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“Definite Renewal”: Emotional and attention impacts of rest spaces in museums

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Abstract

Dedicated areas for visitors to rest, recharge, and reflect on their experiences are rare in museums, but such features are becoming more common and have been included by several notable institutions. Currently, there is little research exploring how these spaces impact museum visitors. The purpose of this survey study was to explore what drew adult museum visitors to use dedicated rest spaces, and how time spent in them impacted visitors' emotional states and attentiveness. Sixty-eight adults were interviewed at two museums after spending three minutes or more in a dedicated rest space. Many visitors reported feeling calm during their time in the rest spaces, and cited specific design and curatorial choices that contributed to this impact. About a quarter of adults reported that they felt their attention had improved after their rest time; another quarter cited restorative impacts unrelated to attention; and the remaining half were uncertain or reported no change. These findings indicate that dedicated rest spaces have the potential to foster feelings of calm and increase attentiveness, which could help facilitate learning in museums.

Keywords

Attention; Museum Fatigue; Rest; Art Museums; History Museums; Museum Design; Visitor Experience

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Introduction

Problem

Some visitors come to museums specifically to rest and recharge (Falk, 2016). Many more experience fatigue as part of their museum visit and might benefit from rest. Some new museum construction takes this into account, incorporating both indoor contemplative spaces and gardens or green spaces, and some museums create rest spaces via retrofit. For example, the Smithsonian's National Museum of Natural History, Washington, DC, has a "garden lounge," where guests are invited to linger on benches alongside live plants to "relax and exhale" in a "airy, light-filled space... apart from the energized hustle and bustle of the rest of the museum" (Smithsonian, n.d.). The Natural History Museum, London, UK, lists five "quiet galleries" on their website including a "quiet, naturally lit" "contemplation room" where visitors can "take notice of where tension is in [their bodies] and stretch a little" (Trustees of the Natural History Museum, n.d.). However, few studies have assessed the cognitive and emotional impacts of such spaces, either through the lens of museums as a space for public wellbeing or for education. This article describes a research study designed to investigate how dedicated rest spaces in museums impact visitors' perceived emotions and attention levels, taking a cognitive and affective approach to exploring fatigue.

Museums as Sites of Rest and Fatigue

Research has shown that some adults visit museums and related institutions specifically for rest and restitution. "Rechargers" are one of Falk's (2016) five visitor typologies (alongside Explorers, Facilitators, Professionals/Hobbyists, and Experience Seekers). Falk characterizes rechargers as "primarily seeking to have a contemplative, spiritual, and/or restorative experience. They see the museum as a refuge from the work-a-day world and a place where they can unwind while being surrounded by inspiring and beautiful things" (p. 4). In a paper examining the common types of visitors at eleven different museums, where visitors were tagged with multiple typologies, Falk found that rechargers accounted for anywhere from 2% to 33% of surveyed visitors. The percentage tended to be higher in gardens, parks, and art galleries than in institutions that self-described as "museums," but even in museums rechargers represented up to 22% of surveyed visitors. These guests remarked on the contents and general ambiance of these institutions as the source of their "recharging".

Museums as a space for rest and recovery has been explored in other research contexts. Packer & Bond (2010) investigated how visitors perceive the restorative qualities of several public enrichment and/or education sites (an art gallery, an aquarium, a botanical garden, and a museum, with responses solicited from attendees to one of the four sites) in Australia. They provided the following definition for restoration: “the renewing of physical, psychological, and social capabilities that are reduced by the ongoing efforts to meet the demands of daily life” (p. 422). Their research indicates most visitors (84%) found national parks and beaches to be restorative; two thirds (66%) found aquariums to be restorative; and slightly more than half (56%) of respondents rated museums as “restorative.” While their results support the idea that natural settings are usually perceived as more restorative than built environments, they also provide strong support for museums. For example, they found that visitors to museums rated them highly on a scale designed to measure the restorative qualities of environments. This scale broke “restorative qualities” into “Fascination (plenty to discover)”, “Escape (getting away from it all)”, “Extent (elements are cohesive)”, and “Compatibility (giving participants the chance to do something they enjoy)”, focusing on cognitive and affective restoration. Some museum visitors in their study experienced very significant restorative effects. This was more likely among visitors that reported strong introspective experiences, as well as repeat visitors, who the authors speculate may be less likely to become overwhelmed due to existing familiarity with the environment.

We also have some understanding of how visitors’ preferences apply to rest spaces. Li, Wei, & He (2013) asked visitors at three different sites (an art gallery, an art museum, and a provincial museum in China) to rate which type of rest space they preferred among five categories: i) “specialized rest spaces” (largely separate from exhibits and dedicated to this purpose, such as an atrium or a coffeehouse); ii) rest spaces along the aisle, where seats are set against the walls in hallways or intersections; iii) small “spare” spaces used for rest areas, usually tucked away nooks and crannies, often inside exhibits; iv) rest areas attached to function spaces, such as near elevators or restrooms; and v) rest areas inside exhibit halls, such as benches or sofas set facing displays. In order of preference, visitors preferred specialized rest spaces above all others (35.7%), followed by rest areas attached to functional spaces (23.1%), rest spaces along the aisles (14.9%), rest areas in the exhibit hall (12.5%), spaces outside the building (9.2%), and lastly spare spaces (4.6%). Li, Wei, and He’s study suggests that the more separation a rest area has from the exhibit space, the more popular it is. This emphasizes the possibility that

addressing physical fatigue through seating is not the sole concern among museum visitors seeking rest; if this were the case, we would not expect to see such disparity in preferences and might expect rest areas in the exhibit halls, which can be used while viewing exhibits, to be more popular.

