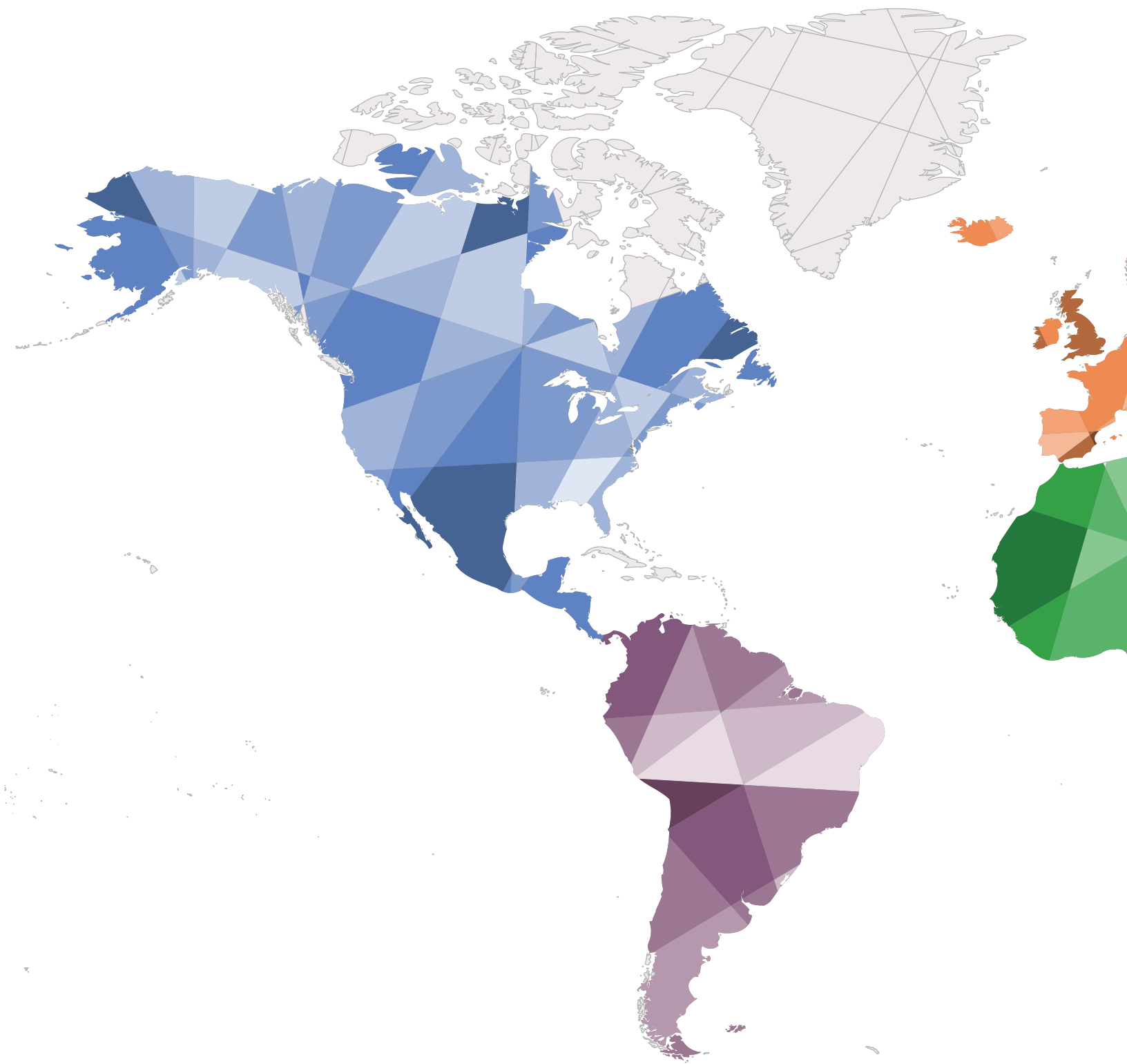
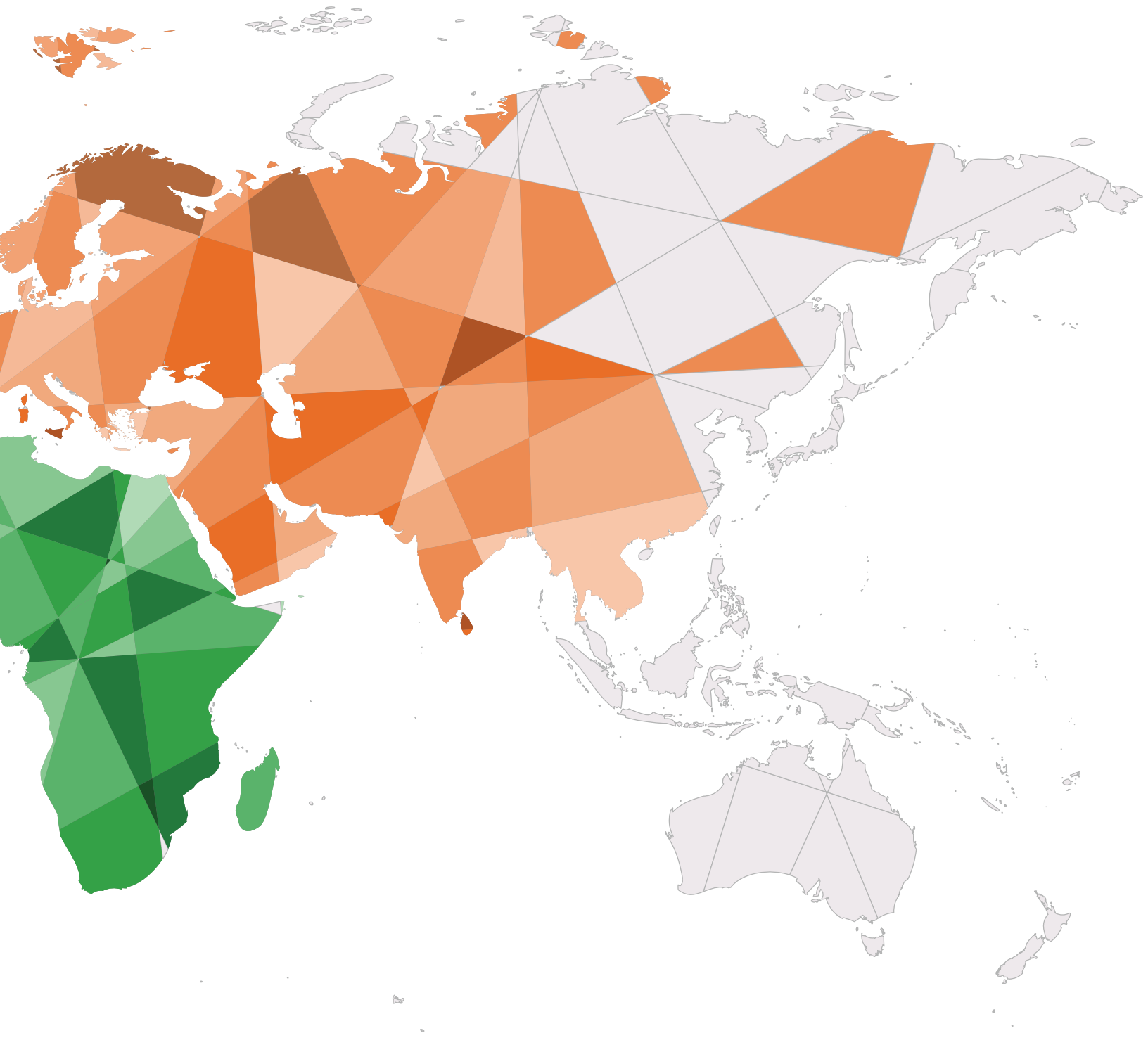


A Four-season Survey of the Smithsonian Visitor Experience









The Smithsonian Visitor Journey:

A Four-Season Survey of Visitors' Experiences Across Fifteen of the Smithsonian's Museums and its Zoo

Acknowledgments

Our thanks first go to Evelyn Lieberman for her leadership and vision on this seminal study. Additional thanks go to the countless staff across each of the museums who helped bring this data to light, as well as to Ikuko Uetani, Lance Costello, Sherri Wheeler, and John Lapiana for their tireless support.

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List of Abbreviations and Terms

Used in this Report

Smithsonian Museums

ACM	Anacostia Community Museum
NMAfA	National Museum of African Art
CHSDM	Cooper Hewitt, Smithsonian Design Museum
DWRC	Donald W. Reynolds Center for American Art and Portraiture (containing both SAAM and NPG)
FSG	Freer Gallery of Art and Arthur M. Sackler Gallery
HMSG	Hirshhorn Museum and Sculpture Garden
NASM	National Air and Space Museum (Mall Building)
NMAH	National Museum of American History
NMAI-DC	National Museum of the American Indian (in Washington D.C.)
NMAI-NY	National Museum of the American Indian, the George Gustav Heye Center (in New York City)
NMNH	National Museum of Natural History
NPM	National Postal Museum
NZP	National Zoological Park
NPG	National Portrait Gallery
Renwick	Renwick Gallery, SAAM
SAAM	Smithsonian American Art Museum
SI	Smithsonian Institution
UHC	National Air and Space Museum - Udvar-Hazy Center

Analytical Tools

OER	Overall Experience Rating
PFG	Poor/Fair/Good
E	Excellent
S	Superior
NPS	Net Promoter Score

Mall vs. Off-Mall museums

Mall Museums are defined as those buildings situated along the National Mall: NASM, NMNH, NMAI-DC, NMAH, FSG, NMAfA, and HMSG.

Off-Mall Museums are defined as those buildings situated within the National Capital Region but off of the National Mall: SAAM and NPG, both of which are housed within the Donald W. Reynolds Center for American Art and Portraiture (DWRC), Renwick, NPM, NZP, ACM, and UHC.

Museum Categories

For the purposes of comparative analysis the Smithsonian museums can be broadly split by subject matter into three categories: Science (NMNH, NZP, NASM, UHC), American (ACM, NMAH, NPM, NMAI-DC, NMAI-NY), and Art/Design (DWRC, HMSG, FSG, NMAfA, CHSDM, Renwick).

Geographic Categories

Occasionally, the reader will come across comparisons of the Smithsonian's two broad geographic areas in which its museums are situated. These are the Washington Metropolitan Area (DC-area), which includes NMAH, NMNH, NZP, NASM, UHC, ACM, NPM, NMAI-DC, HMSG, FSG, NMAfA and the Renwick, and the New York Metropolitan Area (NYC-area), which includes NMAI-NY and CHSDM.

Other Categorization

MMRZ Museum, Museum-related and Zoo. This is a term developed and used by ForeSee in their web analytics.

Generation Cohorts

This study uses the Pew Research Center's determination of the generations:

Generation Y	Born after 1997
The Millennial Generation	Born: 1981 to 1997
Generation X	Born 1965 to 1980
The Baby Boom Generation	Born 1946 to 1964
The Silent Generation	Born 1928 to 1945
The Greatest Generation	Born before 1928



Forward

This study represents an extraordinary achievement in the ongoing efforts to better understand and improve the experiences of museum visitors. The study that this report describes represents the first systematic effort since the founding of the Smithsonian in 1846 to measure the visitor journey over a complete year. The ongoing commitment and dedication to the collection of credible statistics about museum use also can be attributed to the commitment and leadership of the Smithsonian's museum and unit directors.

Why was such a survey and analysis undertaken? In 2014, the Smithsonian's central Office of Visitor Services was strategically repositioned to provide both ongoing and timely research and analysis of visitors' experiences across the Institution's museums and Zoo. Each year, tens of millions of visitors make their way through the Smithsonian's exhibition halls and galleries. But do visitors come in contact with the Smithsonian before they arrive for a visit, and if so, how? How do visitors plan their visit? What are their needs and behaviors once inside a museum? Are there seasonal demographic or behavioral variations? What drives visitor satisfaction? Finally, do visitors engage with the Smithsonian after their visit?

The need for a view of the complete journey of the museum visitor is something increasingly discussed and embraced by museums and cultural organizations around the world—a need long ago understood and embraced by the most successful corporations of our time.¹ No longer is it enough to focus solely on the experiences that visitors have (or don't have) within the walls of the museum, the halls of the gallery, or on the grounds of a zoo. We more fully realize the mission of the Smithsonian when we acknowledge and devote resources to improving the planning and pre-arrival orientation of visitors. Similarly, we more fully realize our mission when we understand that strong follow-up engagements drive more people to the knowledge that the Smithsonian produces every day. In so doing, we produce better informed citizens.

This study assumed, at its outset, that meaningful information existed that could inform the Institution's understanding of the Smithsonian visitor's journey. As such, the study was designed to collect verifiable empirical information about each phase of that journey—from pre-visit, to on-site experience, and through to the post-visit phase of the visitors' journey.

All of those who made this report possible can be proud of this achievement. We hope that this study of the Smithsonian visitor experience will receive a robust reading among those within the Institution and in the field more broadly, and that its findings will become a ready resource to improve the experience of museum visitors everywhere.

Samir Bitar
Study Author

¹ Kolko, John. *Harvard Business Review*. "Design Thinking Comes of Age". September 2015



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Introduction

This study of the Smithsonian Visitor Experience is the first ever comprehensive survey of visitors to the Institution's museums and the National Zoo across four contiguous seasons. This study provides insight into pre-visit behavior and expectations, visit experiences and outcomes, as well as post-visit sentiment and intent. The results and key benchmarks herein are intended to inform policies and practices made across the Institution that impact the experiences of museum visitors. Finally, for any researcher the comprehensive scope and sample diversity of the study provide a wealth of insight into the experiences of museum visitors in the early 21st century.

This written report details the most sought after findings from the Smithsonian Visitor Experience Study by Smithsonian leadership, museum directors, cultural sector professionals, and academics. As a result, the report is intended to be a guide to the available data and insights contained within the study, and not an exhaustive review of all the findings. This report is divided into three principle sections: Before the Visit, The Visit, and After the Visit. Each section includes an overview of a specific topic, and each topic consists of basic information about the subject, relevant stats, a list of take-aways, and, in some instances, contextualizing information from associated research. At nearly 60 pages this report is already at risk of a reduced readership. Therefore, we only included the most sought-after findings in this written report and aim to present the remaining through a digital dashboard interface easily accessed through web browsers. Until then, questions regarding the study or related data requests can be sent to VisitorExperience@si.edu.

The largest source of primary data for this study is information gathered through entrance and exit intercept surveys of 32,581 on-site visitors to the National Zoo and every Smithsonian museum and gallery that was open during the survey year. Visitors entering and exiting each location were surveyed in four contiguous seasons. The collection strategy included both day-of-week and time-of-day diversity in order to capture a truly representative sample of Smithsonian visitors and their associated behaviors. These surveys included 15,920 exit surveys and 16,661 entrance surveys through which nearly 200 questions were potentially asked, three-quarters of which were asked on exit. This large sample was collected to allow, for the first time, comparisons between all four seasons, and to allow subgroups to be isolated and compared to other subgroups or to the total sample. Per federal guidelines on research on children, the study did not include youths 12 years old and younger, nor did it include organized groups. These surveys were administered on iPads using Qualtrics surveying software.

In addition to the intercept survey, the study required two other sources of primary data to shed light on visitors' planning and post-visit behaviors: a pre-visit website satisfaction survey and a post-visit follow-up survey. To better understand the general behaviors and satisfaction of users of the Smithsonian's 14 '/visit' web pages (e.g., si.edu/visit or airandspace.si.edu/visit, etc.) — which are the most frequently used Smithsonian-provided visit planning resources — the Smithsonian's Office of Visitor Services partnered with its Office of the Chief Information Officer to survey visitors who use a Smithsonian website to plan a visit. The Institution's ongoing Foresee website satisfaction survey invitation was presented randomly to 10% of visitors who viewed a /visit web page. When visitors accepted the invitation, the survey was presented when they left the site. A persistent cookie prevented visitors from seeing the invitation again for at least 90 days. Between March 1, 2015 and February 29, 2016, 10,440 visitors planning a visit to a museum, a museum-related resource, or the Zoo (MMRZ) were presented with the survey, 39% of whom completed a survey (4,071). However, given that mobile-only internet users (i.e., those who access the internet through mobile devices such as smartphones and tablets) now exceed desktop and laptop users², the data gathered herein is skewed toward the older user (>50 y/o). Still, with 5 million users a year, a deeper look at even somewhat skewed data is warranted. The post-visit survey contacted on-site survey respondents via email up to six months after their visit and asked them to answer 14 questions that captured various ratings, associated day-of behavior, and museum-related behaviors back at home. A total 4,485 on-site visitors submitted their email address to be followed up with, 756 of whom completed a survey (17% completion rate).

Finally, this report includes a review of foundational literature related to museum visitor experience, previous Smithsonian studies, and other relevant studies that either contextualize findings in this study or provide useful information against which to better understand findings and recommendations presented in this report.

² Adam, Lella, 2015, "Number of Mobile-Only Internet Users Now Exceeds Desktop-Only in the U.S.," ComScore, Accessed on 6/26/2016, <https://www.comscore.com/Insights/Blog/Number-Of-Mobile-Only-Internet-Users-Now-Exceeds-Desktop-Only-in-the-U.S.>

A Note about OER & NPS

Since the early aughts the Smithsonian's Office of Policy and Analysis (OP&A) has used a five-point quality rating scale to solicit from visitors their sentiment on a number of facets of their visit, including their overall experience. The so-called Overall Experience Rating (OER) is comprised of a five-point (e.g., Poor/Fair/Good/Excellent/Superior) rating scale. Wherever the OER scale is presented, visitors may only select one of the five options. In addition to the utility of straight line reporting of visitors' ratings, OER can be interpreted as measuring Smithsonian performance (i.e., Excellent is the Smithsonian standard; Poor, Fair, or Good is below standard; and Superior can be seen as above standard). In order to compare historic data gathered at Smithsonian museums and, where possible, create new benchmarks, the OER rating was employed in both intercept and follow-up surveys. However, OER is a rating scale currently used exclusively by the Smithsonian.

To compare the performance of Smithsonian museums against other non-SI museums, the study team sought a metric used at other museums. The only question found to be asked at museums both in the United States and Europe was, 'On a scale from 0-10, how likely are you to recommend [museum name] to a friend?' This question, which was included in the survey, presented visitors with an 11-point scale where 0 is 'not at all likely', 5 is 'neutral', and 10 is 'extremely likely'. The Net Promoter Score (NPS) measures the loyalty that exists between a museum and a visitor and has two primary applications. The first is the calculation of a net promoter score that subtracts detractors (those who rate their likelihood to recommend a 6 to 0) from promoters (those who rate their likelihood to recommend a 10 or 9) in order to identify the overall likelihood of visitors to promote a visit. The second application is the comparison of individual Smithsonian unit NPS to other museums and zoos outside the Institution.

Finally, it is important to note that OER is not a direct measure of a visitor's satisfaction. Researchers have argued that in order to faithfully and rigorously report on a visitor's satisfaction, the checklist of items presented to visitors must explicitly ask of their satisfaction. OER does not do this. OER asks visitors to rate their overall experience. Historic satisfaction ratings used in related fields include SERVQUAL, SERVPERF, IPA, and HOLSAT. However, each of these models have their own weaknesses and problems,³ and therefore were not used in this study.

3 Pearce, Philip, et al. (2010) *Tourists, Tourism, and the Good Life*. Routledge.

Weighting of "Smithsonian" Frequencies

In this report, the performance of individual Smithsonian units are occasionally measured against other individual units, categorical cohorts and Smithsonian averages. Where presented Smithsonian averages are weighted. This weighting takes into account individual museum survey responses with museums' actual visitor traffic volumes. As a result, museums with higher annual visitor traffic (e.g., NASM) will comprise a larger share of the reported Smithsonian averages as they represent a disproportionate amount of visitors. Museum-specific frequencies are not weighted.

Visits versus Visitors

In calendar year 2015 the Smithsonian Office of Protective Services reported that 28 million visits were made across all of the Smithsonian's museums, galleries, and the Zoo.⁴ This figure represents an 18% increase over the ten years since 2005 (in 2005, visits were 23.9M). Just over 751,000 of the estimated visits in 2015 were to SI museums in Manhattan. The remaining were visits to SI institutions across the Washington, DC metropolitan area, and most of those to museums along the National Mall (21.8M). However, visits are not visitors.⁵ A single visitor can account for multiple visits. It is estimated that 21.4M⁶ unique visitors visited the Smithsonian in 2015. As such, this report will differentiate between the 28 million visits and the 21.4 million visitors.

4 Smithsonian's Visit Count Management System, "VCMS," accessed March 11, 2017, <https://si-fmsprocess16.si.edu:9443/start.do>

5 David Karns. 2007. "Visits to the Smithsonian: 1996 to 2006," Washington DC: Smithsonian Institution, Office of Policy and Analysis, p 8.

6 Of 28 million annual visits 43% are first time visitors, which totals 12 million. The remaining 57% are repeat visitors. Of these, one third have visited more than 12 months ago and total 5 million. Accounting for the 2.5 median number of repeat visits within a 12-month period, the number of unique annual repeat visitors is equal to 4.4 million. As a result, the annual 28 million visit figure is adjusted to represent an estimated 21.4 million unique annual visitors.

Executive Summary

Key Findings

Visitors

Overall, visitors to the Smithsonian rate their experiences highly; the majority of them appear to be satisfied with their experience at a Smithsonian museum. Further, the Smithsonian's visitorship is becoming more racially diverse. Summer visitors are younger and more likely to be visiting with families compared to those who are older and visiting in smaller groups in the fall. Non-US visitorship is up — it is lowest during the spring and highest in the summer.

- Of 28M annual visits in 2015/16⁷, 21.4M were unique visitors.
- Compared to 2004, visitors are more ethnically diverse and increasingly more Hispanic.
- Smithsonian visitation is trending younger; the median visitor age in 2015/16 was 33, down from 36 in 2004 and 38 in 1997.
- Adults visiting with other adults represent more than half of all museum visitors, while adults visiting with children represent about a third.
- Visitors aged 13 to 17 (and not part of an organized or school trip) comprised 31% of visitors in spring and 22% in summer before falling to only 15% in fall and 11% in winter.
- Over 4M visitors, or 19% in the survey year lived outside of the United States. The top five countries are Canada, Australia, United Kingdom, Germany, and China. Of particular note, the percentage of Chinese visitors has doubled since 2004⁸.

Pre-visit

More than half of visitors in 2015/16 had visited a Smithsonian venue (i.e., any Smithsonian museum, gallery, and/or zoo) previously. A majority of visitors had planned their visit by talking with friends and family and accessing a Smithsonian website. Visitors from outside the local area are far more likely to use travel websites (e.g., Trip Advisor) and travel guides to plan their visit.

- Most first-time visitors do not know that the Smithsonian is a complex that includes 19 museums and the National Zoo.
- Planned visitation is highest in the spring and lowest in the winter.
- About a third of museum visits are unplanned and/or spontaneous.

- The highest proportion (37%) of visitors found out about the museum they were visiting via a friend/relative/word-of-mouth.
- About one out of ten visitors found out about the museum they were visiting via social media.
- Nearly 60% of visitors expect to spend between one and two hours in a museum.

The Visit

Overall, a large proportion of visitors are satisfied and are likely to recommend a visit to the Smithsonian. Although most visitors have a mobile device with them during their visit, less than half of those report using it during their visit.

- For most visitors, Smithsonian museums either met (54%) or exceeded (42%) their expectations.
- Over half of visitors report losing track of time during their visit, which may be key indicator of visitor satisfaction and likelihood to recommend.
- Of visitors who used their mobile device during their visit most did so to take photos and shoot films; few report using their device to download or otherwise access Smithsonian content.
- About one-quarter of interactions with service staff are rated below standard.
- More than half of visitors bypass information desks and choose to orient themselves through other means.
- 20% of Smithsonian audiences report having a "special need" that required accommodation, 68% of whom report not having their needs met.
- Teens, particularly young men, do not seem to relate the Smithsonian to art, but are pleasantly surprised when they discover art during their visit.
- Smithsonian visitors can be grouped into four distinct experience segments. General Browsers comprise the largest segment of Smithsonian visitors, followed by Shared Experiencers, Knowledge Acquirers and Emotional Connectors.
- Five factors were found to lift both OER and NPS scores (listed in order of positive impact on scores): Exceeding a visitor's expectations, knowledge deemed by the visitor to be useful in their daily life, finding knowledgeable staff, lost track of time, and feeling awe and wonder during a visit.

⁷ Smithsonian Office of Protection Services

⁸ 1.8% vs. 5%, summer 2004 vs. summer 2015, respectively.

Post-visit

Nearly one third of visitors report no desire for the Smithsonian museum they visited to contact them after their visit. Nearly 5% of visitor report their Smithsonian visit as a "once in a lifetime" trip. Further research of this segment of the visit journey will help the Smithsonian more fully understand the impacts of a visit to a Smithsonian museum.

