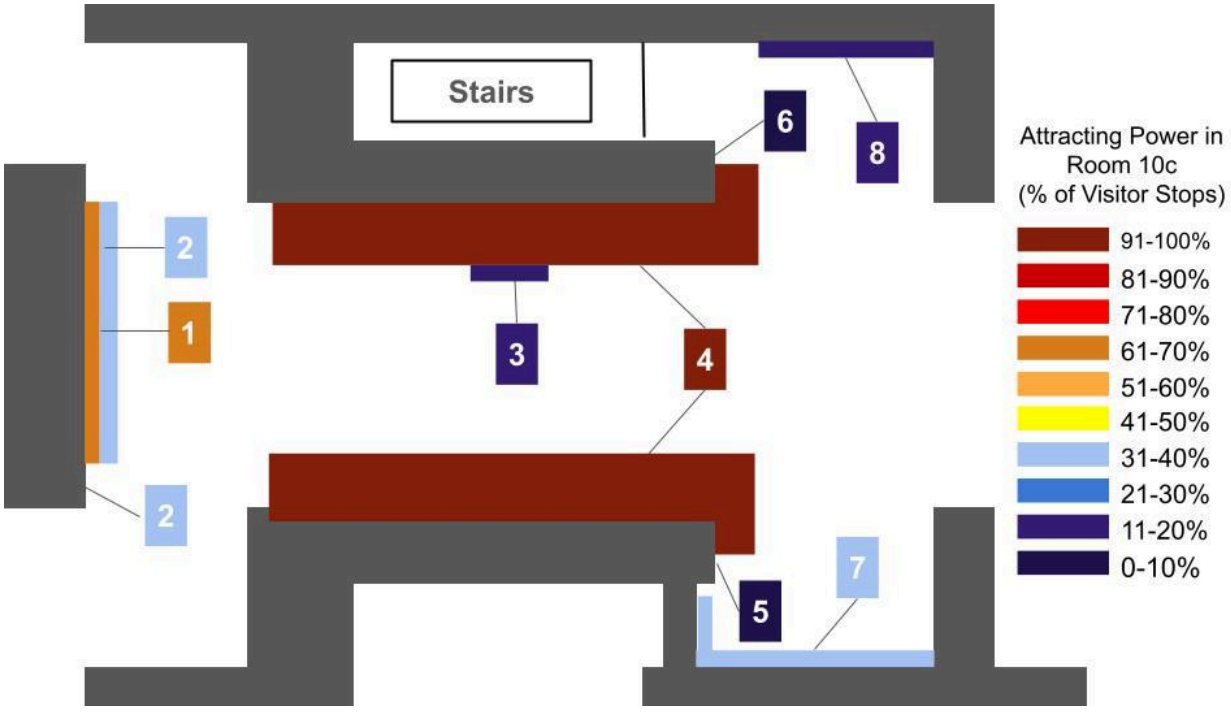


Figure 40. Attracting power heat map for Room 10c: Khorsabad.

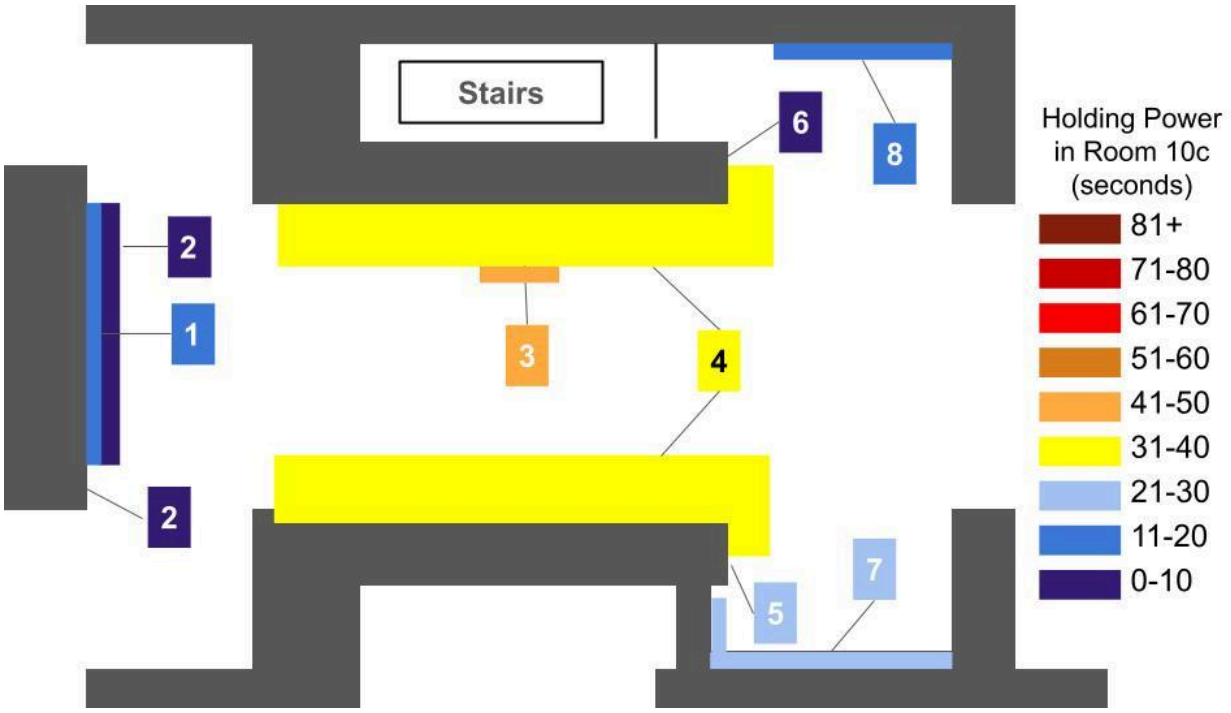


Figure 41. Holding power heat map for Room 10c: Khorsabad.