That museums can be cognitively draining environments is also unsurprising. This fact is expressed in the colloquial and research term “museum fatigue,” used by professionals to describe the decrease in visitor attention and interest over the course of a visit (Bitgood, 2009). In his review of research related to museum fatigue, Bitgood identifies seven separate, but related, parts of the phenomenon: fatigue (as in exhaustion or tiredness), satiation, stress, information overload, competition, limited cognitive capacity, and decision making. Rest, particularly within a properly curated space, could address most of these factors. Fatigue, stress, information overload, and limited cognitive capacity could all be mitigated, though satiation (the feeling of having “seen enough” of one type of thing), competition (which involves the number of objects seen at once), and decision making (the visitor’s conscious balance of time spent doing one thing, in this case visiting a museum, in opposition to other options) seem unlikely to be impacted. In particular a dedicated rest space might address limited cognitive capacity, described as the attrition of visitor attention over the length of their visit as they are called upon to focus on series of objects, descriptions, and explanatory text, by providing an environment that draws less on active forms of focus.

Other research supports the occurrence of museum fatigue. Data show that when visitors perceived their museum visits as “too long,” they rated the experience as vastly less restorative (Aesbach et al, 2022). This implies that while parts of the museum environment are seen as restorative, the experience can become fatiguing or overwhelming. This is supported by other studies on fatigue related to museums. For example, participants who were asked to view large numbers of artworks in a row consistently reduced their viewing times for successive artworks more and more over the course of the experiment, even when their alternative was looking at a blank screen (Mikuni et al., 2022).

Attention and Learning

That attention is a necessary component of learning is intuitive; the two concepts are often presented together in an implicit acknowledgement that they are linked. The role of attention in learning has also been directly addressed in a significant body of literature related to cognition (Mooneyham & Schooler, 2013). Much of this research deals with the

impact of inattention (often described as “mind-wandering”), reaching the conclusion that mind-wandering has a detrimental effect on various performance measures. Notably, mind-wandering has been linked to decreased performance on metrics related to reading, working memory, and internal model-building.

Data collected in college lecture environments indicate that attention does not collapse all at once, but instead that attention and inattention naturally cycle. Over time the duration of these cycles decreases and the portion of time spent inattentive (i.e. with the mind wandering) increases (Bunce, Flens, and Neiles 2010); in later parts of the lecture their ability to sustain attention flagged and with it their learning. While some degree of cycling is natural, students who spend large sections of time with their minds wandering in a learning environment were likely to retain less material and ultimately did less well in the course, whether they meant to be paying attention or were intentionally letting their minds wander (Wammes et al., 2016).

Though museum environments are less effective in teaching facts than in inspiring awe and curiosity, many visitors do the type of specific learning that benefits from attentiveness (Price et al., 2021). Feelings of awe also require visitors to mentally engage with their surroundings. Primary characteristics of awe include “perceived vastness and need for accommodation”, where “perceived vastness” refers to an expansion of a physical or conceptual frame of reference and “need for accommodation” describes information or experiences that change those frames of reference (Luke, 2021). Given that inattention, or mind-wandering, is characterized by disengaging from the present environment, it seems likely that enjoying the learning and awe-related benefits that museums provide requires some degree of attention. This is not to say that there is no space for mind-wandering, or that visitors who are preoccupied for some or most of their visit would not benefit at all. Apart from the more costly impacts of mind-wandering some time spent in an inattentive state is also linked to stronger creative and future thinking, and it is an important part of attention cycling (Mooneyham & Schooler, 2013).

Nature and Restoration

Much of the research regarding rest, stress, and cognition has taken place within environmental psychology (Filep & Pierce, 2014), focused specifically on the recuperative benefits of nature, or at least natural imagery. Members of the public who use public green spaces commonly cite rest and relaxation as primary motives for visiting (Prestchadt, 2012). A Swedish study found that of the many ways people use green spaces

(sports, foraging, art, walking, visiting outdoor events, animal-related activities, and intentional rest) animal-related activities and rest activities exhibited the highest stress reductions (Stiggsdotter & Grahn, 2011). Another study found that participants who took a walk through a park (rather than through an urban center) or looked at pictures of natural environments showed improvements to short-term memory (Berman, 2008).