- Two-thirds of visitors who are likely to visit again in the next 18 months are likely to follow up with the Smithsonian via email, a call or webchat.
- More than two-thirds of visitors are likely to post photographs of their visit on-line.
- Nearly half of visitors report it 'very likely' that they will visit a museum near them.
- One-quarter are likely to post a review of their visit on a travel website.
- One in five visitor report that something about their trip wasn't as enjoyable as they thought it would be.
- Three in four visitors report not getting to do everything they had hoped to during their most recent Smithsonian visit.

Recommendations

Below is a list of recommendations for Smithsonian leadership to consider in its forthcoming efforts to improve the Smithsonian visitor experience. These recommendations are in response to the key findings outlined in the previous section.

Orient and assist visitors:

- Expand signage to explain closures of exhibition spaces, reopening date(s) and include alternate activities with accompanying alternative navigation routes.
- Create visitor centric design and planning methods that systematically empathizes the diverse needs and actual behaviors of a diverse visitorship.
- Increase wireless Internet access.
- Promote SI mobile apps to visitors during their visit planning phase.
- Increase programmatic synergies between SI museums such that visitors are exposed to other Smithsonian collections and programs across its museums.
- Diversify the sources from which visitors can access orientation, wayfinding, and associated visit information beyond information desks; meet visitors where they are by varying where and how visitors can get floor plans, sign up for tours, make connections across museums, plan itineraries, discover online resources, and donate.

Engage international visitors:

- To ensure accessibility to an increasingly international audience, information on Smithsonian websites, in print, and across building signage should be available in at least the following languages: Spanish, Simplified Chinese, French, German, and Portuguese.

Increase Accessibility:

- Provide printed materials/handouts in alternate formats (large print, Braille, audio).
- Provide exhibit labels in large print and audio formats that can be handed out upon request.
- Add accommodation information to the Museums' websites.
- Improve directional and programmatic signage as indicated in this report.

- Increase available seating area.
- Provide audio descriptions of exhibits.
- Adjust lighting that causes glare on labels and exhibits.

Leverage online planning and travel review websites:

- Partner with firms Yelp! and Trip Advisor for a more active role on these popular visit planning domains.
- Implement web chat services.
- Develop a program that both analyzes and responds to the comments/reviews posted by visitors on travel review websites.

Implement visitor experience training:

- Regularize visitor experience training and make it easy to access; making it available to all Smithsonian staff (not just front-line staff, security, and volunteers).
- Include Restaurant Associates staff in SI service and content training.
- Include visitor experience training in onboarding of new volunteers.

Develop annual strategic marketing plans:

- Publicity and advertising efforts are often successful at increasing a museum's visitation. However, beyond increasing overall market demand, targeting advertising messaging can successfully increase demand of specific targeted communities. Therefore, leverage visitor segmentations when developing marketing strategies — not to mention when developing public programs — in particular, socially-oriented and emotionally-oriented messaging, which not all arriving visitors expect to encounter these types of experiences in a museum, though are highly satisfied when they do.

Future analysis:

- Create and embed Voice of the Visitor feedback mechanisms along all phases of the visitor journey in order to move beyond surveying to develop more precise and in-depth processes to capture visitor thoughts, expectations, preferences and aversions; organize them into a hierarchy of needs; and prioritize them relative to particular Smithsonian goals.

Survey Results

Before The Visit

Prior museum experience

Among the approximately 21.4 million unique annual Smithsonian visitors 12.2 million (57%) are visiting for the first time.⁹ Nearly one-third of annual visitors (6.7 million) have visited the Smithsonian within the last 12 months (Figure 1).¹⁰

Repeat visitation to a museum is the strongest among Off-Mall Museums (47%), followed closely by Mall Museums (43%). New York City-based museums by contrast, have a low proportion of repeat visitors (14%). Across all museums, repeat visitors tend to be slightly older than first-time visitors (a median age of 37 vs. 31, respectively). Repeat visitors also report higher expectations for their visit than first-time visitors, with 21% anticipating a superior visit, vs. 17% of first-time visitors.

The ratio of first-time visitors to repeat visitors varies greatly by museum and season. For example, four-fifths of NMAI-NY visitors have never visited a Smithsonian museum, whereas over half of DWRC visitors have (Figure 2). The highest concentration of first-time visitors is in the summer (45%) and the lowest is in the winter (38%) (Figure 1).

Visit patterns across the National Mall

Seventy percent of arriving visitors to the seven museums along the National Mall enter through the doors which are facing the Mall. Visitors entering these museums were asked if they had visited another Smithsonian museum prior to

arriving at the museum at which they were intercepted. On average, one in three (36%) arriving visitors report coming from another Smithsonian museum. More of these visitors report coming from NASM than any other museum on or off the Mall. Notably, a little over one in ten (12%) arriving visitors report having explored a Smithsonian garden before heading into a museum. All Smithsonian museums in DC share visitors, although NASM, NMNH and NMAH (particularly NASM) attract a disproportionate number of shared visitors. On average, visitors visit 2.6 museums along the Mall per visit-day.¹¹ One-third of visitors to museums along the National Mall report visiting other Smithsonian venues throughout Washington DC after leaving the National Mall.

Most inbound visitors to Smithsonian museums along the National Mall are headed to NASM, NMNH or NMAH—also known as the “Big Three,” because of their annual visitation numbers. Most of these visitors (64%) reported visiting just the one museum during the day of their visit; the balance report visiting more than one. Approximately 7 million of the Smithsonian’s 28 million annual visits are shared among the Big Three. For example, on an annual basis, more than 500,000 of NMAH’s visitors come directly from NMNH and nearly 350,000 from NASM. Conversely, NMAH’s visitors contribute 1 million visits to NASM and about half a million visitors to NMNH.

9 N=32,630 (Exit and Entrance survey responses were combined for aggregate repeat visitation)

10 N=14,162 (Exit and Entrance surveys were combined for aggregate frequency of visit by season)

11 84% of those who visit more than one SI museum in a visit-day only visit either one (4%) or two (20%) other museum.

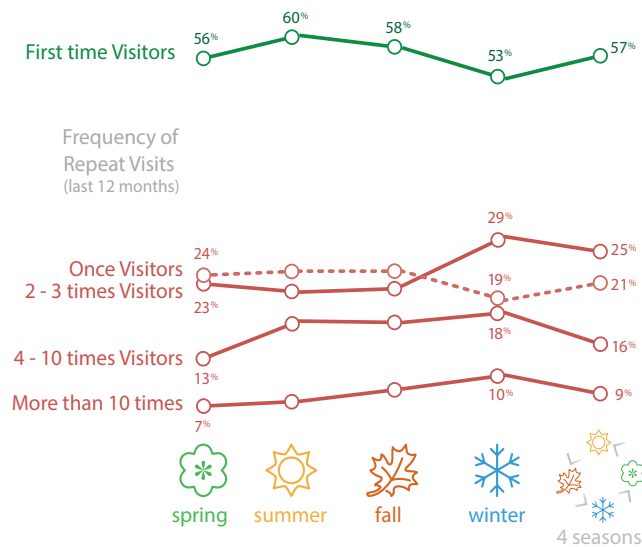


Figure 1. Frequencies along the horizontal axis illustrate seasonal highs and lows of frequency of visit category with annual averages along the far right side of the graph.

Museum	Proportion of repeat visitors
NZP	58%
DWRC	53%
NMNH	45%
NMAH	45%
FSG	44%
NASM	42%
HMSG	40%
NMAI-DC	39%
NASM-UHC	38%
ACM	33%
NMAfA	30%
NPM	27%
Renwick	24%
CHSDM	21%
NMAI-NY	13%

Figure 2. Proportion of museum visitors who have previously visited that museum

The Big Three also drive visitation to other Mall museums. For instance, 13% of HMSG's 2015 visitation came from NMNH, which is greater than the number driven by NASM, its nextdoor neighbor. This was at a time when the north/south pathway between the HMSG and NMNH was compromised by the National Park Service's Turf Restoration Project, which cordoned off pedestrian traffic along major portions of the National Mall with fencing.¹² This result illustrates the potential of cross-museum promotions to help facilitate shared visitation between Smithsonian museums and galleries.

Visitors arriving at an SI museum along the National Mall were asked their primary reason for visiting the Mall the day of their visit. Two-thirds (69%) of visitors who were asked reported that a museum visit was the reason for their trip to the Mall. NASM visitors were most likely to have visited the National Mall for the purpose of visiting that specific museum while NMAI-DC and HMSG visitors were least likely. Motives to visit the Mall varied by season. For example, winter visits to NMAI-DC are more likely (than spring or summer visits) to be opportunistic — i.e., the visits are more likely to occur after a visit to another museum. The same is true for spring visits to both NMAH and NMAfA, which is likely to have been influenced by the annual Washington DC Cherry Blossom festival, which occurred March 20 – April 12, 2015.

12 Accessed on June 30, 2016 at <http://nationalmall.org/turf-phase-ii>

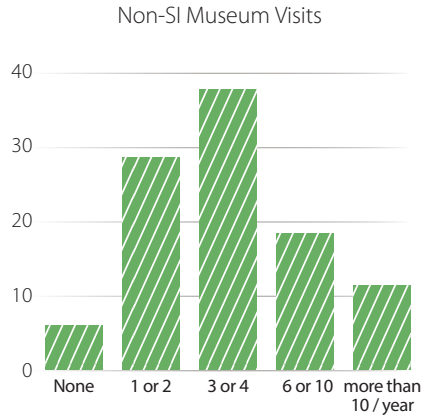


Figure 3. Proportion of visitors against frequency of museum visitation.

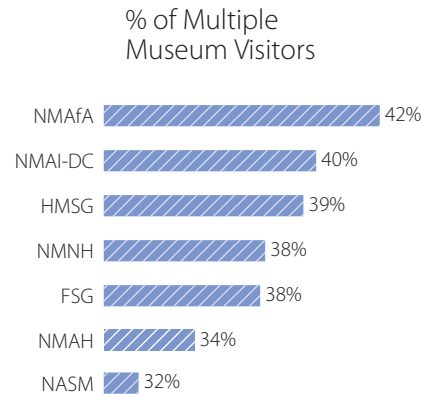


Figure 4 Percentage of museums visitors who, on arrival, are coming from another museum

Visitors traveling between SI museums

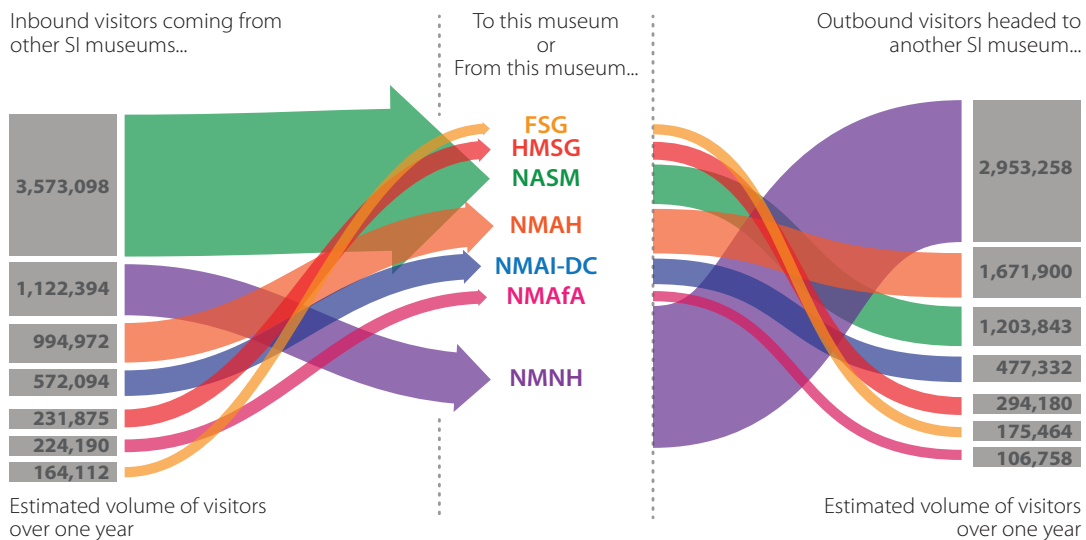


Figure 5. Calculations of shared annual visitation among SI museums along the National Mall

Familiarity with museum going

Understanding the frequency with which visitors attend museums where they live can help museum managers understand the level of experience and sophistication of their audiences; useful information in the development of programs and amenities. Of 3,286 non-local visitors asked in the winter of 2016¹³, 94% reported visiting a museum¹⁴ at least once in the past 12 months. Nearly one-third reported visiting up to two museums in a typical year, though the most reported frequency was three or more times a year.

Experienced visitors stay longer, tend to be older, and expect more from their visits. In fact, there is a strong linear relationship between the number of museums visited in a year and the expected quality of the impending visit.

CHSDM boasts the largest population of “museum sophisticates.”¹⁵ Seventy-eight percent of CHSDM visitors reported visiting an art museum in the past year; only 3% report not having visited a museum in the past year. Visitors to Smithsonian Art/Design¹⁶ museums tend to be more frequent users of museums than the Institution’s other museum categories. For example, one in five Art/Design museum visitors visit more than ten museums annually; this was true of only one in ten Science¹⁷ or American¹⁸ museum visitors. The lowest proportion of museum sophisticates at the Smithsonian were found at NMAH and NMNH with an average of only 2 annual museum visits, versus an average of 3.6 and 3.4 for FSG and HMSG respectively.

Arrival Expectations

All visitors arrive with some level of expectation as they enter a museum.¹⁹ Many factors influence these expectations. The data revealed that the frequency of museum visits significantly influences a visitor’s expectations. For those visiting the Smithsonian for the first time, prior non-SI museum visits may be a primary influence. Future studies should reveal other factors influencing expectations of a Smithsonian visit. On arrival visitors were asked, “How

do you think you will rate your overall experience in [museum name at which arriving visitor was intercepted] when you leave today?” One in five arriving visitors expect they will have a superior experience during their museum visit (19%). Of all museums, the UHC is the most highly anticipated among arriving visitors to provide a positive experience, with one-quarter (26%) expecting a superior visit, and more than half (58%) expecting an excellent one. Expectations are also relatively high for NMNH, with 21% of visitors anticipating a superior experience and 57% of visitors expecting an excellent one. Expectations are lowest for ACM, with most expecting a good experience (45%) and only 10% anticipating superior. Similarly, 46% of visitors to both NPM and NMAI-NY reported PFG expectations and no more than 10% anticipated a superior experience. However, given these lower expectations prior to visit, these latter museums yielded the greatest lift in visitor ratings of their experience post-visit.

One in five visitors to the Institution’s museums in the DC area expect a superior experience, while in contrast only one in ten visitors to the Institution’s New York museums anticipate a superior experience. Expectations for superior experiences appear to be related to the desire to ‘see/do something in particular’. For example, one-third of visitors to Mall Museums (30%) and Off-Mall Museums (36%) visit to see/do something in particular, compared to one-fifth of NY visitors. Similarly, visitors to DC area museums expect to spend more time at the museum than visitors to Smithsonian’s museums in New York. Visitors entering Off-Mall museums anticipate spending 2 hours inside, which is the highest of any geographic cohort. By contrast, visitors to NY museums anticipate spending 1 hour 20 minutes. Incidentally, permanent exhibitions — as identified by respondents — drive more visitation than temporary exhibitions at the Big Three and the Zoo, while temporary exhibitions are far more often cited by visitors to the Art/Design and American museums as what they’ve come specifically to see or do.

Mobile devices seem to lead engagement expectations. For visitors who brought their smartphone/tablet with them (86%), over half (51%) anticipated they would “photograph/film what I see/encounter.” One-fifth (21%) planned to use their device to “navigate/find my way around,” while just 7% planned to use a Smithsonian app. A third (33%) didn’t plan to use their device at all during their visit. When asked what other items/services they expected to use during their visit, nearly half (44%) expected to use a paper map, while 37% anticipated using courtesy Wi-Fi. With regards to museum staff and features, one-third (34%) thought they would encounter knowledgeable staff in the galleries/exhibitions, and 27% expected hands-on opportunities/activities. Finally, more visitors arrive expecting to use their mobile device than actually do during their visit.

13 Findings presented in this paragraph should only be extrapolated to winter visitation as this question only appeared in the final survey wave, i.e. winter.

14 For ease of use for survey respondents “museums” include zoos, aquariums, historic sites, botanic gardens and arboretums.

15 For the purposes of this study a “museum sophisticate” is a visitor who frequents museums three or more times in one 12-month period.

16 Smithsonian Art/Design museums include: HMSG, FSG, NMAfA, DWRC, Renwick, CHSDM

17 Smithsonian Science museums include: NASM, NMNH, NZP, UHC

18 Smithsonian American museums include: NMAH, NMAI-DC, NPM, ACM, NMAI-NY

19 Doering, and Pekarik. (1996), Tsybulskaya and Camhi (2009)

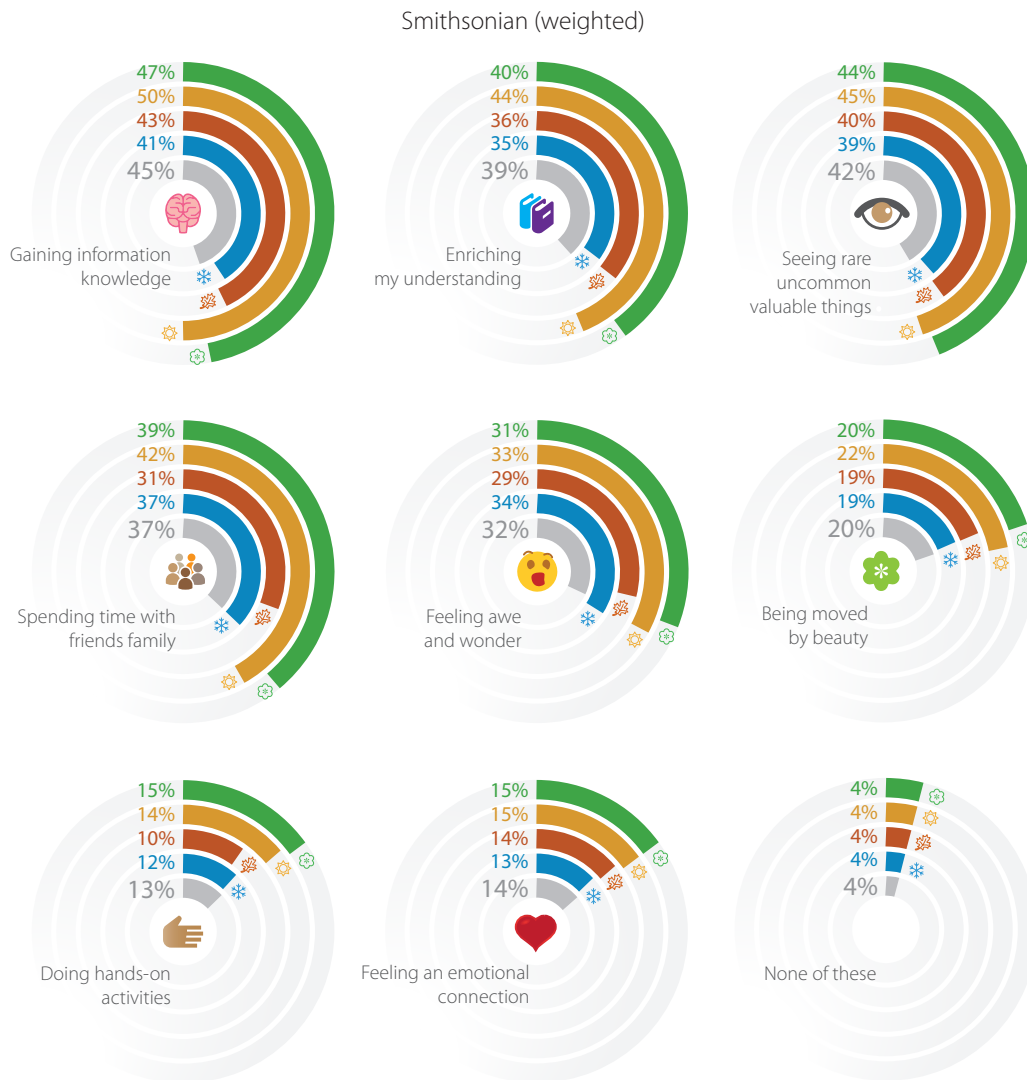


Figure 6.
Smithsonian seasonal variations of expected experiences.

Expected Experiences

Visitors entering the museums were presented a list of eight experiences on the entrance survey.²⁰ They were asked to mark any that they were particularly looking forward to. An exit version of the same set of options was presented to visitors leaving a museum.²¹ Responses to both versions of this question were significantly influenced by the museum at which they were intercepted. Notably, visitors to UHC seemed neither to expect to be “moved by beauty” nor to feel an “emotional connection” during their visit.

²⁰ “Which of the following experiences are you especially looking forward to during your visit to...”: Being moved by beauty; Seeing rare/uncommon/valuable things; Gaining information/knowledge; Enriching my understanding; Feeling an emotional connection; Feeling awe and wonder; Doing hands-on activities; Spending time with friends/family

²¹ “Which of the following experiences were especially satisfying for you during your visit to...”

Across the museum categories visitors, on average, selected 2.5 experiences that they were looking forward to. There are significant differences in visitors’ experiences between the museum categories:

The most frequently cited among Science museums were:

- “seeing rare/uncommon/valuable things” (44%)
- “gaining information/knowledge” (40%)
- “spending time with friends/family” (40%)

For the American museums:

- “gaining information/knowledge” (51%)
- “enriching my understanding” (44%)
- “seeing rare/uncommon/valuable things” (38%)

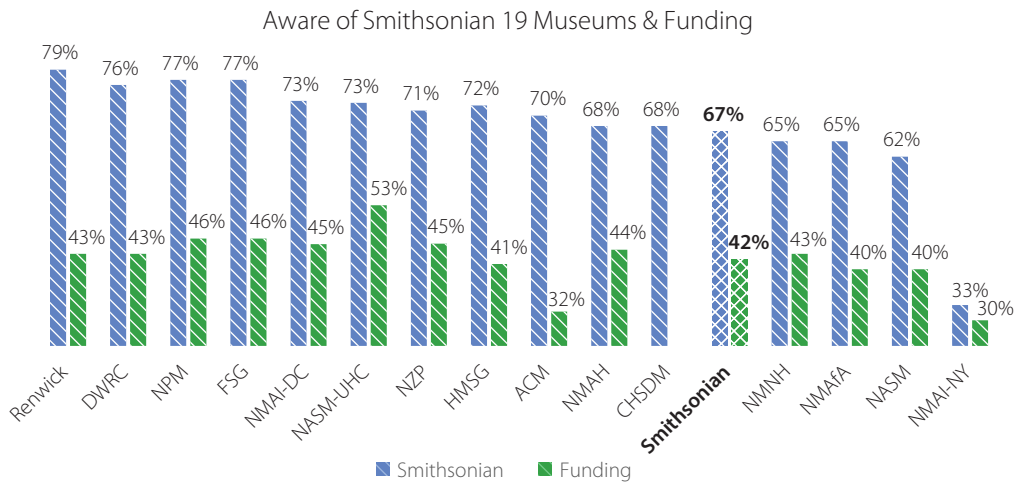


Figure 7. Visitors aware that the Smithsonian comprises 19 museums and the Zoo, and those who are aware of the source(s) of its funding.

Q3 Do you know that the Smithsonian is a complex that includes 19 museums and the National Zoo?/Q7 Are you aware that federal funding provides approximately half of the operating budget for the [museum] and the rest comes from private support?

For Art/Design museums:

- “gaining information/knowledge” (41%)
- “enriching my understanding” (40%)
- “seeing rare/uncommon/valuable things” and “being moved by beauty” (39%).

Of note, Art/Design museum visitors were at least twice as likely to list “being moved by beauty” as an experience they were looking forward to than visitors to the other museum categories.

Visitors who know more expect more

Roughly seven million of the annual visitors to the Smithsonian (33%) were unaware that the Smithsonian is a research complex that includes 19 museums and the National Zoo. These unaware visitors are significantly younger, with a median age of 28, versus a median age of 36 for those who are aware. Unsurprisingly, DC area residents have the highest level of awareness of the Smithsonian Institution (83%), while half of non-US residents are aware. For the New York-based museums, awareness about the Smithsonian Institution is uneven. While CHSDM visitors reporting awareness levels similar to other museums while only a third of NMAI-visitors report being aware of the Institution. As highlighted in Figure 7 (with the exception of NMAI-NYC), while the majority of visitors know that the Smithsonian Institution is a research complex that includes 19 museums and the National Zoo, far fewer understand that the Institution is funded by a mix of federal and private dollars.

For those museums that measured their membership program in this study (NASM, NMAI, and CHSDM), no more than 3% of total visitation on average is composed of members. The museum with the highest membership visitation is NASM-UHC with 3%. NASM's membership visitation is significantly lower. Less than 2% of visitors to NMAI-DC and NMAI-NY (1.6% and 1.1%, respectively) are members.