The two main theories that look to explain the restorative impacts of natural scenery are Attention Restoration Theory (ART) and Stress Reduction Theory (SRT) (Bratman, 2012). SRT argues that natural environments reduce levels of stress in the body through an affinity effect wherein natural scenery prompts an unconscious autonomic response in the body's nervous system (Ulrich et al., 1991). ART posits that intentional, conscious focus on a task is a state for which capacity depletes over time, eventually leading to a state where focusing is difficult or ineffective. ART puts forward sleep as a primary method of restoration, but also posits that other mental states can alternate with directed focus in order for it to renew. In particular, ART positions "fascination," or being engaged without effort, as an alternative state, where "paying attention" becomes restorative rather than draining by being directed towards something inherently interesting. This process is also unconscious, but linked to cognition rather than stimulation of the parasympathetic nervous system. The prime example of settings that support fascination and thus restoration are natural (Kaplan, 1995), but other settings may provide fascination and produce a restorative environment as well. Packer & Bond's (2010) work, discussed earlier, drew heavily from ART frameworks to explore the potential of museums, galleries, aquariums, and botanical gardens as restorative environments.

Learning Value of Reflection and Restoration

There is also research unrelated to environmental psychology that informs our understanding of rest and cognition. When given draining cognitive tasks, people of all age groups showed higher and more consistent ability with regular breaks (Gilsoul, 2021). One of the art fatigue studies discussed earlier included a condition in which participants were given a break partway through the experiment and found that overall attention continued to decline after the break (Mikuni, 2022). However, the study was undertaken in lab conditions and researchers did not characterize the nature of the break, the conditions under which it was taken, whether overall average attention was improved, or whether there was a temporary improvement in attention after the break, so the subject

is worthy of further investigation. This is particularly true given the body of research detailed above regarding effective breaks.

Other research aims to examine SRT and ART in the context of urban environments. Research into SRT often concludes that natural environments are both restorative and preferred, which leaves open the possibility that these settings are restorative because they are preferred, not strictly because they are natural (Bratman, 2012). This would corroborate restorative phenomenon in non-natural environments documented by Packer & Bond (2010), discussed in the above section. Indeed, evidence suggests that it is subject preference that determines the affective benefits of a given setting, not just the natural or artificial design thereof - though researchers are careful to point out that the environments most heavily preferred in test populations were nature scenes, describing a “robust preference” (Meidenbaur, 2020).

Taken together, we know that certain settings have the potential to provide people with restorative environments, that restorative settings can improve cognition in addition to affect, and that museums have the potential to include these areas. However, there is currently little to no research as to what impact on the overall experience may result from dedicated, restorative rest spaces within the museum.

Methods

Study Purpose

The purpose of this study was to investigate how dedicated rest spaces in museums impact adult’s perceived emotions and attention levels. This study was guided by three key research questions:

1. What draws adult visitors to use dedicated rest spaces?
2. How do adult visitors feel while in the museum’s rest space, and why?
3. How do adults who use dedicated rest spaces perceive that this impacts their attention?

Sampling and Recruitment

Adults were recruited as they exited the dedicated rest space at one of two Seattle museums. These two museums were selected based on a shared design characteristic, that is, they had specific spaces for visitors to rest that were designed with this use in mind. This shared purpose provides a key commonality despite the very different design features of the two spaces. Several potential sites were scouted and discounted

because they did not include a suitable space or declined to participate, including the Seattle Art Museum, the Burke Museum, the Renton History Museum, the Highline Heritage Museum, the Museum of History and Industry, and the National Nordic Museum.

At the Seattle Asian Art Museum (SAAM), this area took the form of a “meditation gallery,” a room with low lighting, minimal displays (specifically three statues of the Buddha, one on each of three walls), alternating periods of chanting drawn from several Buddhist traditions and silence, a bench for visitors, and a placard inviting them to “pause here for a moment of serenity and renewal in [the statue’s] company.” This space is set off from the museum’s introductory gallery. SAAM charges sliding scale admission, from free to \$18 per adult. At the Northwest African American Museum (NAAM), the study context was a “living room,” an open room with a couch and coffee table, chairs set in a circle, books and art for sale, a topical library of books to read on-site, and large exterior windows providing natural lighting not found elsewhere in the museum. Adult admission at NAAM is \$10 and everyone interviewed had gone through the museum, but the “living room” is a community space; one can use it to read, work, or rest without paying museum admission. For images of both rest spaces and adjacent galleries in their host museums, see Appendix A. Both museums participate in “free first Thursday,” a city-level program where museums offer cost-free admission on the first Thursday of every month. Data were collected on a mixture of weekdays and weekends at different times of the day in an attempt to diversify visitor demographics.

Participants were selected using convenience sampling. The interviewer watched the entrance and exit of the rest spaces and started a timer when a visitor who appeared to be an adult entered the area. Anyone who spent three minutes or more in the rest space was approached upon leaving and asked whether they would be willing to provide an audio-recorded interview for study purposes. Every visitor who met the study criteria was approached (excepting a few cases where the interviewer was already speaking with a visitor).

Study Participants

Sixty-eight museum visitors agreed to participate in the study, fifty-four at the SAAM and fourteen at the NAAM. The demographics of study participants is described in Table 1.

The demographic survey asked for participants' age, gender, racial or ethnic identity, and relationship to the museum's host area ("local" or "tourist").

Table 1. Demographic composition of respondents¹ (N=65)

Characteristic	Frequency
Gender	
Female	46% (n=31)
Male	40% (n=27)
Non-Binary	9% (n=6)
Transgender	3% (n=2)
Racial or Ethnic Identity	
Asian or Asian American	24% (n=16)
American Indian or Alaskan Native	6% (n=4)
Black or African American	3% (n=2)
Hispanic, Latino/a/x, or Spanish origin	6% (n=4)
Native Hawaiian or Pacific Islander	2% (n=1)
White	69% (n=46)
Two or more races	18% (n=12)
White alone	52% (n=35)
Residency	
Local	58% (n=39)
Tourist	34% (n=23)
Age	
18-25 years	18% (n=12)
26-35 years	22% (n=15)
36-45 years	6% (n=4)
46-55 years	6% (n=4)

¹ Percentages in both the "gender" and "race or ethnic identity" do not total 100%. This is because participants were allowed to self-select whatever combination of categories best described them. When visitors selected more than one category, they were included in each of those categories.

56-65 years	12% (n=8)
65 + years	21% (n=14)

Data Collection Procedures

If a visitor fulfilled the selection criteria, they were approached after exiting the rest space and asked whether they would be willing to provide a brief interview about their time in it. This request was prefaced with the information that the interviewer was a student in the University of Washington Museology program working on a thesis project. If the visitor agreed, the interviewer confirmed that they were over 18, then asked whether they would like to sit (outside the rest space) or stand for the remainder of the discussion, and whether they consented to an audio recording of the interview. Once the interviewer obtained permission to record, they began an audio recording and asked a series of six questions designed to gather information related to the visitor's decision to linger in the rest space, their feelings about the space and reasons therefore, and how (if at all) they felt their attention had changed after their time in the rest space (see Appendix B for the interview guide). Most interviews took from 90 seconds to three minutes. If it seemed that a visitor had not understood the question, the researcher might clarify through alternative phrasing; if an answer was ambiguous the researcher might ask them to elaborate.

After the recorded interviews, participants were asked whether they would be comfortable filling out a four-question paper survey regarding demographics and informed that these would be used to characterize the study sample but not associated with their responses during the interview (see Appendix C for the demographic questionnaire). While the majority of study participants agreed to provide demographic information, three declined, and an additional participant declined to select a racial or ethnic category. In addition, though the vast majority of visitors approached agreed to participate in the study, five declined. The interviewer did not ask for a reason, but two cited time constraints and three did not elaborate on their decision; all of those in the second category appeared to belong to marginalized racial groups. It is possible that the appearance of the interviewer, who is white, biased the sample slightly.

Results

Data Analysis

Once all interviews were conducted, the data were transcribed into a spreadsheet. Emergent coding was used to identify repeated themes in

the responses to each question; once developed those codes were applied to each response. The first four questions were designed to gain insight into visitors' reasons for using the rest space, how they thought of its purpose, their emotional states while doing so, and what they believed influenced them about it. These were tied to the first and second of our research questions. They were then asked how, if at all, they felt their attention span had changed, to explore our third research question. The responses were then tabled to compare frequency; both the frequency of response types and the codes themselves may give insight into visitors' experiences.

What draws adult visitors to use dedicated rest spaces in museums?

Adults were asked in interviews why they decided to spend time in the dedicated rest space. Responses were coded into one of five categories, including i) being attracted to the space; ii) wanting to rest in the space; iii) feeling connected to the space; iv) wanting to see everything in the museum; and v) stumbling across the space as they made their way through the museum. Almost half of the adults interviewed (45%, n=29) said they were drawn to something within the space, either an object or a design decision. For SAAM's meditation gallery, the music and chants that compose part of the exhibit were common attractants, as was the low lighting:

"Well, first I heard the music and that drew me in...I was curious."

"I think I was drawn to it by the sounds. I could hear them from outside the exhibit. I actually didn't know it was there until I walked in, but I heard the music and was sort of drawn to it."

"It was dark and quiet and a nice atmosphere."

Almost one third of adults (32%, n=21) said they spent time in the space because they wanted to rest. These visitors typically expressed a desire for contemplation, peace, or introspection:

"For me, it was a time to sit down, sit on the bench...It is restful, right there especially, and we were just talking...There is a sense of peace. And I realize that

wouldn't be true for everybody, but we were just sitting there talking about health for a long time.”

“I sat down and got my phone out at first, but it was just more peaceful with the music and the darkness and everything and the few statues. Yeah, more peaceful, less going on.”

Almost one quarter of adults (22%, n=14) paused in the rest space because a particular part of it was relevant to their personal history, beliefs, practices, or preferences. This was particularly common in the meditation gallery, where multiple guests cited practice of or ties to Buddhism, but it also occurred at NAAM’s living room:

“I am Buddhist, so I could appreciate the different ways the Buddha is represented. So the middle one we always see in Japan. But we don't always get to see the China and Thailand ones, so just observing the different, although it's small, just seeing the different design styles of the face.”

“It was a very peaceful place to sit down and see the statues in there. We are Buddhist, so it's something to admire.”