Nearly half (49%) of visitors are aware that the Visitor Center is in the Smithsonian Castle.²² Yet, out of over 10,000 surveyed Mall-museum visitors, only 4% report coming from the Castle prior to their visit. Generally, awareness of the Visitor Center mirrors the demographics of the general visitation with two significant differences: Millennials (age 18-34 in 2015) tend to be least aware of the Center and Boomers (age 51-69 in 2015) more aware.²³ A campaign to promote awareness of the Center was launched in the spring of 2016. Anecdotal evidence from a review of one year's worth of TripAdvisor reviews of the Smithsonian Institution Building (aka the Castle) suggests this campaign was successful at increasing awareness of the Smithsonian Visitor Center as the place to plan a visit to the Smithsonian.

22 N= 7,587; spring and summer visitors only. Because there were no significant shifts in incidents between the first two seasons this question was removed from fall and winter seasons in order to make room for other questions, which had to be cut from the first two seasons for survey brevity.

23 For this report we have used the Pew Research Center's widely cited definition of age cohorts found at http://www.pewresearch.org/files/2015/01/FT_generations-defined.png

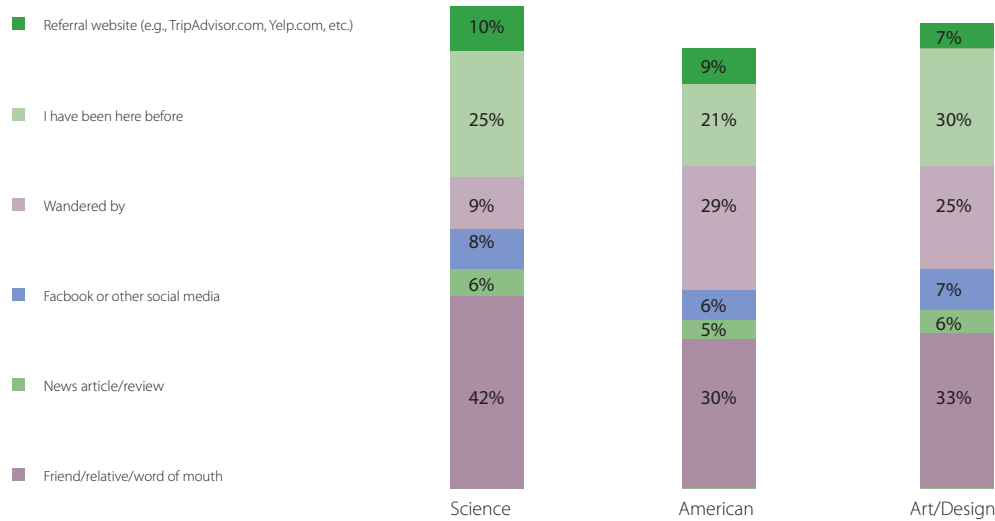
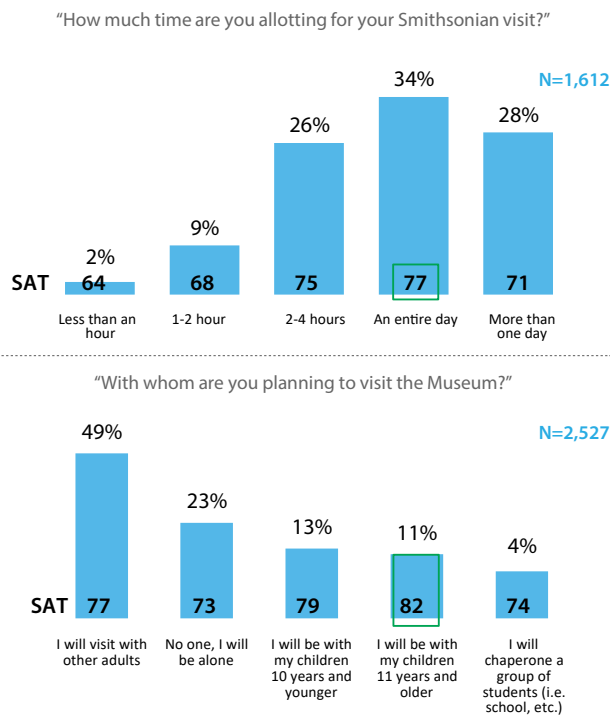


Figure 8.
The data represented in this graph is not cumulative. It illustrates the top six drivers of Smithsonian museum visitation by museum category. Tallies exceed 100 because visitors could select more than one driver.



*Satisfaction (Sat) not shown for groups of N<30.

Figure 10.
Key findings from the Foresee survey of SI website use.

More than half of arriving visitors (55%) to the DWRC report knowing that there are two museums housed within the building (SAAM and NPG); awareness of both museums was highest in the summer (59%) and was at its lowest during the winter (46%). These visitors were asked if they had come for a specific museum. Overall, one-third (35%) report coming specifically for NPG, and one-fifth for SAAM (19%), and nearly a third for both (29%). Finally, one in ten reported coming to see the celebrated Kogod Courtyard.

When visitors across the Smithsonian were asked how they found out about the specific museum they were visiting that day, the highest proportion of visitors stated they found out via a friend/relative/word-of-mouth (37%). This was followed by another third (34%) who had been to that museum before. Sixteen percent found out because they “wandered by.” These numbers vary greatly by museum. For instance, over a third of visitors to the NMAfA (37%) report visiting because they wandered by, the highest proportion among SI’s DC-based museums. This rate of impulse visitation is only surpassed by NMAI-NY, where 42% of visitation is motivated by “wandering by” and the likely results of impulse decisions of tourists in and around lower Manhattan (Wall Street, Battery Park, the Statue of Liberty and Ellis Island).

Impulse visitation behavior is important to note as the Smithsonian considers redesigning its south mall campus and relocating the entrances to the NMAfA and the Sackler Gallery closer to the National Mall.²⁴ As evidenced in these findings, doing so may significantly increase visitation.

24 Smithsonian Institution, “South Mall Campus Master Plan,” Accessed on 6/24/2016, <http://www.southmallcampus.si.edu/project-overview.html>.

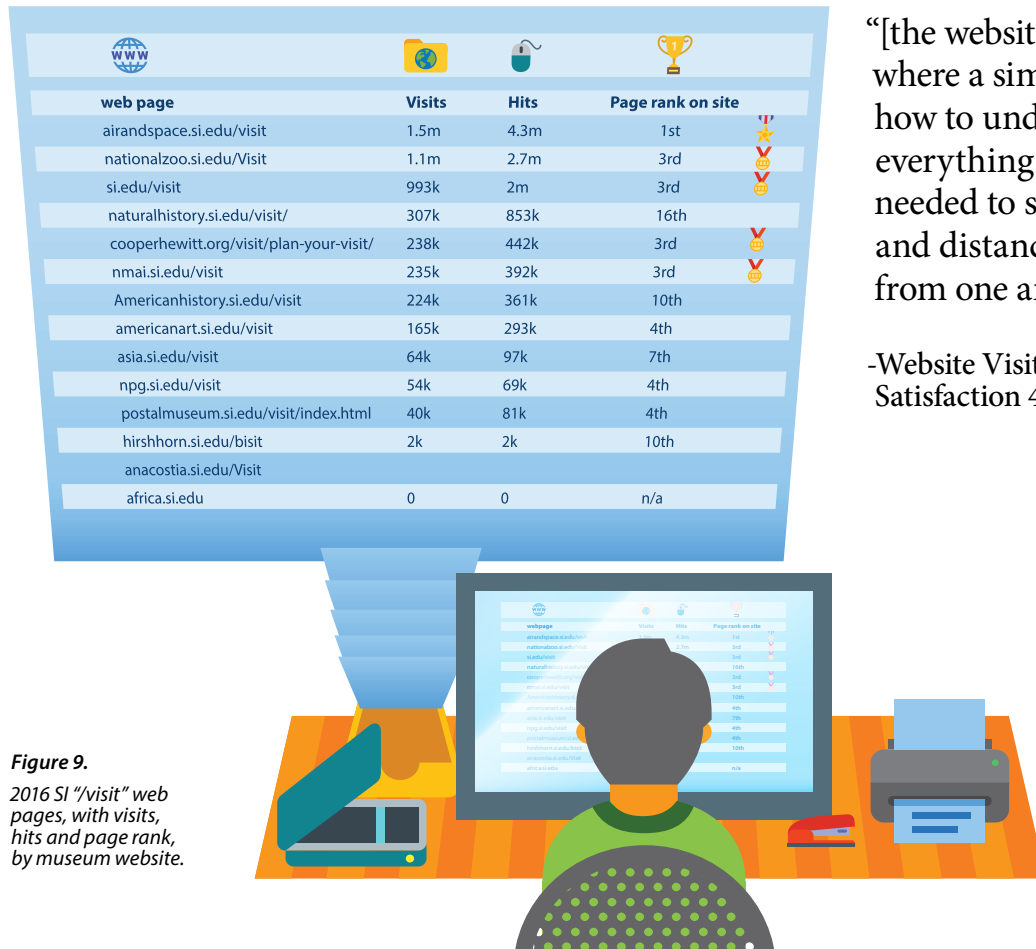


Figure 9. 2016 SI “/visit” web pages, with visits, hits and page rank, by museum website.

“[the website needs] a place where a simple overview of how to understand where everything is located and time needed to see each museum and distance each museum is from one another.”

-Website Visitor (03/18/2015, Satisfaction 48 out of 100)

Visitors who were aware of advertising in newspapers/ magazines prior to their visit have higher expectations for their museum visit (superior rating of 23% versus 18%) and expect to spend more time in the museum, (2 hours versus 1 hour 45 minutes). These visitors are also younger, with a median age of 27 compared to 33 for those who were unaware of SI advertising.

Planning the museum visit

Overall about two-thirds (69%) of Smithsonian visitors planned their visit to the museum they were visiting. Visitors of one season are no more likely to plan than visitors of another season. However, there was significant variability in planning behavior across the museums. ACM had the highest level (85%) of planned visits, which is to be expected given the museum’s location within the Anacostia neighborhood, and NMAI-NY the lowest (48%). About one-quarter of those who planned their visit did so on the day of their visit. At 42%, DWRC had the largest share of “day of visit” planners, which correlates to DWRC’s higher than average local visitorship. More than half of NASM’s visit planners do

so at least two weeks from their visit. Primary sources of planning include talking with friends (47%) and accessing a Smithsonian website (31%). Two out of three who used an SI website to plan their visit (62%) reported that they were allotting an entire day or more for their Smithsonian visit. Fifteen percent of visitors reported using a ‘travel or review website’ (e.g., TripAdvisor, Yelp) to plan their visit. Promoting individual museums through these channels could be a cost-effective way to both increase visitation and orient visitors to museums.

In summer and fall, arriving visitors were asked if they would use Smithsonian webchat services if offered. One quarter of visitors said they would use a ‘webchat service’, which translates to approximately 6 million potential users of such a service. These findings are in line with those of a 2013 study, which found that among online shoppers within the United States seeking customer service support, 21% prefer live chat.²⁵ Visitors to Science museums are six times more

25 Bold Chat, Inc., “Live Chat Effectiveness” 2013, p. 21, accessed July 4 at <https://www.boldchat.com/~~/media/fdeced91a363462b98f081f80d9a2615.pdf>

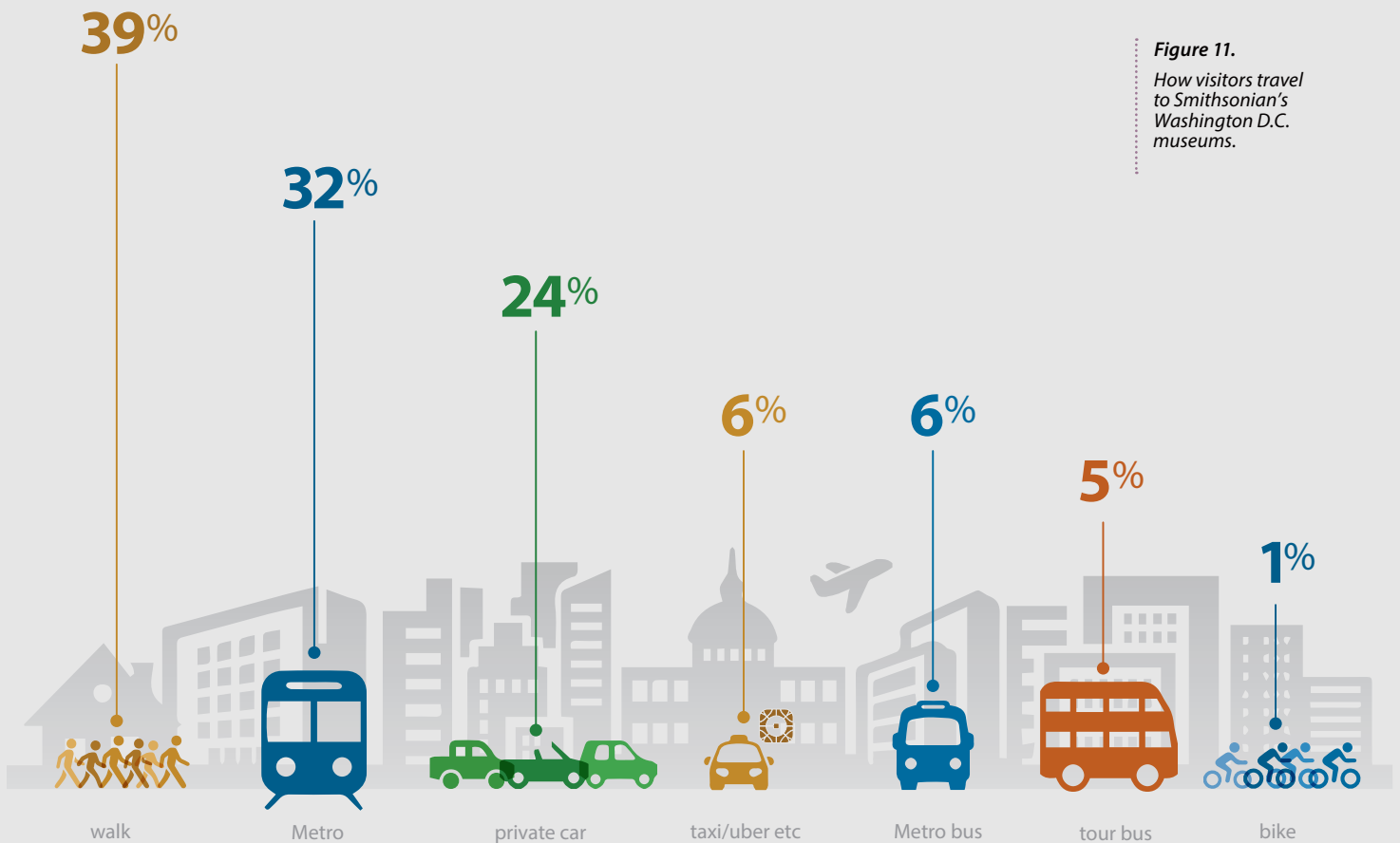


Figure 11.
How visitors travel to Smithsonian's Washington D.C. museums.

likely to use webchat than Art/Design museum audiences, and three times more likely than American museum audiences. Older visitors are more inclined to use webchat than younger visitors. In fact, 35 percent of Generation Z reported not knowing what webchat service is.

“Visit” pages on Smithsonian websites

As mentioned earlier, one in three visitors who plan their visit use a Smithsonian website to do so (~4.6M). In 2015, the “/visit”²⁶ pages across Smithsonian museums’ websites hosted five million unique visitors, who collectively made twelve million hits to these pages to plan a visit. The most visited of Smithsonian’s online visit-planning resources is www.airandspace.si.edu/visit, which hosted 1,457,847 unique visitors in 2015.

For 25% of MMRZ visitors, the primary purpose of their visit to the SI website was to plan an upcoming visit. Only 2% come as a follow-up after a visit.

²⁶ The “/visit” pages of the Smithsonian’s websites (i.e. si.edu/visit, mnh.si.edu/visit, etc.) contain information to assist visitors in planning their museum visit, including hours, maps & location, calendars of events, floorplans, Trip Planner etc.

A little over half of visitors who use our web pages as a planning resource for an upcoming visit do so within a month of their visit; 23% of visitors use our web pages on the week of their visit.

More first-time visitors use a Smithsonian web page to plan (71%) than repeat visitors (45%).

“[the website needs] a page with highlights of all museums combined, to help me choose between them. No such luck—I will have to check highlights for all 19 museums individually”

-Website Visitor (02/18/2015, Satisfaction 45 out of 100)

Satisfaction Levels with Smithsonian Websites²⁷

Visit planners tend to be less satisfied with Smithsonian websites than follow-up visitors. Below are the three lowest scoring features of the Institution’s planning web pages:

Navigability	74 (out of 100) ²⁸
Search features	74
Look & feel	78

Difficulty choosing a museum is the most-cited frustration for visitors who report being unable to find what they are looking for.

Finding special hours (holiday or summer) on a Smithsonian website was the most frequently cited frustration among those planning a visit.

By simplifying navigability and improving sites’ search feature it seems visitors would have an easier time planning a Smithsonian visit; and in so doing, improve SI’s overall web score.

Getting to the Museum

Most visitors to all Smithsonian museums report arriving via walking (39% (see illustration on page 8). It’s important to note that the survey question did not specify from where the visitor walked, (i.e., a hotel, mass transit, another museum, etc.). On-Mall and New York museums had the highest percentage of walking visitors, both at 41%, compared to off-Mall museums with 28%. Nearly a third (32%) of DC visitors used the Metro to travel to the SI, and similarly, in New York, nearly half (46%) of visitors arrive by subway. Only 3% arrived at one of the New York museums via private car, compared to 20% for Mall and 41% for off-Mall museums. The notable exceptions are NASM-UHC and ACM, where the majority of visitors arrive by private car (91% and 86%, respectively). There is little variation in mode of travel across seasons. Those who arrive by car tend to be older, with a median age of 35, compared to walkers who have a median age of 30.

27 These satisfaction scores were retrieved in 2016 before the Smithsonian’s central website si.edu was redesigned in March 2017

28 Smithsonian’s cumulative ‘web satisfaction score’ is 78.3 out of 100. Margin of error - +/- 0.6 at 90% confidence interval

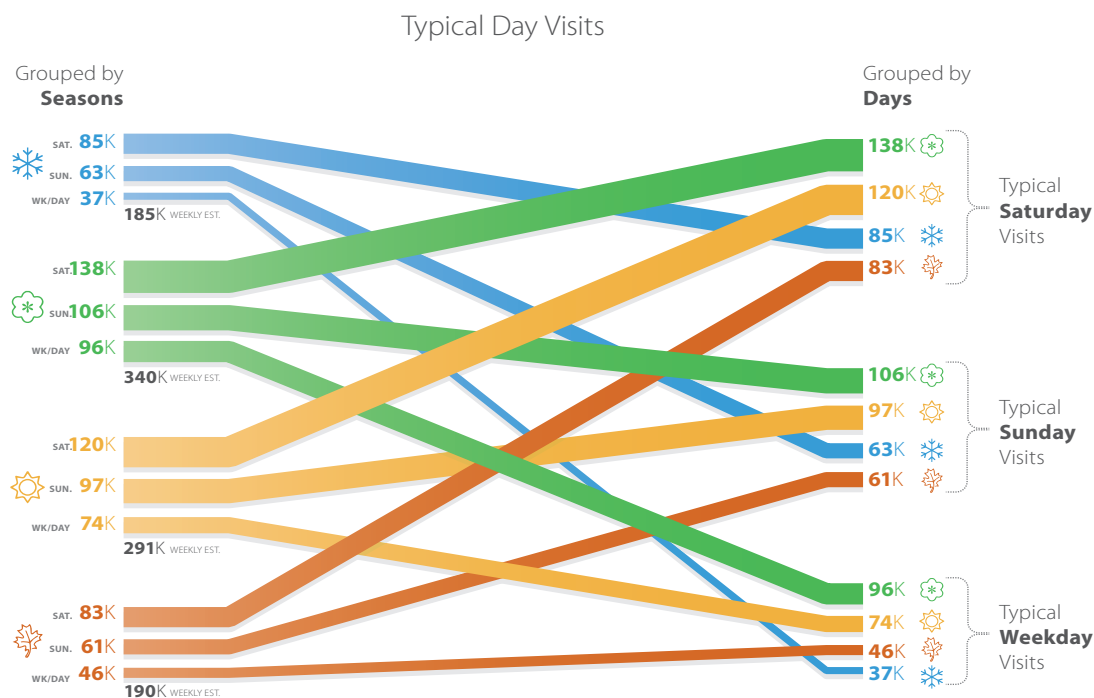


Figure 12.
In-person on-site visits, by season and day of week (entire Smithsonian)

The Visit

Seasonal Patterns of In-person Visits

Visitation to the Smithsonian varies significantly by season (Figures 12 & 13). For example, more than one-third of annual Smithsonian visits (10M) take place during the spring before gradually declining through the summer (8.2M), fall (5.4M) and winter (4.7M).

Spring is the most popular season for visiting Smithsonian museums, both in New York and DC. This springtime bump in DC is driven by an annual tourism triad of the Cherry Blossom Festival, Easter, and spring break for middle and high schools. Figure 14 on the following page illustrates a typical year of visitation across the Smithsonian, with two spikes in attendance. The first is in the spring and the second—and largest—is in the summer around the annual Folklife Festival and July 4th celebration, both centered along the National Mall.

Daily patterns

On a typical day in Washington, the number of people entering Smithsonian museums increases throughout the morning until mid-afternoon, when the pattern reverses and the inflow of visitors decreases. For museums in DC, this is the case in every season, on weekdays and weekends alike, with peak arrivals consistently occurring between 2:00pm and 4:00pm. For both of the museums in New York, there seems to be two daily peaks: one at opening, and another between 1:00pm and 3:00 pm. (For the purpose of these estimates, a “typical” day is defined as one with no holidays or major weather events.)

For the purpose of identifying differences in demographics or behavior between different times of day, visitor intercepts were segmented into three periods: early day (10am-1pm), midday (1pm-5pm), and late-day (5:30pm-7:30pm). In the early part of the day, visitors tend to be older. Younger visitors peak in the mid- or late-hour periods. In the early part of the day, the median visitor age is 36, but falls to 32 at mid-day and 30 by late-day. In terms of museum category, median age declines most significantly across the parts of the day for Art/Design museums and least for Science museums. This trend supports recent efforts by museums to program later hours for younger audiences.

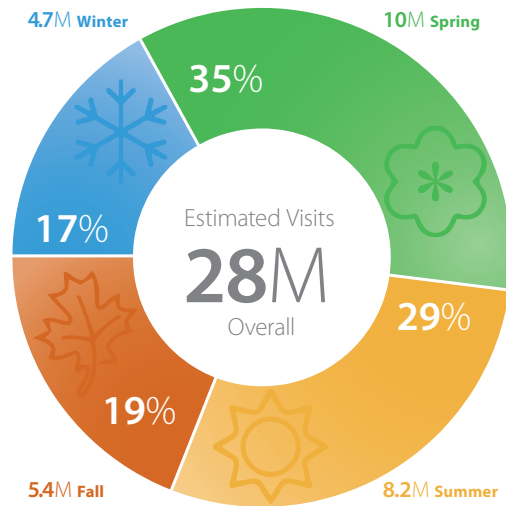
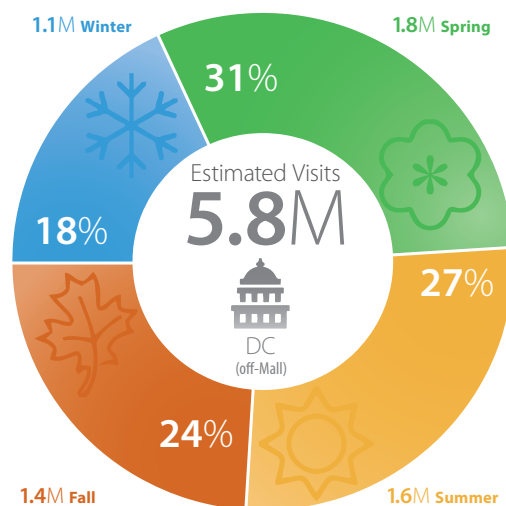
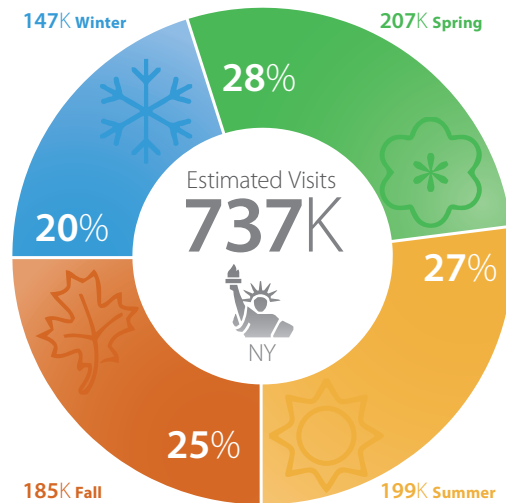


Figure 13.
Seasonal in-person, off-Mall visits, by city



Demographic Characteristics of Museum Visitors

Residence of visitors

Local area visitors are an important source of visitation to the Smithsonian. On an annual basis among DC-based venues, local²⁹ area residents represent 15% of visits and as many as one in five visits during the winter. This relationship between local visitors is even stronger at New York venues, with nearly one-quarter (23%) of annual visits driven by residents of the five New York City boroughs. Similar to DC-based museums, the proportion of local New York visitors peaks in the winter, though at a higher incidence (29% vs. 21% in DC).