“I'm a book reader so if there's a book shop, I'm always going to go to it...That is how I would behave at any museum: go to the book shop and look through the books.”

Seventeen percent (n=11) said that they simply went into the rest space because it was there. These visitors mentioned an internal drive for completionism or external design decisions from the overall museum. It is worth noting that these visitors also spent the requisite 3 minutes in the space, and so still chose to linger there once inside.

In addition to being asked what drew them to the dedicated rest space, participants were asked what they saw as the purpose of the space. The majority of visitors (52%, n=34) understood the study spaces to be rest spaces, either from design and context cues or with the use of a plaque (only four visitors cited their perception as coming from a label, but it is possible more were influenced and did not specifically mention it). Nearly

as many (48%, n=31) believed that they were meant to convey information. However, a portion of those visitors said that the space was meant for both information and rest or information and community:

“It is both a meditative and a learning space, at least for me. And one doesn't preclude the other.”

“Contemplation, rest, and maybe a little bit of history.”

“I think it's just a place like you can relax and have a conversation. Since it is a wide area, there are not a lot of distractions, it's pretty quiet. Especially compared to the museum portion, there were a lot more visuals going on. So here, it just a bit of that relaxed feel. A spot to reconvene.”

If we look at the percentage of adults who saw the spaces as entirely informational it drops to 32.3%, just shy of 1/3 of visitors. We can also note that everyone who cited a community purpose was a guest at NAAM's living room; 8 of 14 (57%) NAAM visitors fell into this category.

How do adult visitors feel while in the museum's rest space, and why?

Interviews examined how adults felt while they were in dedicated rest spaces in the museum. Responses were coded into one of four categories, including i) feeling calm or relaxed; ii) feeling awe or inspired; iii) no change in feelings; and iv) other responses.

Table 2. Participant's responses to “how they [felt]” in the reflective spaces (N=63)

Code	Frequency
Calm: Used words like "relaxed", "soothing", "quiet", and "peaceful" in addition to calm.	71% (n=45)
Awe: Explicitly mentioned awe, expanded sense of one's place in the universe, or amazement.	8% (n=5)
Fixed: Described no change between the rest space and the museum as a whole.	5% (n=3)
Other: Described an emotional state or change that does not fit with the above categories.	16% (n=10)

In addition, they were asked what it was about the space that made them feel a certain way. Responses were coded into one of six categories: i) display and/or design; ii) lighting; iii) sound; iv) floor plan or layout; v) seating; and vi) personal factors. While the study spaces differed in design from the rest of the host location, they did both still contain some artifacts or displays, and the specific objects and their curation was the top reason participants cited for their emotional states while in the rest spaces (58%, n=34). Notably, this category also includes a lack of objects, that is, participants who noted that the space was minimalistic, as this is also curation. For example:

“The darkness, the comfort, and the images that were chosen. That speak to one another in such fantastic ways.”

“The colors too. More muted on the walls.”

“Because it was a very simple setup, only the three statues...”

“...there isn't a lot of text, simple...”

Beyond curation and display, there was also a consistent focus on lighting and sound qualities; 46% of participants (n=27) remarked on the lighting and 36% (n=21) commented on sound. In SAAM's meditation gallery, visitors commented on the intentional low lighting, while in NAAM's living room, they pointed out the natural light:

“The atmosphere, the lighting. And then the chanting and music; it's its own space away from everything else, and a darkened room. A space for reflection...”

“I think the multifaceted approach to the presentation, keeping the lights low, having a sound component, have it be pretty minimalist really just encourages like minimal focus on a couple of things.”

“I liked the natural light which we didn't have in the museum and I thought that was a nice juxtaposition, and the carpet. It was also visually kind of relaxing cause there is enough open space with just enough interesting things look at in the periphery. It had an openness to it.”

The qualities of the room itself and the museum's design also impacted the reflective space. Adults noticed both the enclosed, intimate space of the meditation gallery and the openness of the living room; eight adults commented on these factors (15%). Four visitors (7%) specifically cited internal factors as having a greater impact on them than any quality of the study spaces:

"I don't think it was the space at all. I think it was my frame of mind and my choice of utilizing that space. I could have chosen to have that state of mind in another space..."

How do adults who use dedicated rest spaces in museums perceive that this impacts their attention?

During interviews, adults were asked, "How does your ability to focus on new things now compare to before you spent time in [the rest space]?" Responses were coded into one of five categories: i) improved focus; ii) no change in focus; iii) unsure of change in focus; iv) mention of other positive impacts not related to focus; and v) sharing personal experiences not related to focus (8%, n=5). The largest proportion of adults, 17 out of 60 (28%), were able to say with confidence that their time in the study space had improved their focus, at least in the short term. None said that they felt their attention had declined or decreased. A large portion of adults fell into either the "unchanged" or "ambiguous" categories. These were distinguished by the visitor's degree of certainty. When a visitor stated directly that their attention did not change they were sorted into "unchanged" (25%, n=15). In contrast, the "ambiguous" category (27%, n=16) was made up of visitors that did not feel they had a concrete enough grasp on either their attentiveness or the question to answer in a concrete way:

"I don't know if I spent enough time in the space to decompress."