29 Washington DC, Maryland, and Virginia

The majority of Smithsonian visitors³⁰ live in the United States (81%).³¹ However, there is an increasing number of visitors (19%) living outside the US, compared to a pan-Smithsonian study conducted in summer 2004, when only 10% of visitors lived outside the US. Non-US resident visitation is at its lowest during the spring (14%) but consistently represents

30 It is important to note that the entrance and exit in-person intercept (i.e., invitation to participate in the survey) and survey itself were conducted in English only. Therefore, it is likely that non-English speakers are not fairly represented in the survey sample nor in estimates of visitor residence, as 13% of those intercepted cited a language barrier that prevented them from completing a survey.

31 Annualized. For breakdown of visitation by state see Appendix A

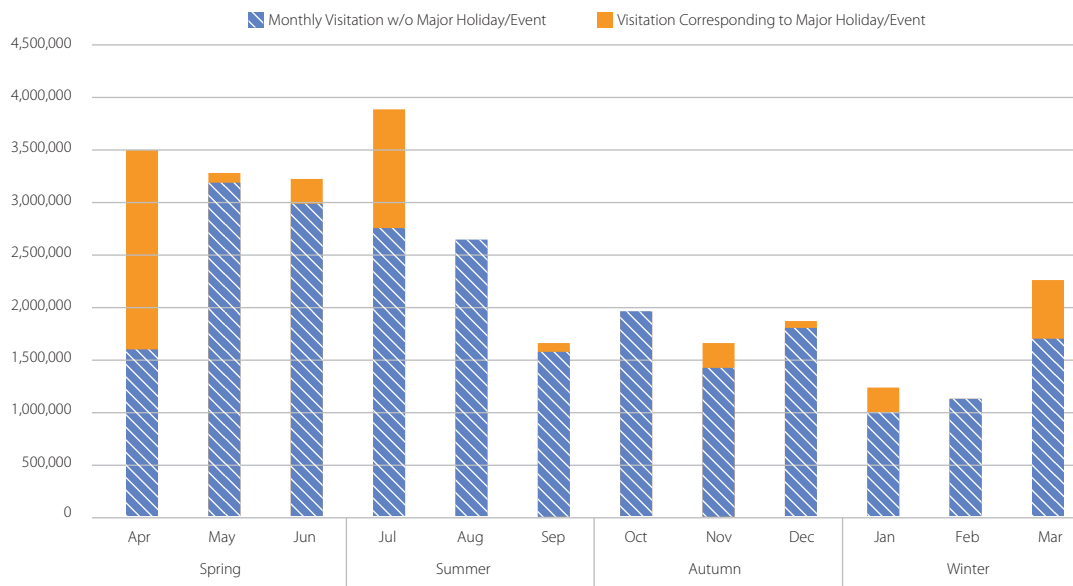


Figure 14.
Visitation by month of year with major holidays or events highlighted

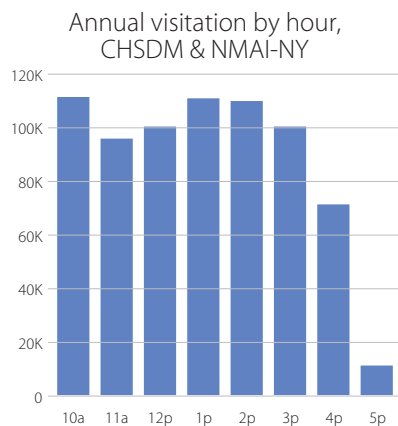


Figure 15.
Visitation by time of day, New York.

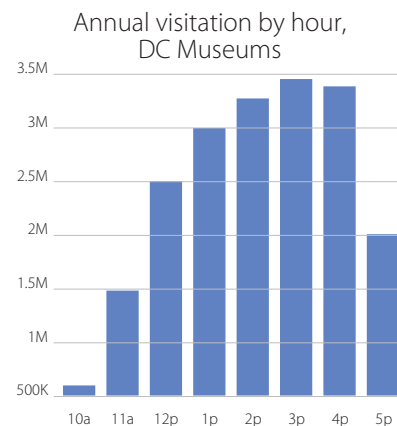


Figure 16.
Visitation by time of day, DC museums.

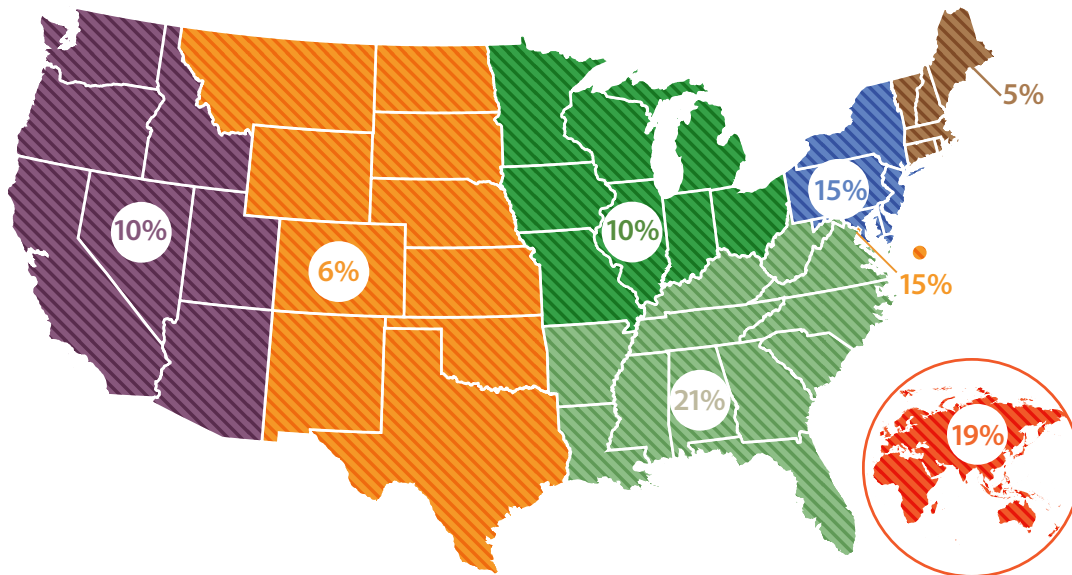


Figure 17.
Distribution of visits to museums in Washington DC by residence of the visitor, annualized.

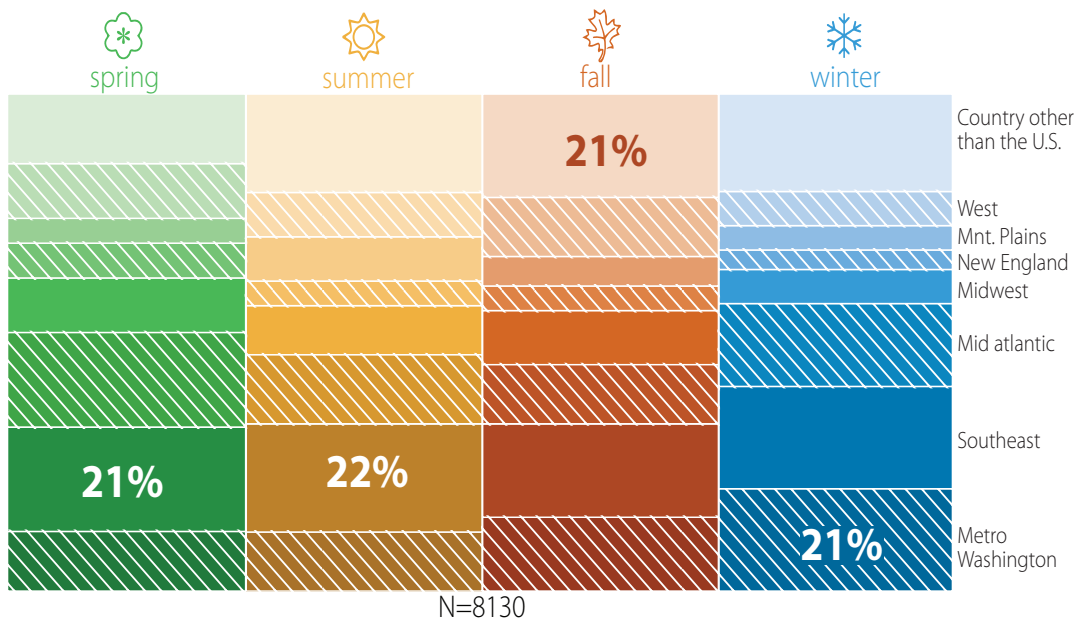


Figure 18.
Seasonal distribution of Smithsonian visitors by their geographic residency; largest geographic cohort indicated in each season.

one in five visitors for the balance of the year (Figure 18). The proportion of non-US resident visitors varies significantly between the Washington area and NYC. On an annual basis, at 47%, the proportion of non-US resident visitors to NYC museums is more than twice that of the Washington area.

Among foreign residents to DC-area museums, the top five countries represented are: Canada (12%), Australia (12%), the United Kingdom (12%), Germany (6%), and China (5%). (Of particular note is the more than doubling of Chinese tourism

to the Smithsonian since this figure was last measured in the summer of 2004, from 2% to 5%³²)

Among foreign residents visiting the Smithsonian's NYC museums, the top five countries represented are: the United Kingdom (15%), France (10%), Australia (8%), Germany (7%), and Italy (5%).

³² This 5% incidence value is a combined 4% of entrance and 6% of exit survey responses who marked China as the country in which they live.



Figure 19.
Geographic distribution of international visitors to museums in Washington DC, annualized.

Age

Smithsonian visitation is trending younger. The median age of Smithsonian’s visitation is 33 years old, down significantly from the 2004 median age of 36 and the 1997 figure of 38.³³ However, there is significant variation among visitor age across seasons and between museums. For example, during the fall the median age increases from 33 to 36 years old. This shift may be brought on by an observed increase in the so-called “empty nesters” who tend to take vacations in the fall after the crowds have diminished. The median age in the summer of 2015 (33)³⁴ is three years younger than it was in the summer of 2004³⁵ when the Institution last ran an Institution-wide survey of visitor satisfaction and experiences. Among Smithsonian units, ACM attracts the oldest audience, with a median age of 43, and NMNH attracts the youngest audience, with a median age of 31.

Visitors under 18 and those 70 and older reported the highest OER superior ratings (25% and 24%, respectively). Millennials (aged 18-34 in 2015) have the lowest superior rating at 20%, followed by GenXers (aged 35-50 in 2015) at 21%. For some museums there was a correlation between age and OER. For example, OER for DWRC, FSG, NASM-UHC and CHSDM were all positively related to age (i.e., OER increased with age). The opposite was true (i.e., OER decreased with age) for HMSG and NMNH.

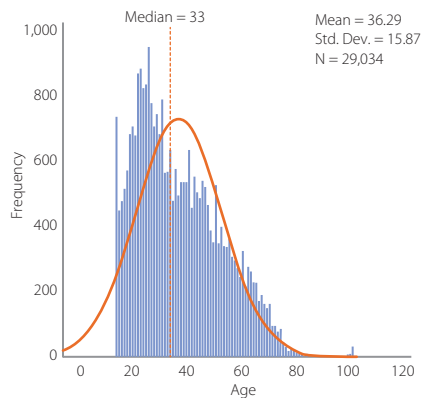


Figure 20.
Age distribution of visitors to Smithsonian museums.

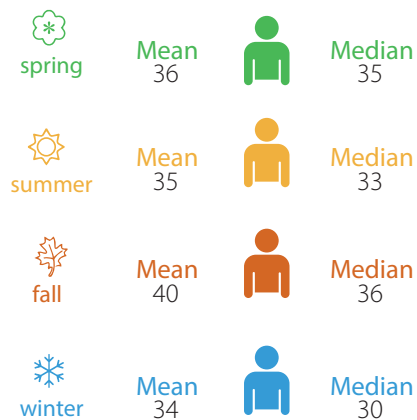


Figure 21.
Total Smithsonian mean and median ages by season.

33 Zahava D. Doering and Adam Bickford, 1997, “Visitors to the Smithsonian Institution,” Washington DC: Smithsonian Institutional Studies Office, accessed July 1, 2016, <https://www.si.edu/content/opanda/docs/Rpts1997/97.04.VisitorsSummary.Final.pdf>.

34 N=8,008

35 N= 6,082

Minority racial makeup of Smithsonian museums by geographic location

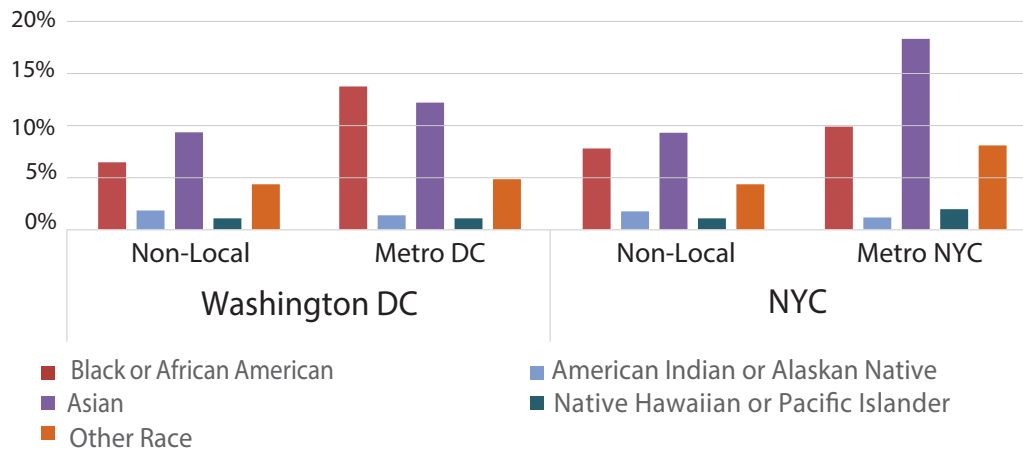


Figure 23. Non-Caucasian race distribution across two of the Smithsonian's geographic regions

All exiting visitors were asked to rate the 'activities and things for teens to do' along the OER scale; respondents were also given a 'no opinion' option. Unfortunately, over half of respondents rated activities for teens PFG (57%). Only 16% found activities to be superior. With associated PFG rating scores of 75% and 71% respectively, it seems the HMSG and NMAI-NY contain little to engage visiting teens. With the highest rating, the Cooper Hewitt seems to have the strongest offering of activities for teens. And perhaps unsurprisingly, when activities for teens cannot be found, both the museum's overall rating and its associated ratings plummet by nearly half for those visiting museums with teenagers.

To more fully engage teenagers, the American Association of Museums proposes museum environments that are "less like school and more connected to real life," taking a genuine interest in the suggestions and proclivities of teen visitors, and treating them with respect. It turns out that teens are as interested in the inner workings of producing exhibitions and operating a museum and its designed environments as they are with the content within.⁴⁴ Including the voice of teenagers may be one of the key means through which relevant and effective improvements to the Smithsonian visitors' experience are discovered.

Gender

Gender distribution across the Institution's visitation matches that of the wider US population (52% female, 48% male).⁴⁵ However, visitation to Smithsonian art museums

is more female (57%). This mirrors the gender distribution reported by the National Endowments for the Arts in its most recent national decennial arts participation survey.⁴⁶ The greatest asymmetry of gender distribution among adults was found in the winter season at the Renwick where 67% of visitors were female.

Race and Ethnic Heritage

The racial makeup of the Smithsonian's adult audiences⁴⁷ generally mirrors the broader US population. However, two museums have significantly larger black/African American audiences: ACM (51%) and NMAfA (46%). Comparing this study's summer results to data collected in the summer of 2004, revealed a significant decrease of over 10% in the proportion of White, non-Hispanic visitors. Although still a small segment of visitors (6%), the proportion of American Indian or Alaskan Native visitors to NMAI-DC and NMAI-NY is twice that of other SI museums, and 6 times that of 2016 US Census data.

	SI 2004 Summer	SI 2015/16 Survey—Summer	US Census (2014)
White, non Hispanic (NH)	74%	77%	80%
Asian, NH	7	11	0.5
Black or African American, NH	7	9	12.3
American Indian, NH	-	2	1
Native Hawaiian or other Pacific Islander, NH	-	1	.002

Figure 24. Distribution of self-reported race of Smithsonian visitors (summer), annualized.

44 Deborah F. Schwartz. "Dude, Where's My Museum? Inviting Teens to Transform Museums." October 2005. American Association of Museums. Accessed on 29 May 2016 <https://www.mercermuseum.org/wp-content/uploads/2014/10/Dude-Wheres-My-Museum.pdf>

45 US Census Bureau. (2014). Retrieved from <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkml>

46 NEA. 2013. How a Nation Engages with Art, Highlights from the 2012 survey of public participation in the arts. p. 20.

47 N=14,425

Latino/Hispanic vs. Non-Latino/Hispanic⁴⁸

Overall, 13% of Smithsonian visitors report being of Latino/Hispanic origin, compared to the national average of 17%. The percentage of Latino/Hispanic visitors varied among museums. For example, one in four (23%) at the NMAI-NY, and one in six (16%) at the NASM-Mall were of Latino/Hispanic origin. This is compared with only seven percent at the ACM. At a median age of 31 years old, visitors who identify as Latino/Hispanic are younger than the SI median of 33 years old.

Social composition of visit

Visiting a museum is, by and large, a leisure-time activity (OP&A, 2007).⁴⁹ As such, visitation patterns mirror those times and events when people have (or make) the time to take a break. There are significant differences in many attributes of visitation between seasons, including the size and social composition of museum visitor-groups.

OVS estimates that roughly 750,000 middle- and high-school students⁵⁰ visit the Smithsonian each year on organized trips with their school or through other types of organizations. The majority of these students visit during the spring season and during spring break. However, because this study did not intercept organized groups of students, the data cannot estimate the size or detail the characteristics of these organized group visitors.

Approximately 14.5M of the Smithsonian's voluntary visitors (meaning those who elected to visit of their own free will versus those required to come, as on a class trip) are adults visiting alone or with at least one other adult (68%). Roughly 6.8M visitors (one in three) come in a group that includes both adult(s) and youth, and roughly 4.2M of this total are youth under 18 years old, or 20% of annual visitation. Approximately 2.1M visitors during the study year are youth between 13 and 17 visiting without an adult (10%).

The average size of a group visiting the Smithsonian is 2.6. The largest average group sizes are seen at both of NASM's locations (Mall=2.7 and UHC=3.1). The adult and child composition of these groups varies by season. For example, the proportion of adults visiting with children is highest in the spring (38%) and summer (39%) before dropping by nearly half in the fall (22%) and winter (23%) seasons. Across seasons, adults visiting with other adults consistently comprise the largest proportion of visitor groups, ranging from a low of 46% in the spring to a high of 60% in the winter. The proportion of adults visiting alone is at its highest during the fall with almost one in five visitors (19%). As noted in Figure 26, these trends vary in degree by type of museum (e.g., Science vs Art/Design). It is worth noting that visitors to NZP come in larger groups, with an average of 2.7 people. They are more likely to live locally in the DC area (29%) than visitors to other Smithsonian venues.

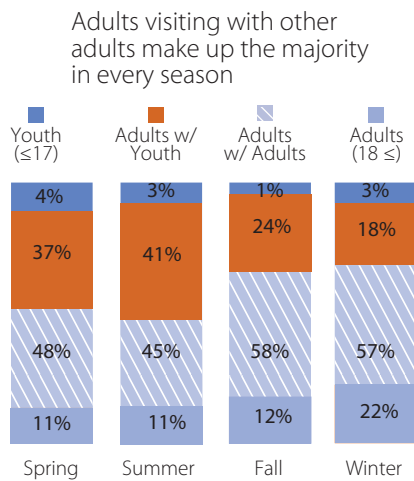


Figure 25. Responses to "With whom are you visiting?" broken down by season.

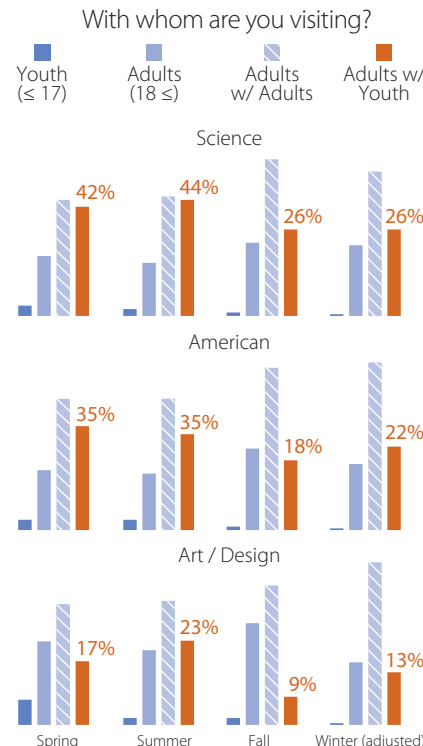
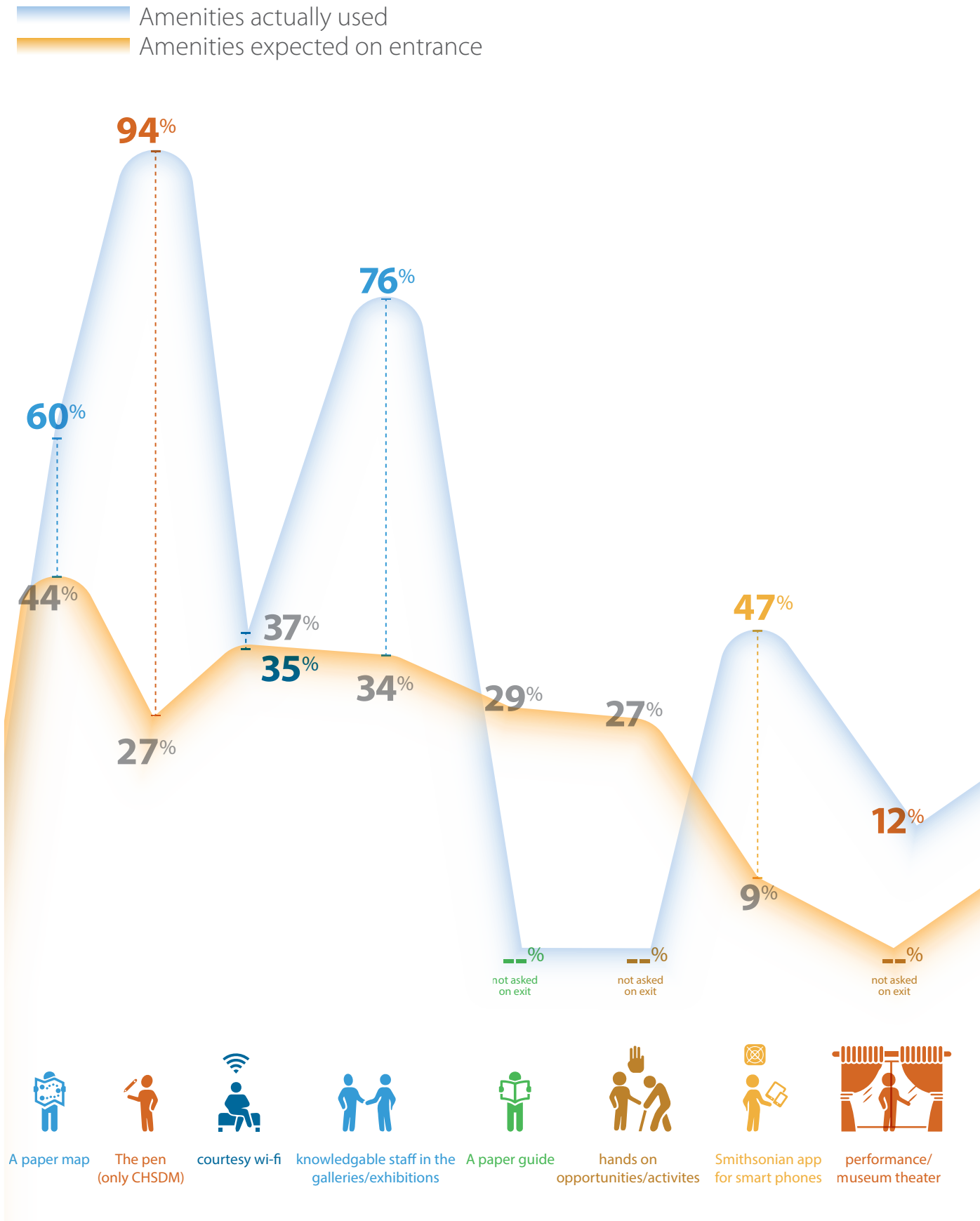


Figure 26. Social composition of visitation across all seasons by museum category.

48 In a Federal Register Notice issued October 30, 1997, OMB directed that federal programs should ask two separate questions. One asks the respondent their race. The other asks whether they identify as Hispanic/Latino or not.