"I guess less distracted, if I had to say one or the other. And that is the goal of a meditative state. But it's hard to say...maybe we need more time."

"Umm. I don't know. I guess it was just kind of a calm space."

In addition to remarks on their attentiveness, a significant proportion of guests (22%, n=13) noted other impacts on their mental or emotional states. All of these impacts were positive, and many invoked restoration and recovery:

“It was soothing.”

“We were having a really busy day, just driving around and doing our activities, really sitting down and taking the [inaudible] and appreciate the art in front of me I walked out of there more calm and energized just having that space to reflect on yourself. A really engaging piece of exhibition.”

“I find that darkness, stillness, quiet are foundational states and we add upon that, most of the time unwitting or unconsciously and it is renewing (to use a word that you used) to find spaces that are geared back towards refreshing or rediscovering those foundational states. So I found definite renewal in spaces designed for that.”

Discussion

The purpose of this study was to explore what draws adult museum visitors to use dedicated rest spaces in museums, how they feel while doing so, and how they perceive that use impacts their attention. To this end, 68 adults who spent three minutes or more in one of two rest spaces – one at the Seattle Asian Art Museum and one at the Northwest African American Museum – were interviewed upon exiting the space. Several key findings emerged from these interviews.

Most adults were attracted to something particular about the dedicated rest space. Design elements that seemed novel and unique in the context of the museum were remarked upon regularly. For example, visitors at SAAM said that the relative darkness in the meditation gallery attracted them, and visitors at NAAM commented that the relatively bright natural lighting in the living room did the same. Similarly, at SAAM, visitors commented on the small, intimate nature of the meditation gallery, while guests at NAAM noted the living room's openness. Adults clearly saw these spaces as distinct from the rest of the museum. Several design elements visitors remarked upon may have been "fascinating" in the sense put forward by Attention Restoration Theory (ART), engaging visitors' senses without requiring intellectual effort (Bratman, 2012). These elements include the audio in the meditation gallery, the statues themselves, the assortment of books, and the park scenery visible from

the living room. All of these might attract or hold interest but may not carry the same expectation of intellectual engagement as other artifacts and displays, being without explanatory text visible to a resting visitor.

Most visitors interviewed understood the studied spaces to be intended for rest, and many chose to spend time in them for this specific purpose. Visitors accounts indicated that they evaluated the purpose of the space and concluded it was intended for rest in part because it was physically separated from the museum's galleries. Several also commented that this separation helped make the spaces more restful. This finding is in accordance with Li et al.'s (2013) findings that visitors prefer to rest in spaces that are seen as being somewhat removed from the "main" part of the museum.

Most commonly, visitors reported feeling "calm" while using the dedicated rest spaces in these museums. This finding reinforces evidence that built environments (including museums) can be sources of stress reduction and restoration, in the same way that natural environments are (Packer & Bond, 2010). Visitors also said that the seating in the dedicated rest spaces provided relief, which reinforces Bitgood's (2009) notion that museums can cause fatigue in visitors, brought on by physical fatigue, stress, satiation, limited cognitive capacity, information overload, competition, and decision making. Finally, some people said they felt awe in the dedicated rest space, confirming Luke's (2021) findings that museums can foster feelings of awe in visitors.

A number of adults in the study felt that their attention had improved as a result of using the dedicated rest space. In particular, they talked about feeling more prepared to engage with new ideas and information. Others said that their mental or emotional states were otherwise improved. For nearly any museum, these are highly desirable states of mind and suggest that there is real value in offering people this kind of respite from their museum experience.

This study has multiple limitations. The participants included a range of museum visitors, but the sample was biased towards people from the Seattle metro area ("locals"), as well as White and/or Asian or Asian-American people. It had a very small proportion of Black or African-American and Hispanic, Latino/a/x, and Spanish-Origin respondents. Additionally, the results are bounded by the two specific dedicated rest spaces studied here and may not apply to other spaces with different designs.

Implications

These results indicate that dedicated rest spaces may be a good investment for museums, especially museums that provide their visitors a large footprint, many exhibits, dense information, or curation that plays on visitors' senses — that is, museums that anticipate high potential for fatigue, both physical and mental. The impacts described by participants, both on their attention and preparedness to engage with new information and on their internal sense of calm, could be beneficial to a museum's goals as either (or both) an educational or community-oriented institution.

It seems from these accounts that designing a rest space that is distinct from the rest of the museum both in that it is physically separated and in that it has different design elements, such as lighting and sound unique in the museum, may help visitors recover. While pathing plays a role and some visitors will go into a rest space out of a sense of completionism, it seems that providing some “fascinating” elements can help draw visitors in. Finally, given the number of participants that specifically commented on its presence, it would seem that providing seating helped visitors recharge. It seems likely that this is in part due to physical fatigue, but it is also possible that seating helped facilitate the restorative aspects of the environment by inviting visitors to spend more time in these spaces.

Because this research was highly specific to the two study spaces, a wider array of sites would be beneficial for more concrete conclusions on this topic. This is particularly true given that the study spaces had extremely strong design philosophies tying them to particular places and ideas that visitors may have had preexisting associations with; visitors at SAAM commented on their ties to or attitudes towards Buddhism while visitors at NAAM compared the living room to a library. Additionally, while the minimalist but not entirely ascetic curation at SAAM seemed very effective in encouraging a sense of calm, NAAM's much more vibrant space also produced restorative effects. This research can provide little insight as to a specific design philosophy; more studies in different locations that are designed with comparison in mind could help fill that gap. Additionally, given the prominence of natural settings in attention restoration research, interviews at museums that have designed rest spaces to incorporate more natural elements, such as gardens, courtyards, or the Smithsonian's “garden lounge”, may be illuminating.

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Appendices

Appendix A

Images of the rest spaces under study and contrasting galleries. All images were gathered by the author with permission from the host sites. They are ordered to echo how one would encounter them as a visitor following the implied path through each museum.

Figure 1. Gallery at the Seattle Asian Art Museum (SAAM) preceding the meditation room.



The two doorways lead into the meditation room. When that gallery's recorded chants are active they can be heard in this space as well, and two of the Buddha statues can be seen through the doors.

Figure 2. The meditation gallery at SAAM.



The gallery plaque is behind the photographer, alongside a third statue visible in Figure 1. The text of the gallery plaque reads: “Awakened Ones: Images of the Buddha, like those in this room, embody a desire to look inward. We invite you to pause here for a moment of serenity and renewal in their company. The sounds you hear are chanting and music from various Buddhist traditions. Every hour there is also an interval of silence.”. Note the bench completing the square.

Figure 3. A third gallery at SAAM.



Most guests who left the meditation room came directly into this gallery.

Figure 4. An early gallery at the Northwest African American Museum (NAAM).



In NAAM's main hallway, the walls sport graphics describing the history of the African-American community in the Northwest. They are accompanied by artifacts, interactive installations, and recordings tied to this topic.

Figure 5. A traveling exhibit gallery at NAAM, pictured holding Myron Curry's "Where Do We Go From Here?"



This space can be arranged to suit the needs of exhibitors, often artists. The museum provides benches unless the exhibit prohibits this, usually arranged for seated art viewing.

Figure 6. The “Living Room” at NAAM.



The text on the left wall reads “We wish two things for our children: the first is roots; the second is wings. — African Proverb.” There are coloring pages and supplies offered on top of the bookshelves. The books visible here are free to read within the living room; there is also a table of books for sale to support the museum behind the photographer and more books, most fiction by Northwest African-American authors, for sale in a vending machine off camera right.

Appendix B

Interview guide, used at both research sites. All questions were administered verbally and recorded.

Template: Hello, I'm a student with the UW Museology program doing research in to the impact of rest spaces on museum visitors. Would you be willing to participate in a brief interview about your visit today? (Y/N)

N: Alright, enjoy the rest of your day.

Y: Thank you! I'll ask you six questions, you can answer in whatever length you like or just say "skip" to decline any question for any reason. There's an optional demographic survey at the end. I'll need to record all interviews to make sure my report is accurate - is that okay with you?

1. Why did you decide to spend time in this area of the museum, specifically?
2. What do you think the purpose of this space is?
3. How did you feel when you were in this space?
4. What was it about the space that you think made you feel that way?
5. How does your ability to focus on new things now compare to before you spent time there?
6. Do you plan to visit more of the museum today²?

² This question was asked in every interview, but not discussed in the paper because the results were entirely dependent on host site layout. Every guest at SAAM (where the space was at the end of the first gallery most guests enter) said yes, and every guest at NAAM (where it was at the end of the entire museum) said no.

Appendix C

Demographics survey, distributed at both research sites. Consenting participants were handed a paper version on a clipboard.

This is an optional addendum to your interview. Please answer any questions you are comfortable with; you may skip any question for any reason and it will not impact your participation. Any information provided will be anonymous and is not linked to your interview. This survey will help describe the general composition of our research sample.

1. What is your age range?

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- Above 65
- Decline to answer

2. Which of the following describes you? Select all that apply. You can provide more information on the lines after each option if you would like.

- American Indian, Native American, First Nations, or Alaska Native _____
- Asian or Asian American _____
- Black or African American _____
- Hispanic, Latino/Latina/Latinx, or Spanish Origin _____
- Middle Eastern or North African _____
- Native Hawaiian or Pacific Islander _____
- White _____
- Another identity or prefer to self-describe _____
- Decline to answer

3. Which of these options best describes your relationship to Seattle?

- Local
- Tourist

4. Which of these options best describes your gender identity? Check any that apply.

- Man
- Non-binary
- Transgender
- Woman

Prefer to self-describe:

Appendix D

Coding examples.

Question 1 (“Why did you decide to spend time in that area of the museum, specifically?”)