49 Smithsonian Institution. 2007. "Museum Visitation as a Leisure-Time Choice, A Background Report to the Smithsonian Board of Regents." Accessed 22 June 2016 at <https://www.si.edu/Content/opanda/docs/Rpts2007/07.10.LeisureVisitation.Final.pdf>

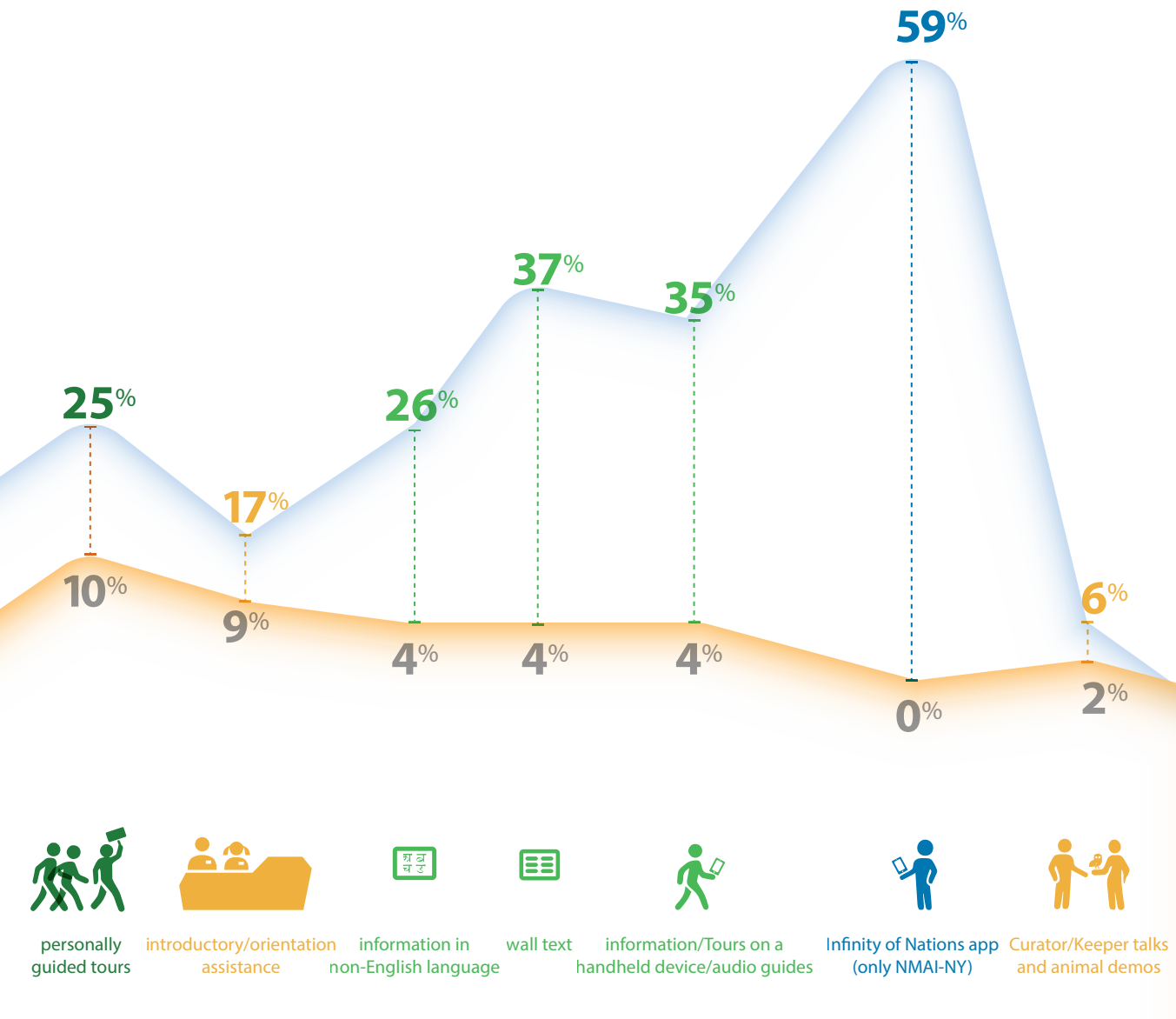
50 Smithsonian Institution. Bitar, Costello, Sturtevant. "Teen Group Visits," 2016. Manuscript in preparation.



The Visit

Figure 27.

Visitor responses to: "Do you expect to use any of the following during your visit today? (mark all that apply)" and on exit which did you use?



First Impressions and Getting Around Entering the museum

This study year ran in the middle of the National Parks Service Turf Restoration Project. This impacted visitors (and would-be visitors) to the Smithsonian by creating a more circuitous route to and from museums along the north-south axis of the Mall. A normal transit time of 2–7 minutes between museums grew to 7–15 minutes because of the fencing.

Overall, one in five entering visitors expected to have a superior museum experience. The museums most expected to produce a superior experience were UHC (31% superior) and the newly reopened Renwick Museum (27% superior). Entrance ratings were lowest at the HMSG (11% superior) and NMAI-NY (16% superior). It should be noted, however, that the administration of these intercept surveys concluded before enhanced security protocols were implemented at museums along the National Mall in the spring of 2016. Thus, ratings and associated critiques are less likely to have been influenced by perceived or actual wait times to enter the museum.

Arriving visitors were asked what amenities and experiences they expected to use during their visit. Exiting visitors were asked to rate which they had used. On exit, visitors report using more museum services than were expected on entrance. For example, while 27% of inbound CHSDM visitors anticipated using the Pen⁵¹ during their visit 94% reported using one on exit. Similarly at NMAI-NY, five people (0.01%) expected to use the *Infinity of Nations* app on entrance, 498 people used it on exit (59%). A couple of amenities weren't used as frequently as expected, namely the Smithsonian app and courtesy Wi-Fi (Figure 27).

Navigating the museum spaces

One measure of engagement is how much of a museum visitors will explore (i.e., penetrate rate). For museums with multiple floors, not all visitors visit every floor. On average across all locations with multiple floors, two in five visitors (42%) report not visiting all the floors of a given museum, though there is significant variation.

SI avg.	Floor penetration per Museum
88%	Visited both floors (NASM 90%; NPM 88%; NMAI-NY 43%; Renwick 99%)
47%	Visited all three floors (NMNH)
40%	Visited all four floors (DWRC 19%; FSG 33%; HMSG 53%; NMAH 39%; NMAI-DC 56%; CHSDM 66%)

Visitors who use a floor plan are nearly twice as likely to visit all available floors than those who do not. Most museums offer visitors a floor plan, and those that do not have fewer floors visited. For example, both NASM and NPM are two-floor museums that offer visitors a floor plan and enjoy high floor-penetration rates, while NMAI-NY, also a two-level museum, does not offer its visitors a floor plan and reports less than half of visitors visiting both floors.

Of course, the size of a museum may also have an effect on penetration rates. This study only measured floor-penetration and not gallery-penetration. Therefore, comparisons of the relationship between complete penetration rates and corresponding public space cannot be made.

Over half of visitors reported that finding their way around a Smithsonian museum was “pretty easy” (55%), and almost four in ten reported it to be “very easy” (38%). That said, more than twice the proportion of visitors to the FSG and NMAfA reported that it was “not so easy” to find their way around those buildings. This could be attributed to the NMAfA having limited aids for visitors, and the absence of a paper map of the museum, while FSG’s associated challenges are rooted in an already known problem with “floor plans and directional signs.”⁵²

Several floors or halls across the Smithsonian were closed at some point during the survey year, including HMSG’s 2nd floor (twice), NMNH’s halls 1–6, and NMAH’s west exhibition wing. This allowed an analysis of the impact on floor closures on the visitor experience. Generally, visitors seemed to be flexible and understanding—even forgiving—about a floor, hall or gallery being closed during their visit. What tipped the scales is when such closures complicated their navigation of the museum. NMAH saw a high of 18% of visitors finding it “not so easy” to find their way around in spring. However, this dropped to 8% in the summer when the new 1W wing opened, and associated construction barriers came down. Similarly, in NMNH, 12% reported that navigating the museum was not easy in summer, but this dropped to 7% in the fall. This drop is likely due to navigation becoming easier when barriers came down — to unveil a newly renovated rotunda — on September 4, 2015.

One way to mitigate visitor dissatisfaction due to public space closures is through messaging (i.e., a floor plan of the museum and/or environmental graphics illustrating alternate way-finding, summary of the work being done, and reopening dates). This could also engage visitors in the work of the museum, encourage return visits, and perhaps even raise contributed revenues.

51 The Pen is an interactive stylus that allows visitors to interact with the museum in a number of ways, including scribble and design on multi-touch digital tables and to digitally collect objects of interest found throughout the museum visit.

52 Andy Pekarik. 2015. “Freer Gallery of Art 2015 Visitor Studies, Part One: Entrance-Exit Survey.” p. 20 -21.

Measuring engagement

A critical component in the evaluation of visitors' experience is engagement in museums. This is largely related to a variety of activities—some active, some passive, some in the immediate context, and some more distant. By understanding how, when, and where visitors engage, we develop a foundation on which to design and build successful museum environments. In this section, we highlight influences of engagement and then identify where and how visitors engage (or don't) during their visit. The study attempted to assess engagement across several dimensions, including flow (aka 'losing track of time' which is discussed in detail later in this report), personal relevance, satisfying experiences, dwell time, personal mobile devices, as well as the use of museum amenities and experiences such as guides, public programs and interactive features.

Audio Guides

Of the three museums that offered audio guides during the study year,⁵³ one-quarter reported using one. These visitors rated their museum visit higher (30% superior) than did those who did not use an audio guide (24% superior). Incidentally, the data reveals a very strong linear relationship between the use of an audio guide and watching in-gallery videos and taking guided tours.⁵⁴ All of the museums, galleries, and the Zoo offered guided tours to visitors during the study year and one-quarter of visitors took one of these tours (25%). NMAI-NY had the highest guided tour usage rate among visitors (39%) and HMSG the lowest conversion (17%). With a median age of 29, 'tour takers' tended to be younger, more international, and rated their overall experience higher than those who didn't

53 Museums that offered an audio guide during the survey year were DWRC, NMAI-DC and UHC

54 $r=.422$ $p<.001$ (videos in galleries); $r=.673$ $p<.001$ (guided tour)

take a tour. A higher than expected proportion of visitors (30%) do not watch the videos in galleries; among those who do stop to watch a video in a gallery or hall, more than a third (38%) rated their experience doing so as "superior." One in four exiting visitors report accessing information in a non-English language during their visit (26%) though the majority of these visitors rated the quality of the information received as PFG (60%).

Satisfying experiences

The 2004 (summer) survey of all Smithsonian museums⁵⁵, asked exiting visitors: "Which of these experiences were most satisfying in this museum today?" That year's study found that across all museums, "seeing the real thing" was the most common most-satisfying experience, with three in five visitors choosing this option (60%). Other popular experiences were "gaining information or insight" (40%) and "spending time with friends/family" (35%). Similarly, in the 2015 study, exiting visitors were asked: "Which of the following experiences were especially satisfying for you during your visit?". Upon entry, across all museums, over half of visitors expected that experiences relating to "gaining information/knowledge" (55%) and "seeing rare/uncommon/valuable things" (53%), would exceeded their expectations.

The impact of these "especially satisfying experiences" on exiting visitors' OER score varied by museum category. For example, "Science" visitors were more markedly impacted by all eight satisfying experiences than other museum categories. Both "Art/Design" and "Science" visitors gave higher OER scores when they "[Felt] an emotional connection." "Feeling awe and wonder" had the greatest impact on "American" visitors (Figure 28).

55 Smithsonian Institution. 2004. "Results of the 2004 Smithsonian-wide Survey of Museum Visitors."

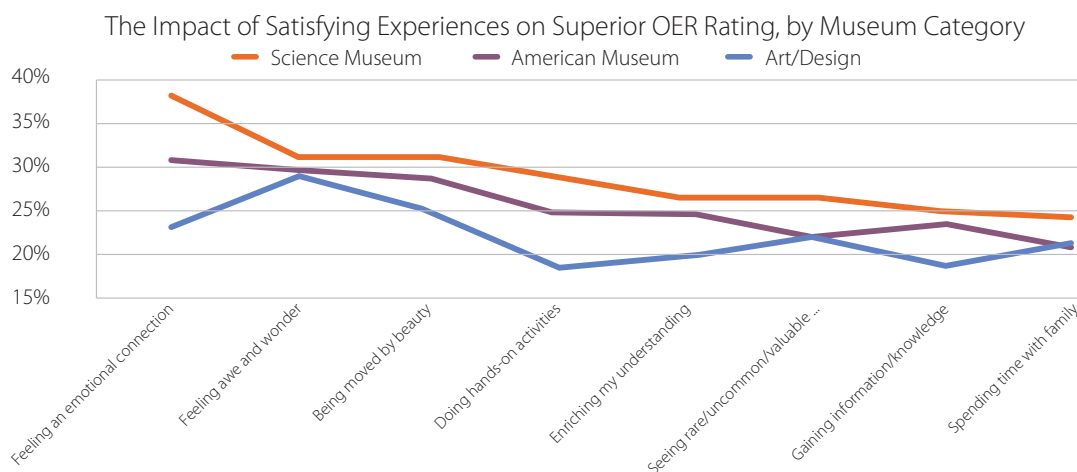


Figure 28.

Visitors who chose a superior overall experience rating, by museum type and by choice of satisfying museum experience.

Q69(2b) Which of the following experiences were especially satisfying for you during your visit/OER/Museum category

As noted earlier, visitors to UHC seemed neither to expect to be “moved by beauty” nor to feel an “emotional connection” during their visit. However, more than two times the number of UHC exiting visitors actually reported feeling an emotional connection during their visit than had anticipated to on arrival. This surprising experience—and associated satisfaction—seems to be one of the key drivers to UHC’s notably high OER.

There is a significant correlation between the number of satisfying experiences a visitor reports having and their overall experience rating⁵⁶, as illustrated in Figure 29. Specifically, visitors are likely to rate higher their overall museum experience as the number of satisfying experiences they had increases past three. For many visitors, feeling awe and wonder seems to heighten this engagement further. (See Appendix C for a complete list of the number of experiences by museum).

Museums would find success in leveraging these findings when and where they can, as doing so increases OER.

56 $r=.182, p<.001$.

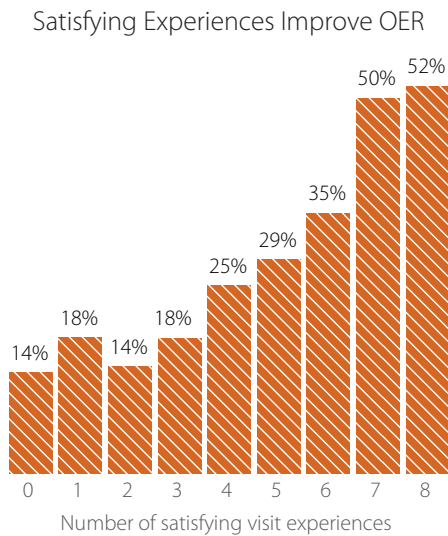


Figure 29. SI-wide number of satisfying visit experiences against percentage of OER superior rating.

Q69.1 (2b) Which of the following experiences were especially satisfying for you during your visit to / OER

Dwell time

Another measure of engagement is visitors' dwell time (how long a visitor spends in a museum). On average, exiting visitors across the Institution report spending longer in a museum (1 hour 54 minutes) than entering visitors expected to on arrival (1 hour 48 minutes). The largest gain across the fifteen museums and Zoo was at NMAH where the average dwell time increased by 20%, or about 20 minutes (Figure 33). Visitors spend the most time at the NZP and the NASM-UHC where they spend 42 minutes more than the average. Visitors to the Renwick and NMAI-NY spend the least amount of time (1 hour).

While the publicly available square footage of a museum can explain a significant proportion of variance in dwell time at each museum, it is not the only factor. As the plot line of Figure 31⁵⁷ illustrates, visitors to CHSDM, which has the lowest amount of publicly available square feet (10,036), spent nearly two hours at the museum, while visitors to HMSG, which has almost 72,000 publicly available square feet, spent just over one hour. Further, both of these museums have four floors available to visitors.

A visitor's age also influences time spent. Millennials have the lowest dwell time (1 hour 48 minutes) and Boomers the longest (2 hours 8 minutes) (see figure 32). Adults visiting with children stay longer than adults visiting without children. The time of day someone makes a visit also impacts how long they stay in the museum. For example, visitors in the morning spend the least time in a museum (1 hour 34 minutes) while mid-day and late-day visitors stay half an hour longer.

Visitors planning their visit online were asked how much time they were allotting for their Smithsonian visit. Over half of the respondents reported anticipating spending a full day or more at the Smithsonian (62%).⁵⁸

57 All public access square footage amounts sourced from Lee Robertson, Smithsonian GeoSpatial (OFEO), on May 27, 2016.

58 N=1,612

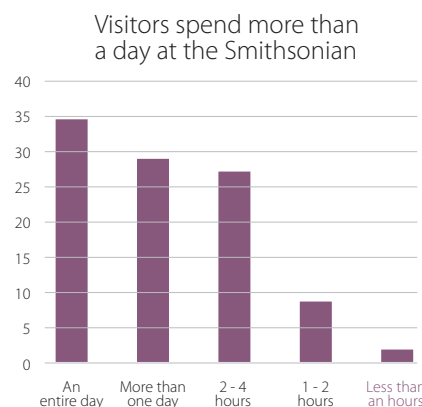


Figure 30. Anticipated length of visit at the Smithsonian. (Data collected from follow up online survey)

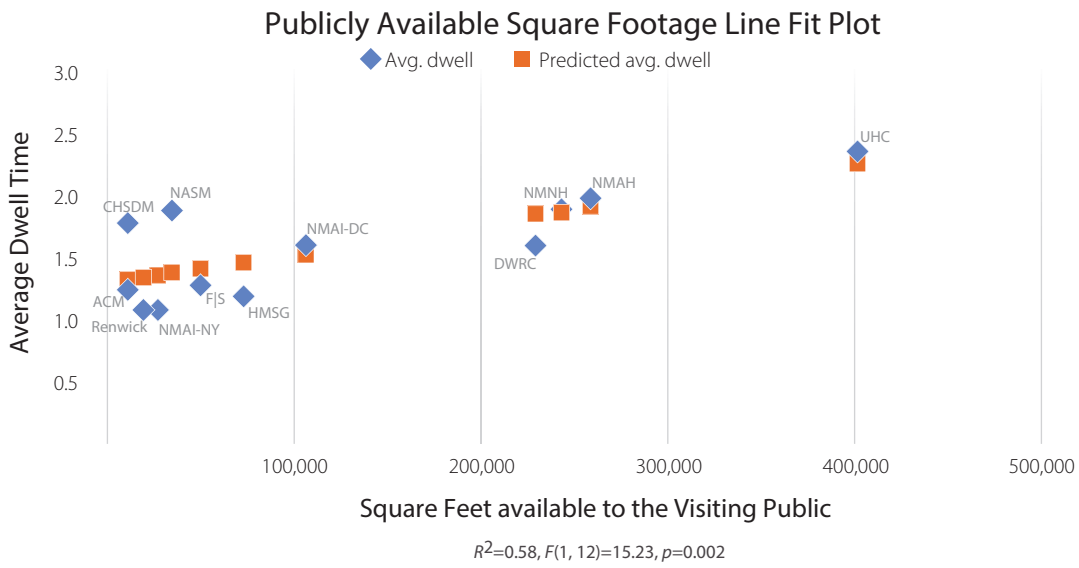


Figure 31.
Public square footage of a museum versus average predicted dwell time of visitors within it.

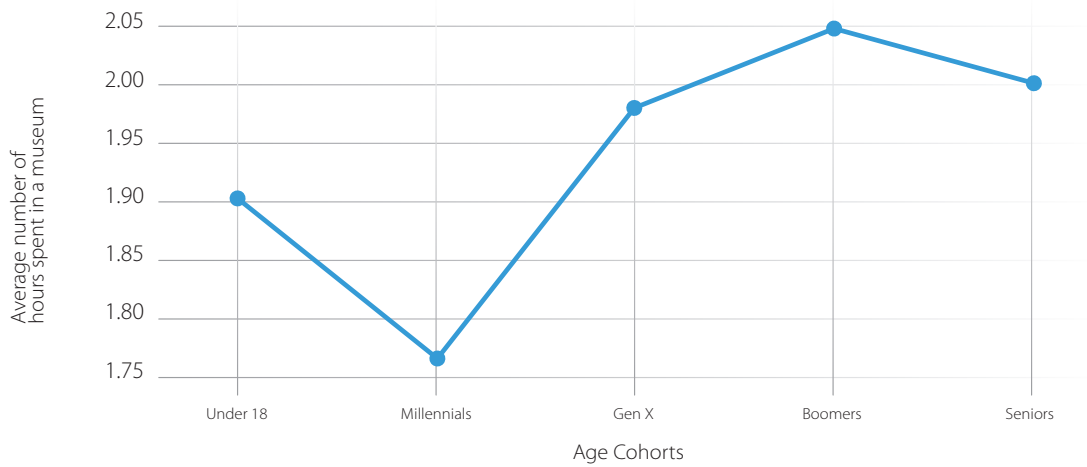


Figure 32.
Number of hours reported in a museum by age group. (aR2 .54; f score 15.23; significance .002)

The Largest Increase in Reported Dwell Time (from what was expected on entrance) Took Place at NMAH

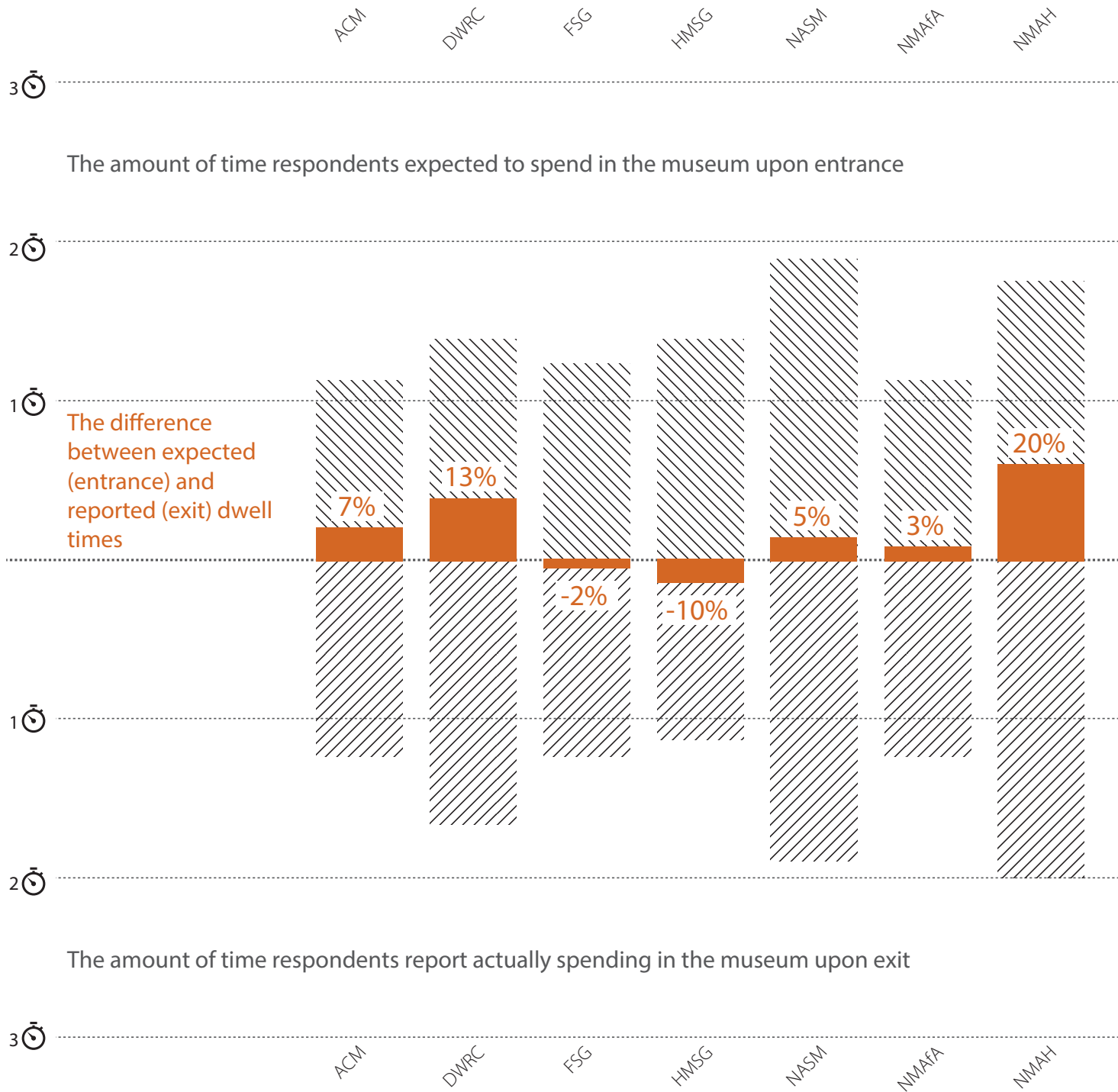
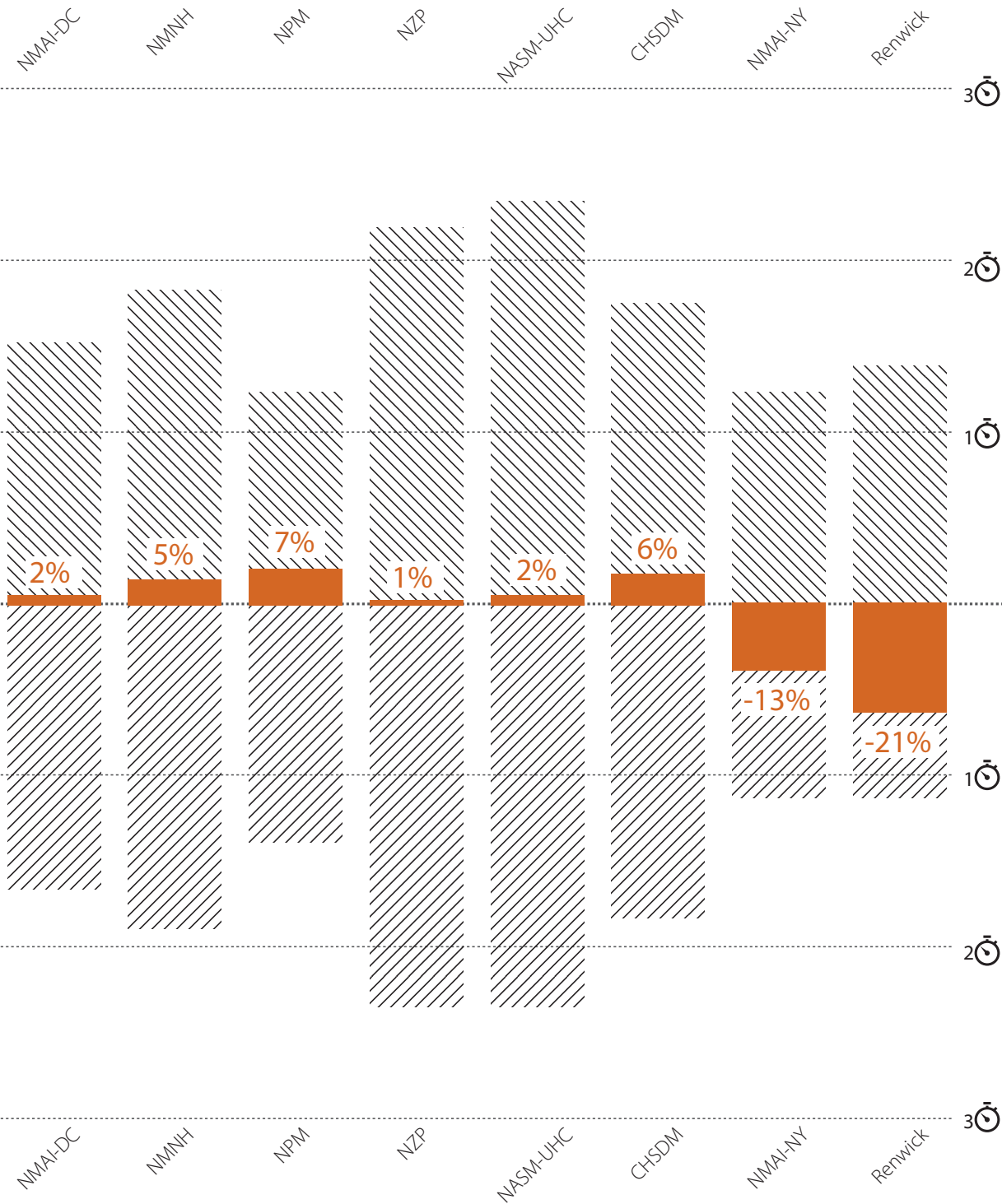


Figure 33.
 Comparison of expected time upon entrance (averaged) to be spent in each museum (dwell time) against reported dwell time upon exit.



A Market Segmentation of Visitors

It is well established in market research that segmenting consumers (i.e., visitors) into discrete groups is useful for product (i.e., museum/exhibit) development and promotional purposes.⁵⁹ As the findings herein have shown, Smithsonian’s visitation is becoming more diversified. By classifying individual museums’ audiences into distinct groups based on common characteristics, Smithsonian marketers will be better able to target each group.

Visitor-group segmentation is not new to museum management. The longstanding (consumer) segments created by Gunter and Furnham in the early nineties grouped visitors by demographic, geographic, psychographic and behavioral metrics.⁶⁰ Smithsonian visitor research has historically analyzed visitation by the first two and, more recently, with Pekarik and Mogul’s IPOP segments Institutional research has begun to look at the latter two variables.⁶¹

Some popular visitor segmentations include those created by Falk (2006), Trainer, Steele-Inama & Christopher (2012), Slover Linett (2013), and Wilkening (2016). However, whereas these models contextualize segmentation within an educational or informal learning paradigm, the segmentation herein are positioned from a marketing perspective, which are intended to help increase targeted visitation by offering material support to communication and marketing strategies.

The visitor segmentation that follows used an attitudinal segmentation procedure by way of k-means cluster analysis, with ratings of satisfying experiences as the basis for the segments. Exit survey responses were used exclusively to build the model and not responses from the paired entrance question, "which of the following experiences are you especially looking forward to during your visit..." Entrance responses are based on expectations and not outcomes. The visitor segments need to be one or the other, not both. Of the two, the exit survey provides more relevant data for the visitor segmentation as presented herein.

Four segments emerged based on the visitor selection of satisfying visit experiences: "General Browsers," "Shared Experiencers," "Knowledge Acquirers," and "Emotional Connectors." On average, among all Smithsonian visitors, General Browsers comprise the largest segment of visitors (9.3 million), followed by Shared Experiencers (4.7 million), Knowledge Acquirers (3.9 million), then Emotional Connectors (3.5 million) (Figure 34).

General Browsers are defined by their lack of concentrated or clustered outcomes across Q69⁶² and they also select the fewest number of outcome experiences. As a result, across the experience attributes they do not differentiate themselves, hence the Browser label. Shared Experiencers are well-defined; they are driven by spending time with family. For this group, gaining information, enriching understanding and seeing rare things are also important components. Knowledge Acquirers focus on gaining information, seeing rare things and enriching their understanding. Emotional Connectors are driven by "emotional" experiences—feeling awe and wonder and being moved by beauty. Emotional Connectors report the

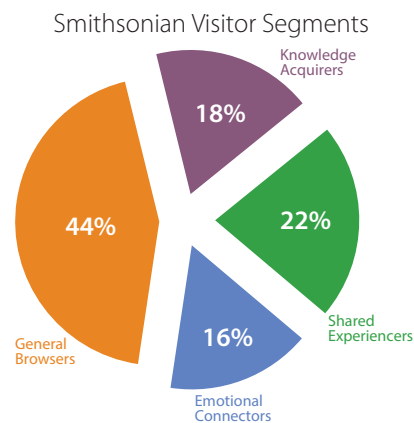


Figure 34. Smithsonian visitors split into visitor-type segments.⁵⁴ (SI-wide data is weighted.)

highest levels (52%, Total SI, across all waves) of 'feeling an emotional connection' than any segment. That said, this segment is not singularly defined by this attribute, as a higher proportion of these visitors say they were 'moved by beauty' (78%) during their visit.

Segment distribution varied by museum category. For example, at one-quarter (26%), Art/Design Museums have the highest proportion of Emotional Connectors, whereas American Museums have the highest proportion of Knowledge Acquirers at one-fifth (22%). Smithsonian visitor segment sizes vary by season. The two biggest shifts in segment sizes are between Shared Experiencers and General Browsers. Shared Experiencers expand to include 1 in 3 Smithsonian visitors during the Summer but contract to 1 in 5 during the Fall and Winter Seasons. In contrast, General Browsers increase by more than half during Fall and Winter periods.

59 Sulekha Goyat. 2011. "The basis of market segmentation: a critical review of literature." *European Journal of Business and Management*. V.3 (9). P. 45-54

60 Barrie Gunter and Adrian Furnham. 1992. "Consumer Profiles: An Introduction to psychographics." Routledge, London.

61 Andy Pekarik & Barbara Mogul. 2010. "Ideas, Objects or People." *Curator* v. 53 (4): 1- 18

62 "Which of the following experiences were especially satisfying for you during your visit to [museum name] today?"

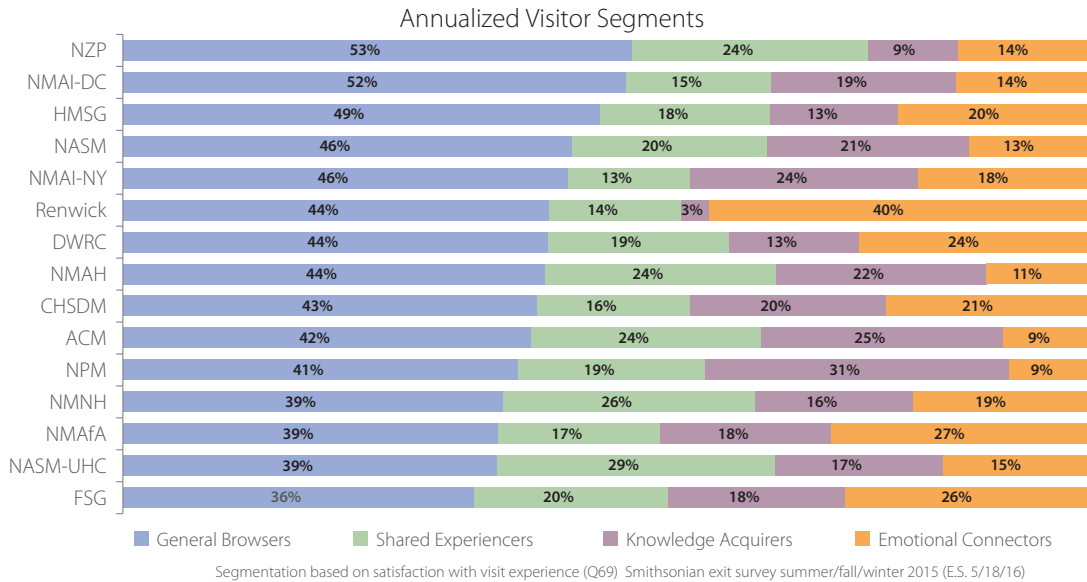


Figure 35. Visitor segments by SI museum.

Smithsonian art audiences

The National Endowment for the Arts (NEA) reports that 21% of U.S. adults visit an art museum or gallery each year.⁶³ In 2016, approximately 13% of Smithsonian's 28M visits (3M) were made to the Smithsonian's Art/Design museums. The audiences of Smithsonian's Art/Design museums are also less diverse than those of art museums nationally.⁶⁴ While non-White Hispanic groups make up 21% of art museum-goers nationally, they make up 10% of Smithsonian's art audiences. The largest Smithsonian ethnic minority group represented in

Art/Design museums is Asians. A closer look at the behaviors and preferences of the Smithsonian's Art/Design Museum visitors (compared to the Smithsonian's American and Science Museum visitors) revealed notable and unique differences:

- Art/Design Museum visitors visited an average of one more museum/cultural venue in the last year than American and/or Science Museum visitors.
- Art/Design Museums have the highest proportion of "Emotional Connector" visitors.
- The biggest positive impact on the Art/Design Museum experience is "feeling an emotional connection" during their visit.
- Visitors to DC-based Art/Design Museums are more than three times as likely to live in the Washington DC area.

63 While the Smithsonian figure is an actual visitation count, the NEA figure is from a self-reported study and as such may not be perfectly commensurable. However, the comparison between the two populations is drawn here for further discussion and analysis.

64 NEA. 2015. A Decade of Arts Engagement: Findings from the survey of public participation in the arts, 2002–2012. P. 17. Figure 1-13

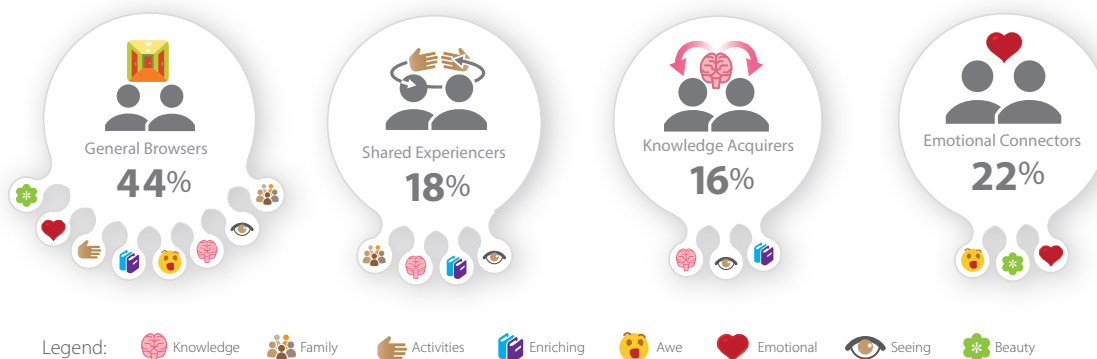


Figure 36. Defining visitor segments based upon survey responses, four season total.

One of the most talked about and highly rated experiences at the Smithsonian during this survey year was using the Pen at CHSDM. The vast majority of CHSDM visitors (94%) reported using the Pen during their visit. Of these, nearly 40% rated their experience with the Pen superior which makes it the highest-rated experience at the Smithsonian. The small proportion of non-Pen users were older, with a median age of 45 versus 36 among users.

An analysis of other unifying demographic and behavioral characteristics of each segment revealed twelve relevant groupings, three of which are substantial differences between the groups: a ten-point gender difference among Shared Experiencers and Knowledge Acquirers, a fourteen point difference US vs. international visitors between Shared Experiencers and Knowledge Acquirers, and the stark differences in social composition of visitors between Shared Experiencers and Emotional Connectors (Figure 38).

Older visitors use information desks

Overall, 25% of annual visits include interactions with museum information desk staff. This equals approximately 7 million information desk interactions per annum. Twenty-three percent of visitors who interacted with information desk staff rated the experience “Superior.” The majority of visitors (60%) do not interact with information desk staff during their visit. Information desk users are more likely to reside outside of the local area.

Over the years, Smithsonian surveys have measured use of the Institution’s information desks. The most significant relationship to information desk usage is age; information

desk users have a median age of 40 versus non-users who have a median age of 33.⁶⁵ Moreover, one third (31%) of information desk users are over the age of 50 (these visitors are Boomers, and, particularly, seniors). Centrally positioning the information desks within the museums and training staff to interact with older visitors to meet their specific needs could better serve these visitors. It is important to restate that younger visitors are less likely to use information desks—it is unknown whether younger visitors would benefit from orientation materials being served in another way, or if they feel they do not require orientation in order to enjoy the museum fully.

65 Spring exit question 64.4, “Did you visit an information desk today?” N=3469.

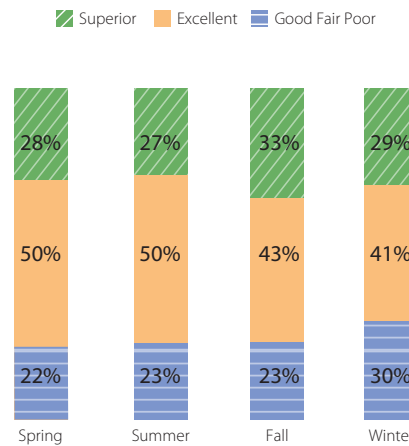


Figure 37. Rating of information desks by season.

Characteristics	General Browsers (44%)	Shared Experiencers (22%)	Knowledge Acquirers (18%)	Emotional Connectors (16%)
Male	51%	45%	54%	49%
Average age	36	34	38	37
Boomers	17%	14%	23%	22%
Adults (18+) visiting alone	17%	1%	24%	30%
Adults visiting with children	26%	39%	18%	17%
Living in the United States	78%	89%	75%	83%
First-time visitor	58%	50%	61%	58%
Metro-Washington visitors	18%	17%	13%	15%
Knowledgeable staff	73%	78%	77%	78%
I used my device to take a picture	77%	87%	85%	86%
Average number of satisfying experiences	1.3	5.0	3.0	4.0

Figure 38. 11 demographic and behavioral characteristics of each market segment.

Staff Interaction

Of all the resources available during a visit, the one used most by Smithsonian visitors is “knowledgeable staff on the floor of museums” (76%). Smithsonian-wide, the average number of staff interactions per visit is 1.7. The museums with the greatest incidence of staff-visitor interaction are the CHSDM and the NASM-UHC, where visitors interact with staff 2 and 2.1 times per visit, respectively. The DC Art museums tend to have the lowest frequency of staff interaction.

Visitors come in contact with Office of Protection Services (OPS) officers more than any other type of Smithsonian staff. Beyond the 100% of visitors who come through security screening to enter a Smithsonian museum, exit questions surveyed visitors' staff interaction(s) in the halls and galleries of a museum. One-third of visitors (34%) report interacting with a security officer during their visit. Of these approximately 5.2 million visitors, a quarter (27%) rated that interaction as superior. In addition to asking visitors to rate staff interaction,

the survey included a question that asked visitors to evaluate their experience entering the museum on the day of their visit. These two facets of the visitors' experience are each strong predictors of visitors' overall experience rating of the museum. Visitors who rate their interaction with a security officer as superior are four times more likely to rate their overall visit as superior than those who rate their interaction poor, fair, or good. Likewise, visitors who report a superior entrance experience are nearly seven times more likely to rate their overall experience superior.

For those who took a guided tour, the associated staff interactions have one of the greatest influences on these visitors' satisfaction. The venues with the greatest incidence of guided tour-takers are NMAI-NY (38%), NASM-UHC (37%), and ACM (37%). The units with the lowest guided tour incidence are HMSG (17%) and NZP (19%).

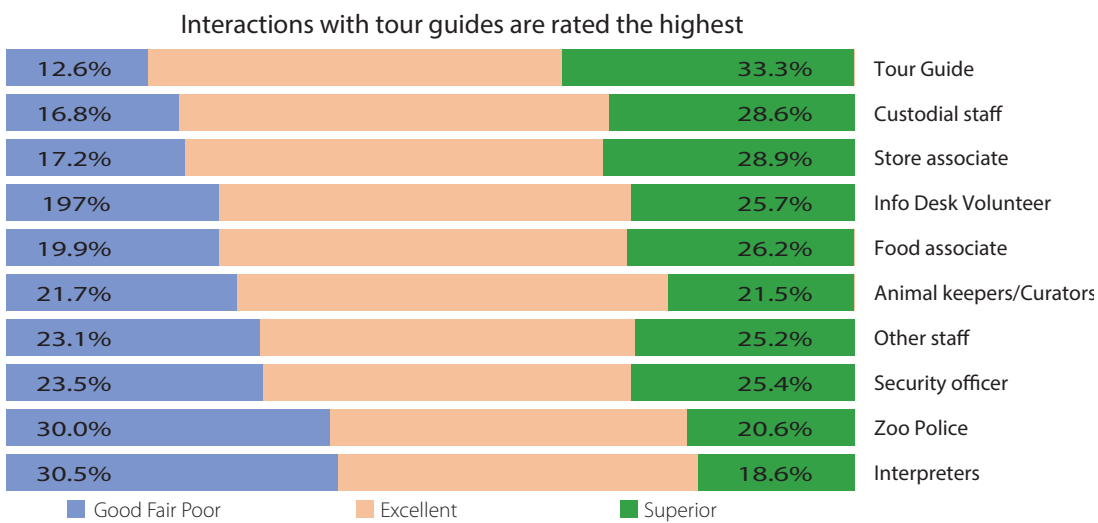
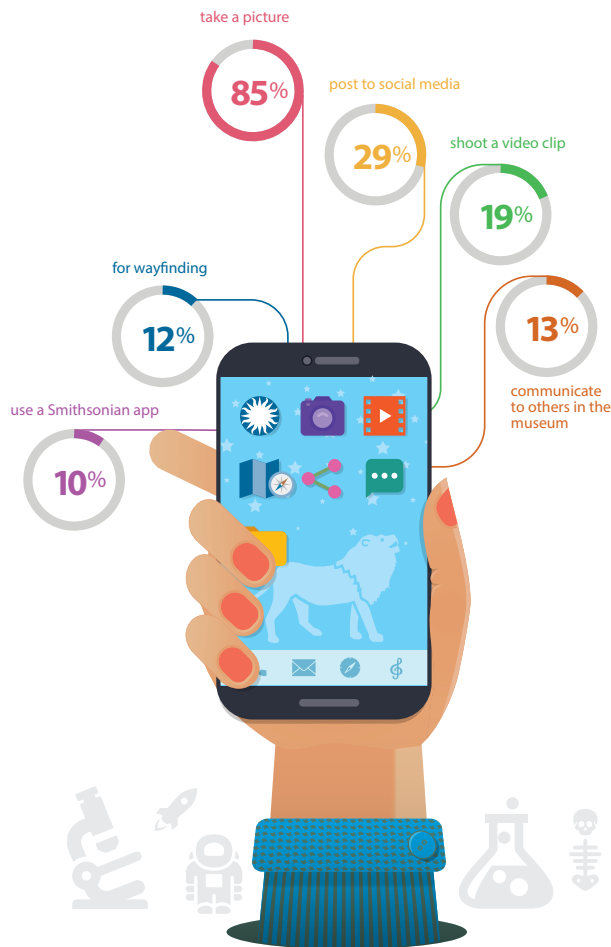


Figure 39.
Reported interactions with volunteer staff against Overall Experience Rating.

Science



American



Smartphone Use and Visitor Engagement

Today, the museum visitor experience not only concerns the dimensions of planning, accessibility of content, personal relevance, amenities, and social interactions between visitors, but also the usability of the mobile device. Visitors throughout the year were asked upon exit whether or not they carried a smartphone/tablet with them, and if so, whether or not they used it during their visit. A slightly higher proportion of Smithsonian visitors have smartphones (83%) than the wider US population (80%),⁶⁶ though less than half of those with a device used it (47%). International visitors are nearly as likely as Americans to carry a device

with them on their visit (81%), and as likely to use it during their visit (44% vs. 48%, respectively). The positive correlation between the use of SI courtesy Wi-Fi and the use of a smart device indicates that the more visitors access in-museum Wi-Fi, the more likely they are to use their device and perhaps thereby a Smithsonian app.⁶⁷ One-third of visitors (35%) report using SI Wi-Fi during their visit. Additionally, the lack of knowledge about Smithsonian mobile resources and experiences seems to depress usage of a smartphone throughout a visit. In 2016, the Smithsonian's Office of Public Affairs analyzed download rates of the Institution's 30 smartphone apps

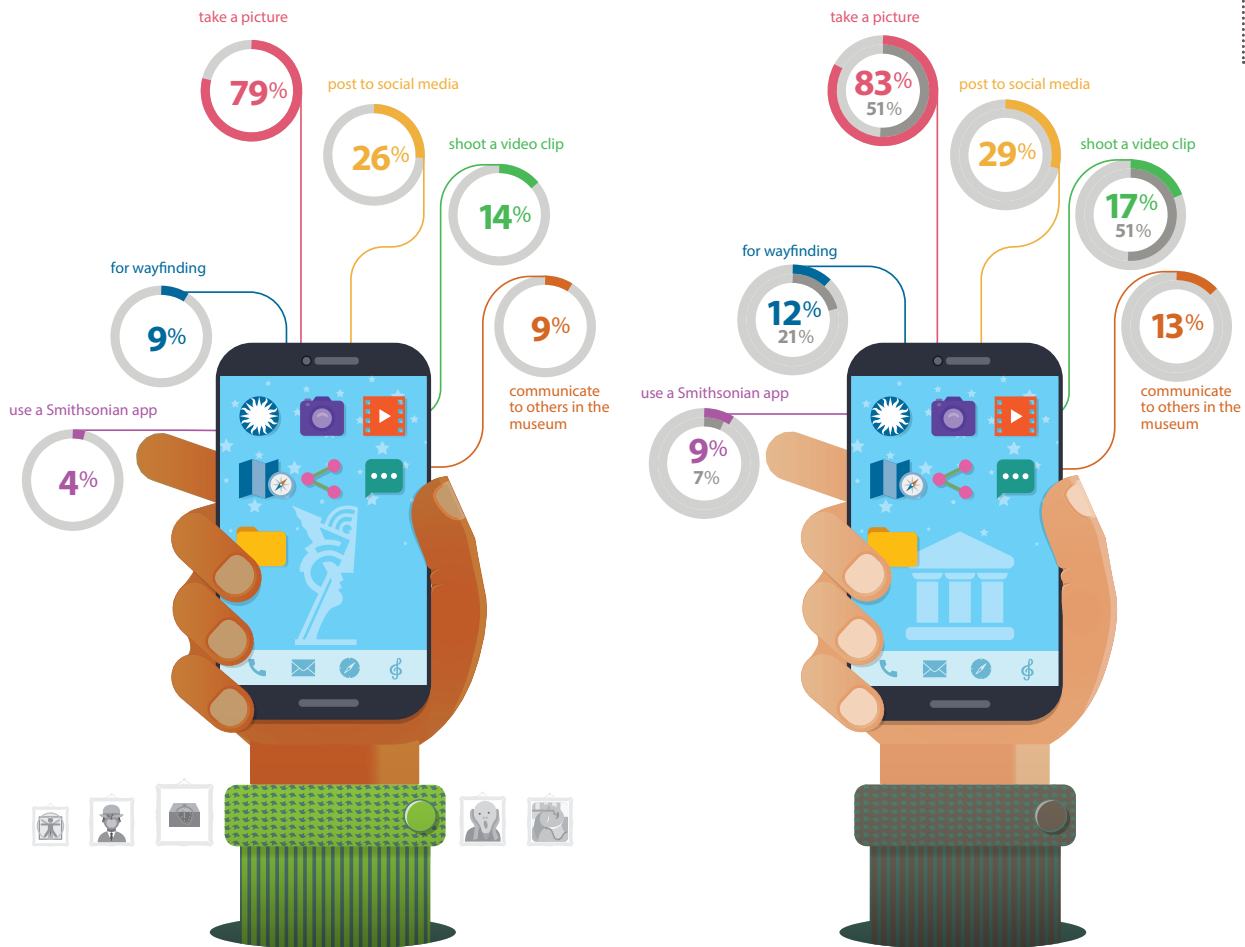
66 ComScore. U.S. Smartphone Penetration Surpassed 80 Percent in 2016. Accessed 24 May 2017 at <https://www.comscore.com/Insights/Blog/US-Smartphone-Penetration-Surpassed-80-Percent-in-2016>

67 (N=15,666, r=.10, p<.<.001)

Art/Design

Actual vs. Expected

Figure 40.
Use of smartphones in SI museums.



and found there to be, on average, 14 downloads of these apps daily across the Smithsonian, which translates to an 4% pickup rate, based on annual visitation for the same year.⁶⁸ Smartphone usage is highest at the Renwick (91%, winter) and lowest at NMAI-NY (69%, fall).