Code	Example
Completion: Visitors who aim to visit every part of the museum, which happened to include the study space.	"Because I hadn't been there yet." "Well I was just checking out every gallery, so that is why I went in there." "Trying to do a full circuit, and that was the next spot."
Attraction: "Drawn in" by some aspect of the space. This is a function of interest in something within the space; looking for mentions of specific design elements or things within the space (e.g. books, music, artifacts).	"I was drawn in by the chants..." "The lighting and the secondary sculptures really grabbed my attention" "I wanted to take a look at the books on offer and see what was going on"
Pathing: Found themselves in the study space as a function of the museum's design.	"The path lead to the room." "...we are following the natural path of the museum route." "Well it is on our path."
Rest: Visitors who were looking for a rest space or chose to linger because the space was conducive to rest. Looking for mentions of rest, contemplation, peace, or introspection. Could split "rest" answers from "contemplation", "meditation".	"...for me it was a time to sit down, sitting on the bench..." "...I was really by that time ready for a rest..." "Now that we have seen everything it was nice to sit down and talk a little bit." "...it looked so peaceful I had to stop by for a couple of moments."
Personal: The space, or something in it, has a connection to something in the visitor's life that invites them in or brings them pause.	"I believe in Buddha..." "I've had a previous good experience there..." "...wanted to resee it again myself, because I worked on the whole thing, and the concept."

Question 2 (“What did you think the purpose of that space was?”)

Code	Example
Unsure: the guest expressed uncertainty, or did not guess.	"I am not really sure. It's well constructed." "I didn't really think about the purpose at all."
Informational: the guest believed the space was meant to display items, artifacts, or teach a concept. Includes "putting the items in context", since this is centered on objects.	"It's showing us three different countries' version of the Buddha" "...to experience what the people who crafted those were intending people to experience." "I assumed it was a way of giving people more information at the end..."
Rest: the guest believed the space was for rest, contemplation, or introspection, with or without the use of a label.	"It's for a moment of repose to look inward and look at yourself" "...spaces where we can sit and reflect..." "... to sit and reflect more."
Primed: the guest identified a prompt or label as having told them the purpose of the space.	"I didn't know until I read the plaque..." "According to the thing they put on the wall there..."
Community: the guest believed the space was meant for discussion or community gatherings.	"Like a decompressed shared community space." "...a place you can relax and have a conversation... a spot to reconvene."

Question 3 (“How did you feel when you were in that space [indicating the study space]?”)

Codes	Examples
Calm: Look for words like "relaxed", "soothing", "quiet", and "peaceful" in addition to calm.	"Very peaceful" "It was pretty relaxing..." "really peaceful, really calming" "...it's a very nice beautiful area"

	you can just kinda relax in and be a part of"
Awe: Explicit mentions of awe, expanded sense of one's place in the universe, amazement, ect	"Reverential" "How did I feel? Um, some awe... makes you feel surrounded by higher beings."
Fixed: Visitors described no change between the rest space and the museum as a whole.	"...I can't say that it elicited any other emotions." "I wouldn't say I was emotionally in any particular place versus the exhibits... if you're looking for me to say anything regarding an emotional reaction, no..."
Other: Emotions were remarked on, but not calm or awe.	"Happy." "Fine, thought it was pleasant i wouldn't say relaxing, very contemplative." "Umm. I felt that, i wish i had more time to sit down and go through some of the books."

Question 4 ("What about that space do you think helped you feel that way?")

Codes	Examples
Lighting: specific mentions of lighting	"The lighting..." "...dark..." "...I liked the natural lighting..."
Sound: music, quiet, ect	"...the music..." "...the chanting, the quiet..." "...the sound is nice..."
Floorplan: door positioning, seclusion or openness, location within the museum, ect	"...set off." "It's isolated, separate from the rest of the museum..." "...it's very open."
Internal Factors: moods, concepts, preferences, or decisions unique to the participant.	"Spending more time in here..." "I don't think it was the space at all. I think it was my frame of mind"

	and my choice of utilizing that space."
Displays and Design: which items are present and how they are curated.	"...there isn't a lot of text, simple." "The quotes on the wall. The art was really nice too." "The statues themselves."
Seating: participant specifically remarked on seating options (chairs, benches, ect)	"...the comfortable chairs..." "It was very nice to be able to sit down and breathe."

Question 5 ("How does your ability to focus on new things now compare to before you spent time in that space?")

Codes	Example(s)
Improved: the participant was able to say with confidence that their focus was better after visiting the rest space.	"I think it's greater." "I was a little more observant of my sensations, thoughts, prejudices, observations." "Leaving that room I feel like I could probably focus on something a little more easier."
Unchanged: the participant did not notice a change, and/or believed that the rest space did not impact their attention.	"I don't think it would have changed." "No changes noticed" "About the same."
Declined: the participant felt less able to focus after visiting the rest space.	No examples.
Ambiguous: the participant was unsure what, if any, change took place.	"I don't know how we came out any different" "Hard to say"
Other restorative impacts: the participant did not say outright that their focus or ability to learn changed, but noted other impacts, such as feeling refreshed or calmed.	"It put me at ease" "I definitely did feel a little like a palate cleanser" "I walked out of there more calm and energized just having that space to reflect on yourself"
Personal: participants recalled personal experiences or thoughts	"for me it was a culmination of wanting to be here"

not directly related to attention or rest.	"I used to use some of the meditation app..."
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