Smartphone usage during a visit is shown to have a positive impact on visitors losing track of time—a key indicator of engagement while in a museum. Mobile device activities that have the biggest impact on engagement include: posting on social media, shooting video clips, communicating with others in the museum, taking pictures,

and looking up additional information.⁶⁹ The younger the audience, the higher likelihood of smartphone use during their visit. While 62% of youths 13 – 17 years old report using their smart device during a visit, 49% of Millennials, 46% of Gen-Xers, and 32% of Seniors do so.

69 Of the 183 visitors who marked 'other' in the checklist for exit Q29, the majority wrote in that they looked up (i.e., researched) additional, exhibit-related information (29%).

68 App Annie. September 2014 - September 2015. Figures only include apps uploaded with the Smithsonian account, not with third party developer accounts.

Retail Experiences

All but one Smithsonian venue has a store and seven museums have a café or other type of food service offering for visitors.⁷⁰ This section details consumption rates for retail activity and associated behaviors. Over half of Smithsonian visitors (58%) enter either a store or a café during their visit; most of these retail excursions are to a store (47%). Among visitors to museums with food service, a quarter (24%) report visiting a café. On a segmented basis of the entire Smithsonian visiting population, one in ten (10%) go only to a café/food court during their visit, one third (32%) go only to a store during their visit and nearly one in five (15%) go to both (1). Whereas local, DC area visitors are less likely to visit a store during their visit (31%), visitors to the two NYC stores are more likely to be locals (58%). While there is no difference between group composition and incidence of visiting a museum/zoo store during a visit, adults visiting with children are more likely than any other group to go to a café during their visit.⁷¹

Although more visitors report going to a store than to a café/food court during their visit, fewer buy merchandise in a store than buy food/beverages in a café. Of those who do purchase, the average spend in Smithsonian cafés is \$22.76 and the average spend in Smithsonian stores is \$27.96. Stores in Art/Design museums have a lower conversion rate (i.e. the percentage of visitors who enter a store and report purchasing merchandise) than Science and American museums (31% Art/Design, 59% Science, and 46% American). However, Art/Design store purchasers spend more money in stores than those in Science and American museums. Art/Design museum purchasers spend 25% more than Science museum purchasers and 12% more than American museum purchasers. Spending in stores is higher in the Art/Design museums by a factor of nearly 2 to 1.

70 Only ACM is without a store; locations with café or food court: NMAI-DC, NMAH, NMNH, DWRC, NASM (both) and the Zoo.

71 Results are based on two-sided tests with significance level .05; test is adjusted using the Bonferroni correction.

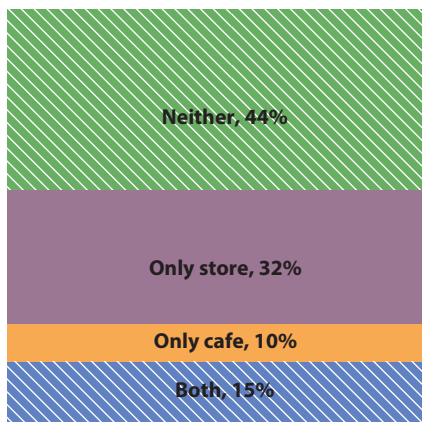


Figure 41.
Frequency of retail activity across all Smithsonian visits



Figure 42.
Breakdown of spending behavior of visitors who visited Smithsonian's stores and cafés/food court

Among café purchasers, the higher the spend, the larger the impact on OER. For example, visitors spending less than \$10 in the café reported an OER of 21% (superior) versus those spending more than \$50 who report an OER of 29%.

A sentiment analysis conducted on the comments visitors left found that some of the most cited critiques of Smithsonian museums involve complaints about both options and cost of food available during a visit, highlights of which include:

- "Health[er] food choices for families"
- "Eas[er] tray disposal."
- "Alternative to Macdonald's [sic]"
- "Vegan options in Café"
- "Don't enjoy not having food options at Space Museum where I go pretty often. Only junk food offered."
- "Food served at the National Zoo is not healthy it's full of unhealthy sugar , childhood obesity and diabetes is on the rise have better food options instead of cotton candy , fried food and pop corn [sic]"

Cooper Hewitt's Store is the Most Frequently Entered



Figure 43.

Percentage of visitors who went in the gift shop, by museum.

*Denotes smaller sample size and consequently a margin of error of +/- 15% NMAfA +/- 9% NPM and +/-11% CHSDM

Retail staff rating

Of those who went to either a store or café, nearly half did not interact with a retail staff person (42%). However, for those who did, food associates received lower scores than their colleagues in stores. Nearly half (43%) of café visitors rated their interaction with a food associate as either poor, fair, or good. Only, one in five rated that experience superior. Store associates scored higher, with nearly one-third of shoppers rating their experience superior. Just over one-quarter of shoppers report their interaction with a store associate as a PFG.

Accessibility

The findings in this section focus on general access to the Smithsonian as reported by its visitors and does not constitute an exhaustive audit of or the programmatic aspects of accessibility at the Smithsonian.

Exiting visitors were asked, "If you or anyone in your group has special needs, did [museum name] accommodate you?" Fourteen percent of respondents (2,045) reported that their special needs were not met. However, an analysis of the follow-up question that asked respondents which need(s) were not met found that only 19% of respondents listed specific accessibility needs such as additional seating (7), wheelchair/scooter/stroller access (5), legibility of exhibition text (3), and requests to either improve or introduce services for visitor who are deaf or hard of hearing (2). The remaining listed needs that are not classified as "accessible" needs.

Overall Experience Rating by Museum

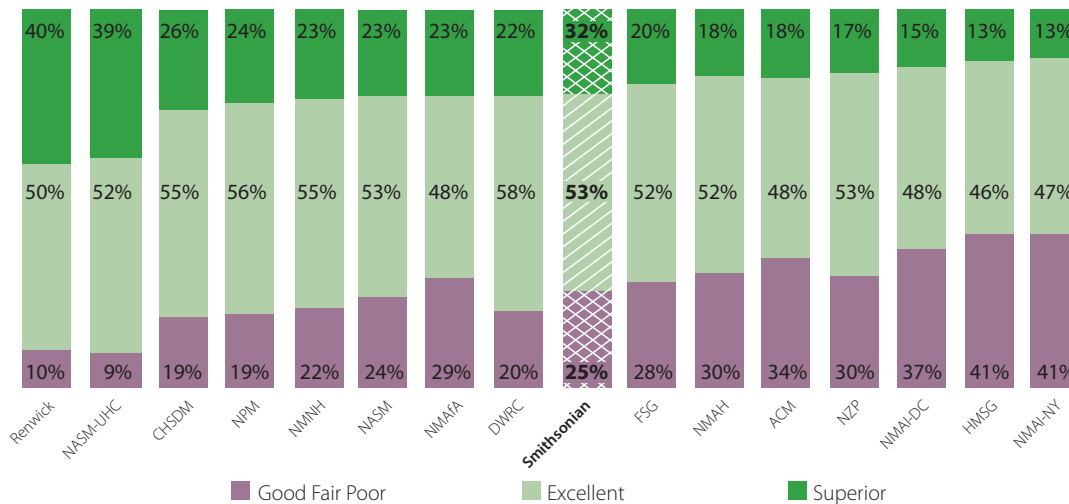


Figure 44.

OER across the Smithsonian (Renwick OER is only from winter 2016 wave, when the museum was re-opened.)

Visitor Satisfaction

Surveying the state of satisfaction of visitors across the visitor journey provides an opportunity to explore themes of engagement during a museum visit, and perhaps post-visit impact. The most obvious method of ascertaining a visitor's satisfaction may seem to be to simply ask them. However, many researchers have challenged the efficacy and reliability of satisfaction scores derived in this way (Tribe and Snatih, 1998; Truong, 2002, 2005; Babakus and Boller, 1992; Crompton and Love, 1995; Brown, Churchill and Peter, 1993). Therefore, instead of asking whether or not a visitor was satisfied with their visit, we attempt to build a predictive model of visitor satisfaction. To this end, we identified variables that are tied to observable visitor engagement. Five survey questions that meet this criterion were found to have a significant and positively correlated⁷² effect on one another, and therefore may be a proxy for visitor satisfaction (OER, NPS, losing track of time, meeting expectations, and quality rating of exhibits).⁷³ This section details the five variables and their factors that may suggest satisfaction.

Overall Experience Ratings

The overall experience rating of Smithsonian visits have increased over the past ten years. Upon exit, 75% of visitors report having either a superior (22%) or excellent (53%) museum experience. While visitors also expressed high satisfaction in 2004, the 2016 results demonstrate significant positive increases over the past ten years.⁷⁴

Meeting visitors' expectations is the single strongest indicator of OER.⁷⁵ Additionally, high OER ratings positively impact the length of time a visitor spends in a museum, their likelihood of visiting a museum back home, and their likelihood to recommend the museum to others. Visitors' ratings of their overall visit experience versus their expectations upon entering varied significantly by museum. As Figure 47 illustrates, visitors to NPM, ACM, CHSDM, and DWRC rated their actual experience higher than expected. In contrast, HMSG, NMAI-DC, and NMAH had lower experience ratings compared to expectations. Tracking experience versus expectations was clearest by looking for any shift in the top two boxes' ("Superior" and "Excellent", combined) of the percentage difference, taking into account sample margin of error.

OER and likelihood to recommend are highly correlated. 94% of visitors who rate a visit as superior are very likely to recommend a visit. Conversely, 43% of those who rate their visit as poor are not at all likely to recommend a visit.

72 r =between .613 and .348, p <.001)

73 Exit survey questions 11, 13, 15, 59, and 100_3r

74 The OER ratings of the summer wave of this survey were higher than the summer of 2004: 26% PFG, 51% Excellent, and 23% Superior, vs. 32% PFG, 49% Excellent, and 19% Superior, respectively

75 Standardized coefficient of .505 and t -value of 48.249. SI-wide data is weighted.

Net Promoter Score

The one key advantage of using NPS is its application throughout the cultural and consumer sectors, providing key benchmarks of comparison outside the Smithsonian.

It was primarily for this universal application that the NPS was selected for the development of the visitor model (i.e. dependent variable). The visitor model assesses the most important visitor characteristics and components of the museum experience to provide insights into elements of the visit that are performing well and where improvements might be warranted. For a detail of model variables and coefficients see Appendix F.

Within this context the visitor model's key objectives are:

- Enable individual museum comparisons in order to identify best practices across units by highlighting museums—and their practices—that perform important functions well.
- Provide a diagnostic tool to measure where improvements are needed to enhance the visitor experience.

Overall, the visitor model found that 21 individual visitor characteristics and museum behaviors significantly impacted NPS ratings.⁷⁶ Of these, 14 had a positive impact (i.e., increased NPS) and 7 had a negative impact (i.e., depressed NPS).⁷⁷ At 75%, UHC has the highest ranked Net Promoter Score (NPS) followed by Renwick at 70%, NMNH at 55%, NZP at 54%, and DWRC at 53%. (See Appendix G for a complete list of NPS by museum.)

Each of the visitors who fall into each of the NPS categories require distinct communication. For any museum with a large base of detractors, its managers will want to identify them and identify opportunities for service recovery and address visitor experience issues.

76 The visitor model was built using three of the four seasonal waves: Summer, Fall and Winter. Spring was excluded from the model due to variations in question wording.

77 Statistically significant at the 95% confidence level, Adjusted R-Squared = .38
All variables included in the model are yes or no questions.

Losing Track of Time

Visitors who enter a state of flow are deeply engaged and, evidently, highly satisfied.⁷⁸ One of the foundational features or dimensions of a state of flow as identified by Csikszentmihalyi⁷⁹ is time transformation or the loss of time awareness.

Across the Smithsonian, 59% of visitors report losing track of time while visiting an exhibition or gallery. Nearly two-thirds of visitors to NMNH (65%), NPM (65%) UHC (64%), CHSDM

(63%), and NMAH (62%) reported losing track of time during their visit. Note that of these top five, two (NPM and CHSDM) have a relatively low amount of publicly available floor space compared to the others. Further evidence that the size of the museum alone is not enough to predict engagement.

While there were no significant differences among the three museum categories, significantly more spring visitors to Art/Design museums reported losing track of time than any other season, namely at the NMAfA, HMSG, and FSG. Loss of time awareness occurred irrespective of gender, age, or frequency of visit. Consistently, those who visited all the floors of a museum were more likely to report losing track of time.

78 Jackson SA & Eklund R (2004) The Flow Scales Manual. Morgantown, WV: Fitness Education Technology.

79 Csikszentmihalyi, Mihaly (1991). Flow, The Psychology of Optimal Experience. New York, NY: HarperPerennial.

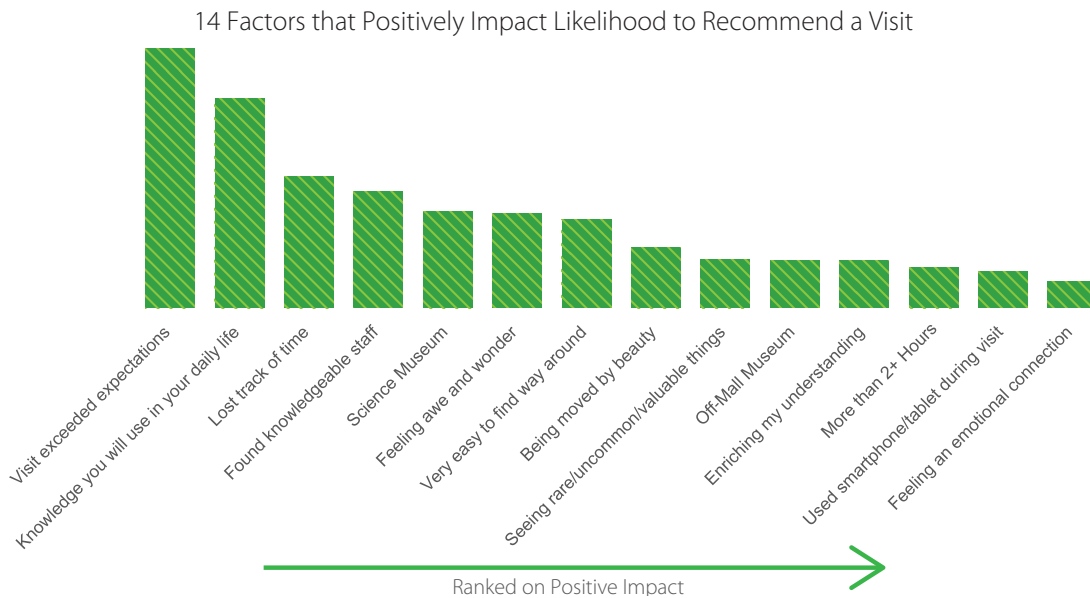


Figure 45. Positive impact factors.

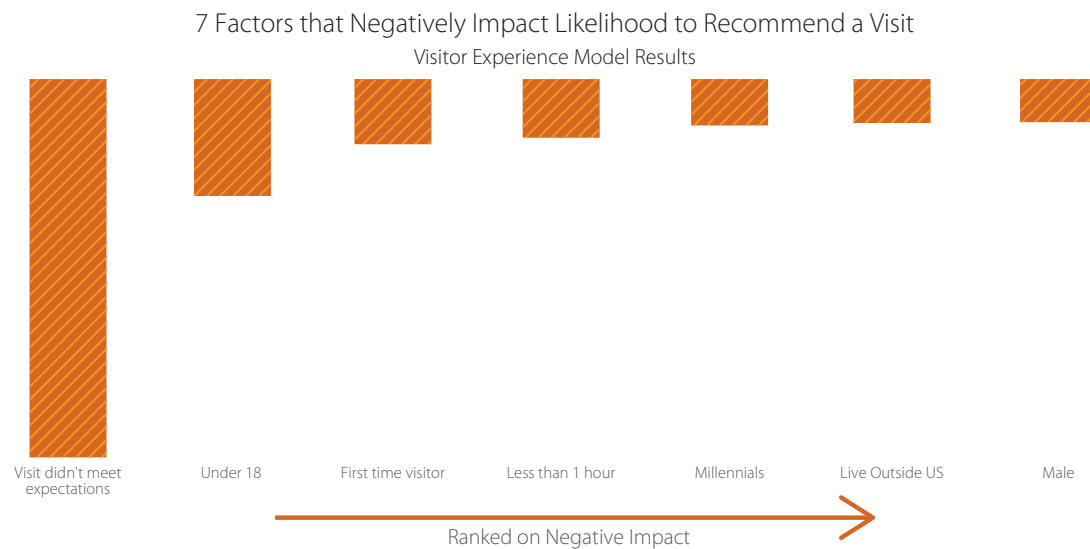


Figure 46. Negative impact factors. Spring data were excluded due to questionnaire changes. Data are weighted; N = 8,750 (unweighted N = 8,126). Q59 is 0-10 scale (average = 8.69); all independent variables are binary (0/1). All regression coefficients are unstandardized and are significant at the 95% level.

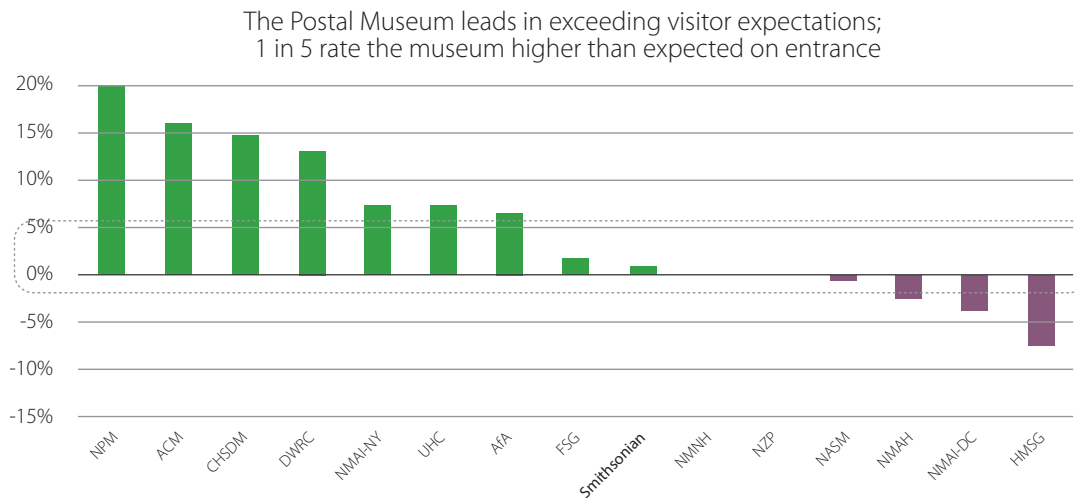


Figure 47.
Expected OER
minus actual OER,
by museum

Visitors who spend longer in museums are likelier to enter a flow state. Unsurprisingly, OER has a weak inverse relation to losing track of time, meaning the lower a visitor rates their overall museum experience the lower the likelihood of them achieving flow state.⁸⁰

Coefficients were analyzed in an effort to develop a model that identified significant drivers of losing track of time. Of those tested, the strongest effect on losing track of time seems to come from a visitor's ability to find personal relevance in exhibits, whether or not they found knowledge which they can use in their daily life, and an exhibit rating of excellent or superior.⁸¹ In fact, the data reveals a very strong relationship between finding personal relevance in exhibition content and finding knowledge to be used in one's daily life.⁸²

Meeting Visitors' Expectations

For most visitors, Smithsonian museums either met (54%) or exceeded (42%) their expectations with especially high levels of satisfaction at NASM-UHC (63%), NPM (60%), and CHSDM (55%). While 5% of visitors across all SI museums reported that their visit did not meet expectations 11% of HMSG and 12% of NMAI-DC audiences report the same. Although these are relatively low percentages compared to those who reported the visit met or exceeded expectations, these numbers are higher than any other Smithsonian museums. Overall, the negative impact of not at least meeting visitor expectations is nearly twice as strong as the positive impact of meeting

visitor expectations (Figure 47). For additional insight into factors impacting the visitor experience, see the Visitor Experience Model section of this report.

Comparing expectations of a visit on entry to a museum to ratings of especially satisfying experiences after the visit is one way to understand how a museum is performing vis-à-vis visitor expectations. Doing so can also reveal where unexpected experiences arise. Across the Smithsonian, four experiences emerge as consistently exceeding visitor expectations: "feeling an emotional connection" (45% increase over expectations), "being moved by beauty" (27%), "seeing rare/uncommon/valuable things" (27%), and "gaining information/knowledge" (21%).

Visitor expectations and outcomes varied across museum category. For example, American museum visitors' experience of "feeling an emotional connection" far exceeded their expectations, with 28% reporting having experienced it on exit versus only 16% anticipating it on entrance. For Science museums, increases in actual experiences versus expectations were highest for "gaining information/knowledge" (54% vs. 43%). At Art/Design museums, "seeing rare/uncommon/valuable things" increased the most from entrance to exit (39% vs. 49%).

On an individual museum basis, variations between visitor expectations and actual experiences include:

- HMSG: lower reported experiences of "feeling awe and wonder" (-16%) and "being moved by beauty" (-14%) than visitors expected.
- NASM-UHC: higher reported experiences of "feeling an emotional connection" (127%)
- NMAI-NY: higher experiences for "being moved by beauty" (77%)
- NPM, NMAH, ACM: higher experiences for "feeling an emotional connection" (93%, 89%, 80%, respectively)

80 $r = -.295$ $p < .001$

81 Model: $N = 3218$, $\beta = 0.568$, $SE = 0.037$, $p < .001$
Q100_4r (2b) Relevance of exhibits to me personally:
 $\beta = -.524$, $SE = 0.073$ $p < .001$, $Exp(B) = .592$
Q100_5r (2b) Knowledge you will use in your daily life:
score: $\beta = 0.247$, $SE = 0.073$ $p = .002$, $Exp(B) = .782$
Q100_3r (2b) Quality of the exhibits: $\beta = -0.583$,
 $SE = 0.063$ $p < .001$, $Exp(B) = .55$

82 $r = .597$, $p < .001$

Across the Smithsonian, all five age cohorts report finding significantly different levels of personal relevance during their visit. Personal relevance of exhibits visited is correlated with age; whereas the youngest found the highest levels of personal relevance, older visitors had the lowest:⁸³

As a proportion of their age cohort, Boomers and Seniors rate the personal relevance of Smithsonian exhibitions the lowest (PFG) at 40% and 44%, respectively. Closely related to 'personal relevance' is the positive attribute of obtaining 'knowledge you will use in your daily life', which notably has the second highest impact on the likelihood to recommend a museum (after 'visit exceeded expectations').

Especially satisfying for NASM-UHC visitors was seeing rare/uncommon/valuable things (63%), whilst for NPM visitors it was gaining information/knowledge (65%) and at the CHSDM learning about design (63%).

Audience Perceptions on Exit

Audience perceptions were explored by asking exiting visitors if any experiences were especially satisfying; whether anything surprised them during their visit; and the likelihood of, and level of interest in, staying in touch with the Smithsonian museum after their visit.

What Surprised Visitors

As described earlier, being surprised during a visit has a positive effect on visitors. When asked if anything had surprised them during their visit, 44% responded "yes." Museums whose content surprised visitors the most are the Renwick (63%), CHSDM (61%), and NPM (56%). When a visitor marked yes to the "surprise" question, respondents were invited through a follow-up question to write in their own words what surprised them. Consistent themes that emerged (see figure 48 below) were "quality of exhibits," "learned a lot," and "knowledgeable staff." Many visitors also cited specific items as surprising, such as stamps, the CHSDM Pen, the Divine Comedy exhibition at NMAfA and the space shuttle at NASM-UHC. Recurring themes regarding surprising museum content are "interactive," "video" and "variety." Positive descriptors such as "amazing," "interesting," and "fun" were used again and again. Visitors also took this opportunity to vent their frustration or disappointment, with the spaces being "crowded," areas/exhibits being "closed," the absence of a museum store and limited food options emerging as pain points.

83 X2(64.01), N=3,112

Thumbs-up:

- "Impressed with the large variety of exhibits." - NASM-UHC
- "The interactive exhibits were especially engaging." - NMNH
- "The tour guide was excellent. Very knowledgeable and approachable." - FSG
- "The stamps were cooler than I thought." - NPM

Thumbs-down:

- "It was too crowded and many exhibits were closed." - NMAH
- "Extremely crowded which distracted from my experience and caused me to leave much sooner than I would have otherwise." - NMAH
- "I loved everything except for McDonald's as the only option for food. Disgraceful." - NASM-UHC
- "No museum shop? I am not from DC and don't know when or if I will return to this museum. To have some keepsake to remind me of my visit would have been nice." - ACM

Post-visit contact with the Smithsonian

Half of Smithsonian's annual visitors (48%) report it unlikely that they will follow up with the Institution after their visit. One-third say it is likely that they will follow up and the balance (19%) reported it very likely that they will follow up with the Institution after their visit. Separately, visitors were asked their preferred method of receiving information from the Smithsonian on things to see and do at the Smithsonian. One-third (36%) of respondents, "do not wish to receive any information from the Smithsonian."⁸⁴ The majority of those who would like information on things to see and do at the Smithsonian prefer such information delivered through websites (35%), followed by mobile apps (19%), and through the Smithsonian Visitor Center (10%). However, there is variance in such interest between audiences. While most local visitors (94%) do not prefer newsletters (print or digital) from museums, fifteen percent of non-local visitors would like digital newsletters from Smithsonian museums. And whereas one in four local New York visitors (26%) prefer getting their information from information desks, only 10% of international audiences do.⁸⁵

84 Exit question 45, "How would you prefer to receive information on things to see and do at [Museum name]?" was only asked in the spring of 2015. N=2,500

85 N=274, 94% CI

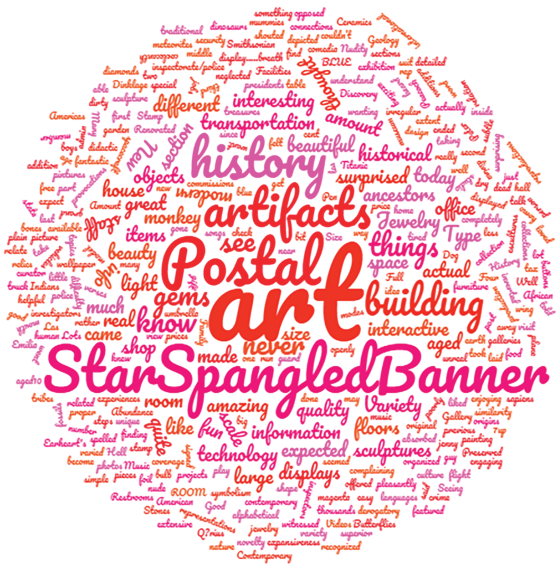


Figure 48.
Word cloud summarizing visitors' open remarks on what surprised them

Follow-Up Survey

A follow-up survey contacted respondents via email up to six months after their visit. A total of 756 visitors took part in the survey, sharing their post-visit views. Nearly half of the responses came from visitors whose most recent trip to the Smithsonian included NASM (42%), followed by NMNH (40%) and NMAH (37%).

Of these online respondents, 30 percent rated their experience in the museum as superior, while 57 percent rated it excellent. Only 13 percent rated their experience as PFG, which is 12 points less than in-person ratings of the same museum. These ratings stand in stark contrast to the on-site exit survey where exiting visitors rated museums immediately after their visit. In their on-site exit survey, 22 percent of visitors rated their experience superior, while 53 percent said excellent, followed by 25 percent rating it PFG. It is important to note that those who provided an email address and voluntarily completed the follow-up online survey are likely more dedicated Smithsonian visitors, and therefore are more likely to rate their experience higher relative to the people who did not offer their email address. Another explanation for the significant difference in score between the immediate ratings and post-hoc ratings may be that the passing of time has a “halo effect” on the memory of the visit. This may cause superior ratings to rise and PFG ratings to fall. Further research on this effect is needed to draw sound conclusions.

Visitors were asked to rate the quality of four specific in-museum experiences: “cool/novel things to do,” “cool/novel things to see,” “knowledgeable staff with whom to

talk,” and “learning new things about the world around me.” 32 percent of respondents rated “cool/novel things to see” as superior, and over half (53%) said they were excellent. One-third (30%) found “learning new things about the world around me” superior, and 50 percent found it excellent. “Cool/novel things to do,” however, only garnered a 20 percent superior rating, with 43% saying excellent, and another third (36%) PFG. This implies (in line with the exit survey) that there is room for an increase/improvement in hands-on activities. “Knowledgeable staff with whom to talk” ties for lowest superior rating (also at 20%), with 36 percent awarding it a PFG rating. This demonstrates a relatively low score for staff interaction.

The majority of visitors (79%) said that their experience was “enjoyable.” Only one-fifth (21%) responded “Yes,” something was, “not as enjoyable as expected,” during their visit. These factors included gallery closures, construction, crowds, and food choices and prices.

Only one in four (28%) respondents reported something they did not get to do or see at the Smithsonian that they wanted to. This indicates that the majority of visitors are leaving the Smithsonian having experienced what they intended. 76% of those said it was a specific museum, followed by 30% saying a specific exhibit, with just 11% noting item(s) in the collection. However, it seems that the museums' breadth and depth of content are such that visitors do not have time on their visit to experience it all or go to multiple museums.

More than half of visitors report having also visited the “National Parks and Monuments” on the day they visited the Smithsonian (55%). More than a third (37%) visited one or multiple of the following: the US Capitol, the White House, and/or Arlington Cemetery. However, one-third (32%) also went to other non-Smithsonian museums such as the Spy Museum, the Newseum, the National Gallery of Art, and/or the United States Holocaust Memorial Museum. This demonstrates that a visit to the Smithsonian doesn’t always fall within a larger site-seeing itinerary, and when it does, Smithsonian museums in DC are coupled with national monuments more often than non-SI museums. It is worth noting that one in four visitors report shopping in and around Washington D.C. after their visit to the Smithsonian.

Satisfaction with a Smithsonian visit seems to withstand the test of near time, as general satisfaction remains extraordinarily high, at 95%.⁸⁶ This positive Smithsonian experience leads to sharing, with 93 percent of visitors saying they talked to family/friends/co-workers about their trip, while 44 percent posted photos of their trip online and 32 percent talked about it on social media.

The Smithsonian has a very high NPS amongst these respondents, at 83 (85% of visitors would recommend a visit, with only 2% not recommending). Over half (55%) stated they would come back to the Smithsonian within 1-2 years.

⁸⁶ N=308; question, “Which best describes your feeling: I am satisfied with the Smithsonian museums I visited,” was only asked in the May 2016 release of the questionnaire

Future Research

This study has provided insights into the heterogeneity of both Smithsonian visitorship and associated experiences. Whereas we investigated in detail the experiences of visitors at the macro and cohort levels, as well as differentiations across temporal factors, future research can further develop an understanding of these insights against that of other non-SI museums, the effects of satisfaction derived from a museum visit, and what ultimately drives visitation to Smithsonian museums. We suggest the following ideas to inform future research (this list is neither exhausted nor are the ideas listed in order of priority or importance):

- Form partnerships to establish a set of visitor experience/satisfaction rating benchmarks for US museums.
- Develop a research partnership with Destination DC to understand the primacy of SI in DC tourism, thereby quantifying Smithsonian's role in driving tourism to Washington DC.
- Regression analyses of effects of different factors on visitation (consumer price index, strength/weakness of the US dollar, weather, public events, terrorism events, etc.).
- Research on the role that museums have on peoples' happiness, both short- and long-term.
- Analyses of gallery-penetration rates across all museums.
- Now that significant work has been completed on the Visitor Center, a follow up "five-years later" study to measure visitors' understanding, attitudes, and behaviors with respect to the center's planning resources.
- A study of the efficacy of SI's promotion of pre-arrival touchpoints.
- An audit of accessibility across SI museums.
- Why the Smithsonian mattered to visitors; What exactly do visitors find valuable in a museum visit; What do visitors think of their time spent in museums?

Appendix A

A series of tables each demonstrating Smithsonian visits in a number of ways, including temporal and by geographic region.

Seasonal and Typical Daily Estimates, Overall

Season	Estimated visits	Typical Sunday	Typical Saturday	Typical Weekday
Fall	5,424,756	61,311	83,977	46,175
Spring	9,975,898	106,038	138,202	95,599
Summer	8,205,986	97,663	120,202	74,054
Winter	4,695,099	63,525	85,761	37,837

Seasonal and Typical Daily Estimates, New York

Season	Estimated visits	Typical Sunday	Typical Saturday	Typical Weekday
Fall	184,571	2,164	2,822	1,815
Spring	206,729	1,788	2,510	2,321
Summer	199,337	2,012	2,441	2,143
Winter	146,608	1,725	2,382	1,452

Seasonal and Typical Daily Estimates, Off-Mall

Season	Estimated visits	Typical Sunday	Typical Saturday	Typical Weekday
Fall	1,369,203	16,504	23,155	10,770
Spring	1,833,652	24,983	29,279	17,358
Summer	1,563,591	22,000	25,620	14,311
Winter	1,098,856	14,967	20,795	7,790

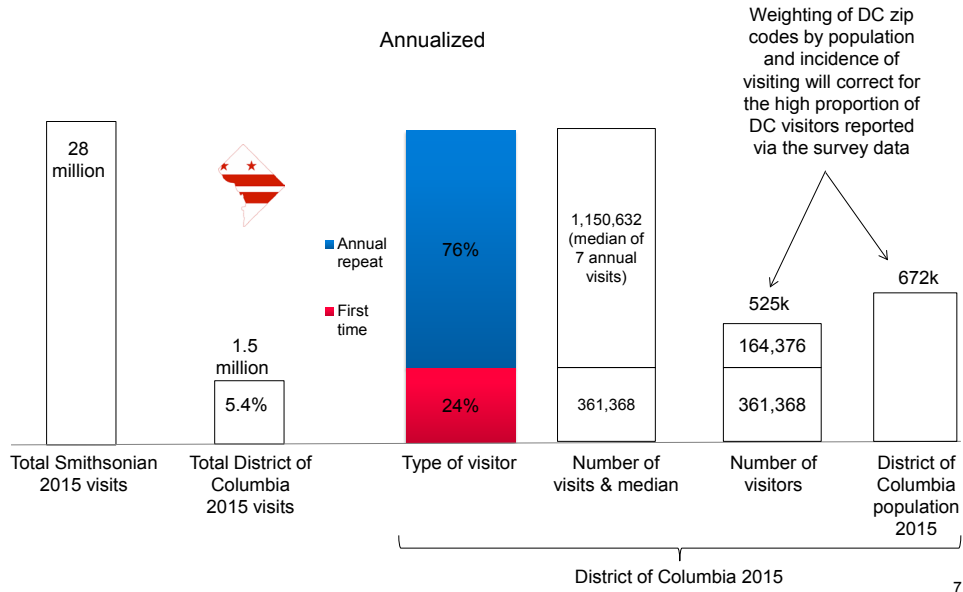
Annual Visitation by Geographic Region Across Four Contiguous Seasons

	Spring (N=8130)	Summer (N=7845) vs. (2004 data)	Fall (N=7579)	winter (N=8489)
Metro Washington	12%	12% (15%)	15%	21%
Southeast	21%	22% (26%)	19%	21%
Mid Atlantic	19%	14% (17%)	12%	17%
Midwest	11%	10% (12 %)	11%	7%
New England	7%	5% (3%)	5%	4%
Mountain Plains	5%	9% (8%)	6%	5%
West	11%	9% (9%)	12%	7%
Country other than U.S.	14%	20% (10%)	21%	20%

A Breakdown of visitation by State, Both Proportional to SI-wide Annual Visitation and Estimated Volume

State/Region	Frequency	Incidence %	Approximate annual unique visitors
Alabama	155	0.6	126,000
Alaska	40	0.1	25,782
Arizona	213	0.9	189,000
Arkansas	76	0.4	84,000
California	1564	4.8	1,008,072
Colorado	272	0.1	18,900
Connecticut	383	1.2	246,862
Delaware	111	0.4	84,000
Metropolitan DC (Including PG, Mont. & NoVa)	2517	11.9	2,499,000
Florida	958	3.5	735,000
Georgia	405	1.7	357,000
Hawaii	73	0.2	47,052
Idaho	68	0.3	63,000
Illinois	461	1.5	315,000
Indiana	279	1.1	231,000
Iowa	81	0.3	63,000
Kansas	112	0.5	105,000
Kentucky	163	0.6	126,000
Louisiana	123	0.5	105,000
Maine	98	0.3	63,000
Maryland (excluding PG and Mont. counties)	1459	4.4	924,000
Massachusetts	657	2.2	462,000
Michigan	314	1.1	231,000
Minnesota	275	1.1	231,000
Mississippi	55	0.2	35,450
Missouri	193	0.7	147,000
Montana	38	0.1	24,493
Nebraska	54	0.2	34,806
Nevada	29	0.1	18,692
New Hampshire	85	0.3	54,787
New Jersey	794	2.3	483,000
New Mexico	101	0.3	65,099
New York	2466	4.2	882,000
North Carolina	643	2.4	504,000
North Dakota	18	0.1	11,602
Ohio	542	2.1	441,000
Oklahoma	97	0.4	84,000
Oregon	191	0.6	123,109
Pennsylvania	958	3.4	714,000
Puerto Rico	44	0.2	42,000
Rhode Island	82	0.3	52,853
South Carolina	233	0.9	189,000
South Dakota	14	0.1	21,000
Tennessee	292	1.3	273,000
Texas	751	2.7	567,000
Utah	133	0.5	105,000
Vermont	70	0.2	45,118
Virginia (excluding NoVa)	2392	7.2	1,512,000
Washington	383	1.4	294,000
West Virginia	106	0.5	105,000
Wisconsin	243	0.9	189,000
Wyoming	23	0.1	14,825

District Of Columbia Smithsonian 2015 visits and visitors



4 Season Visitor Experience Survey 2015/16

Appendix B

A Breakdown of Both Predicted and Actual Use of Museums Resources by Visitors and the Difference Between the Two

	On Entrance	On Exit	Difference
A Smithsonian app for my smartphone/tablet	16%	9%	-7
Knowledgeable staff in the galleries/exhibitions	34%	76%	+42
Introductory/orientation assistance	9%	17%	+8
Personally guided tours	10%	25%	+15
Information/Tours on a handheld device/audio guides	4%	35%	+31
Performances/museum theater (NMAH)	12%	10%	-
Hands-on opportunities/activities	27%	-	-13
Courtesy Wi-Fi	37%	35%	-2
Wall text	4%	37%	+33
The Pen (CHSDM)	27% (only CHSDM)	94%	+57
Curator/Keeper talks and animal demos	2%	12%	+10
<i>Infinity of Nations</i> app (NMAI-NY)	0.01% (only NMAI-NY)	59%	+57
A paper map	44%	33%	-11
A paper guide	29%	-	-
Information in non-English languages	4%	26%	+21

Appendix C

Average Number of 'Especially Satisfying' Experiences by Museum

Index	Being moved by beauty	Seeing rare/uncommon/valuable things	Gaining information/knowledge	Enriching understandings	Feeling an emotional connection	Feeling awe and wonder	Doing hands on activities	Spending time w/ friends/fam	AvG # of experience
ACM	2	5	12	11	6	3	2	6	6
DWRC	43	42	50	45	29	37	4	34	35
FSG	54	65	59	52	26	39	4	34	42
HMSG	35	50	43	44	30	31	8	37	35
NASM	13	49	54	44	18	39	24	33	34
NMAfA	44	57	51	53	34	34	3	27	38
NMAH	12	51	57	45	27	27	12	32	33
NMAI-DC	23	31	48	43	23	18	11	25	28
NMNH	33	59	56	47	14	41	13	41	38
NPM	12	48	60	46	17	19	32	28	33
NZP	34	55	41	32	23	37	5	61	36
UHC	19	65	60	45	21	51	13	45	40
CHSDM	32	41	50	40	19	33	41	25	35
NMAI-NY	0.8	33	48	51	48	22	26	3	32

Appendix D

Summary calculations and resulting proportions of Entrance and Exit questions series 143, 144, 39, and 91, ("with whom are you visiting today")

	EXIT								ENTRANCE							
	Spring		Summer		Fall		Winter		Spring		Summer		Fall		Winter	
Adult w/o youth	2366	18%	2721	23%	3176	27%	3160	22%	2798	17%	2465	21%	2857	23%	3281	24%
# of adults w/ adu	5164	40%	5341	45%	6125	52%	7736	55%	7721	46%	5655	47%	6985	55%	8542	63%
Adult w/ youth	1110	9%	1143	10%	659	6%	911	6%	1307	8%	1189	10%	781	6%	835	6%
# of youth w/ adu	4152	32%	2560	22%	1819	15%	2317	16%	4935	29%	2649	22%	2048	16%	818	6%
total	12792		11765		11779		14124		16761		11958		12671		13476	
aggregate	youth															
spring	31%															
summer	22%															
fall	15%															
winter	11%															

Appendix E

Younger than 18 years old gender distribution across all the Smithsonian

<18 years old gender distribution across the SI

MUSEUM		Male		Female	
		Count	Valid %	Count	Valid %
	ACM	1	51%	1	49%
	DWRC	30	33%	62	67%
	FSG	20	33%	40	67%
	HMSG	30	31%	66	69%
	NASM	469	58%	345	42%
	NMAfA	5	28%	13	72%
	NMAH	300	47%	341	53%
	NMAI-DC	69	46%	82	54%
	NMNH	463	45%	577	56%
	NPM	14	55%	11	45%
	NZP	84	35%	158	65%
	NASM-UHC	92	66%	49	34%
	CHSDM	4	40%	6	60%
	NMAI-NY	20	50%	20	50%
	Renwick	5	19%	21	80%

Appendix F

Regression Model Identifying Experience Variables Impacting Visitors Likelihood to Recommend.

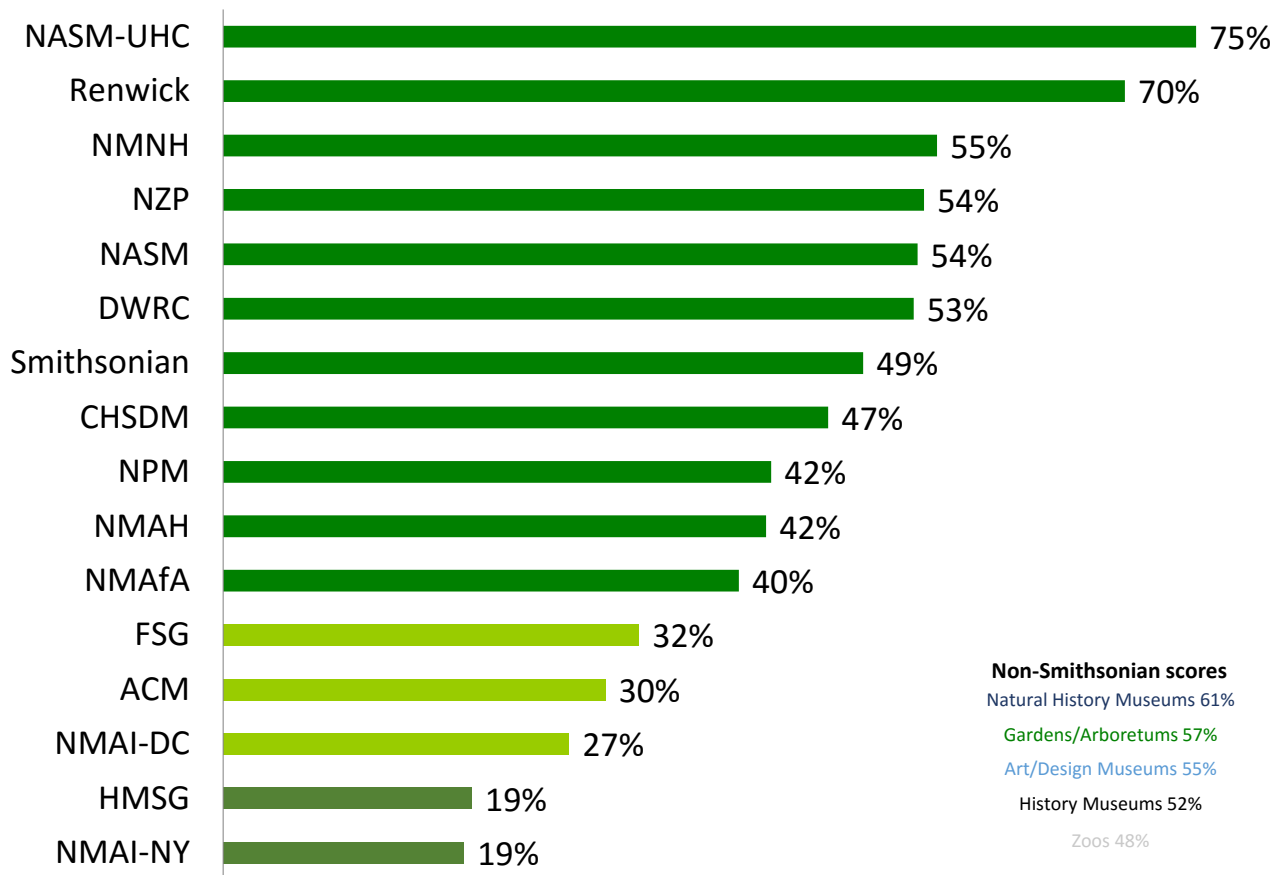
SMITHSONIAN 2015 VISITOR EXIT SURVEYS (SUMMER/FALL/WINTER)		
REGRESSION ANALYSIS FOR LIKELY TO RECOMMEND (Q59)		
Adjusted R-Square		0.38
(Constant)		7.43
<i>VISITOR CHARACTERISTICS:</i>	<i>Average</i>	<i>Coefficient</i>
Under 18 (Age)	0.09	-0.53
Millennial (Age)	0.45	-0.15
Hispanic, Latino, or Spanish (Q61)	0.12	0.23
Gender = Male (Q42)	0.47	-0.13
<i>VISIT CIRCUMSTANCES:</i>		
First time visitor (Q1_t)	0.50	-0.31
Science Museum (Museum_cat_r)	0.60	0.23
Off Mall Museum (MuseumType)	0.21	0.12
Time Spent = <1 Hours (Q90)	0.12	-0.22
Time Spent = >2 Hours (Q90)	0.32	0.11
Early (DayPart)	0.36	0.14
Fall (Quarter)	0.32	0.10
<i>VISIT EXPERIENCES:</i>		
Visit did not meet expectations (Q13)	0.03	-2.08
Visit exceeded expectations (Q13)	0.45	0.64
Knowledge you will use in your daily life (Q98.8; T2B)	0.41	0.54
Lost track of time (Q15)	0.63	0.38
Found knowledgeable staff (Q76)	0.77	0.26
Very easy to find way around (Q18)	0.38	0.22
1+ interactions with staff (Q68count)	0.56	0.13
Being moved by beauty (Q69.1)	0.29	0.14
Seeing rare/uncommon/valuable things (Q69.2)	0.57	0.13
Gaining information/knowledge (Q69.3)	0.59	0.09
Enriching my understanding (Q69.4)	0.49	0.11
Feeling awe and wonder (Q69.6)	0.42	0.25
Doing hands on activities (Q69.7)	0.15	-0.13
Used smartphone/tablet during visit (Q26)	0.37	0.10
Surprised by something during visit (Q33)	0.44	0.07
Data are weighted; Q59 is 0-10 scale; all independent variables are binary (0/1)		
Spring data were excluded due to questionnaire changes; unweighted valid N is 6,477		
All coefficients are significant at the 95% level		
remove		

Appendix G

Net Promoter Score by Museum

Net Promoter Score ranged from a high of 75% for NASM-UHC to a low of 19% for HMSC and NMAI-NY

Net Promoter Score (4 Seasons)



Q59 (2b) On a scale from 0-10, how likely are you to recommend to a friend?

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