FORUM

Understanding the Effects of 'Behind-the-Scenes' Tours on Visitor Understanding of Collections and Research

Abstract

Collections can be a 'mystery' to many museum visitors, which makes investing in behind-the-scenes tours an opportunity for increasing awareness of the role museums play in scientific research. Drawing on the theories of contextual learning, situated learning, and legitimate peripheral participation, we offer insights from an exploratory study that investigated the potential effectiveness and practicalities of using behind-the-scenes tours to improve visitor understandings of museum research. This forum paper reports on emerging results from visitor questionnaires and staff interviews across six museums where we explored the experience offered by behind-the-scenes tours as an effective learning environment. These results suggest that behind the scenes tours remain under-researched and highlight the need for further investigation into the value of this visitor experience.

Introduction

Museum collections are at the heart of many museums, and this is especially the case for a number of institutions that conduct scientific research. Despite estimates of the number of objects in the UK's national collections exceeding 200 million (Keene 2007), many museums can only display a small fraction of the items they hold. Upwards of 90% – sometimes even 99% – of items are kept in storage (BBC 2011; BBC 2010; Caesar 2007; Keene 2007), preventing most visitors from ever seeing them or being aware of their existence. This means that despite collections in theory being accessible by anyone (Wilkinson 2005; NMDC 2003), visitors are often unaware of the extensive collections held by museums. Visitors may also not realise that many museums also function as research institutions, whereby such collections are regularly accessed by researchers (Kelly 1999; Gyllenhaal, Perry, and Forland 1996). These hidden collections present an opportunity for science communication; by reintroducing collections to the public, museums may educate visitors not only about their resources, but also about their significant role in research. 'Behind-the-scenes' tours of collections offer one such way of potentially engaging the public with museum collections.

The Themed Gallery Paradigm

A great many museums are organized as a series of themed galleries housing display cases of objects and specimens, accompanied by signage supporting for each item and the room's theme. These conventional one-way communications place the curator in a position of power, selecting the objects and writing the labels in ways that dictate meaning based on their 'vision' of what should be learned (McLean 1999). Studies have suggested visitors to these types of museums do not feel their views of science change after a visit, nor do they report that the experience stimulates them to think critically about science (Rennie and Williams 2006). It would seem that this approach may neglect opportunities to more widely 'engage' with visitors (Miller 2001; House of Lords 2000).

Ames (2014) suggested that museums should be 'de-schooled' and encouraged to abandon the traditional approach of educating visitors via objects in display cases. Ames suggests that visitors should be able to investigate collections in context, rather than through "pre-packaged, curatorial interpretations" (p.105), with curators available as an additional resource to support their self-directed inquiry. Many museums have embraced more interactive approaches, such as mobile technologies (Tesoriero and Gallud 2014), digital exhibits and kiosks (vom Lehn, Heath, and Hindmarsh 2005), and social interaction with staff distributed throughout the galleries to engage visitors with the exhibits (Falk and Dierking 2016). Unfortunately, only a small percentage of visitors may have the chance to interact with an expert in a crowded museum. Behind-the-scenes tours, however, may offer a useful solution that can increase visitor interaction with museum collections and promote an understanding that many museums are more than their public displays, they are scientific research organizations whose displays advance understanding of the world around us.

Behind-the-Scenes

Museums are exploring various open access options to reintroduce their wider collections to the public (Caesar 2007; Wilkinson 2005), including open storage, virtual access, visible access, electronic databases, and expansion of exhibitions (Kelly 1999).

'Open storage' offers unrestricted access to collections, meaning visitors can freely explore a museum's archives in the same way as a museum gallery (Orcutt 2011; Kelly 1999). This has numerous benefits, it is a new way for visitors to learn about topics of interest and to see the museum's work, as well as an opportunity for them to understand the nature and importance of museums. The museum also benefits by being able to demonstrate the expanse and range of their collections – which in turn motivates them to maintain good storage conditions – as

well as increasing visitor numbers and improving handling of public enquiries (Orcutt 2011; Kelly 1999).

Open collections, however, pose a few challenges. There is increased risk of wear and tear or damage to objects, and museums must upgrade and maintain their storage standards and documentation (Kelly 1999; Thistle 1990). Orcutt (2011) makes the case that more interpretation of collections is also required because the sheer number of objects can lead to the museum becoming "large and horribly indigestible" (Cross and Wilkinson 2007, p.18), although the emerging hack the museum movement might suggest the contrary (Baggesen, 2019). The increased responsibility of dealing with visitors in such spaces, and maintaining open collections, may mean the costs outweigh the financial benefits.

There are also concerns that visitor experience may suffer. Visitors may be confused by new access systems and find them overwhelming, whilst access to collections by researchers may be reduced, and in small museums incoherent collections may be formed of unrelated objects (Kelly 1999; Thistle 1990). It has been suggested that open collections undermine the work of the curator, who is responsible for selecting the best, most well-suited educational items for public display (Ames 2014). Although open collections have therefore been trialled (Ames 2014; Heritage Lottery Fund 2009; Wright 2002), and visitors generally react positively (Dawes 2016), it is not a suitable option for all museums, especially smaller ones (Thistle 1990).

'Behind-the-scenes' tours are an alternative way for museums to offer open storage to the public without such unrestricted access. The small number of previous case studies of behind-the-scenes tours have revealed positive responses from visitors, with store[i] tours being described as "fascinating" and "informative", and the collections themselves as a "treasure trove" (Cook 2009; Caesar 2007).

A Learning Environment

Museums are free-choice learning situations, where people make the voluntary choice to visit, and also choose what they wish to learn about once there (Falk 2004). This means that each visitor's learning experience is unique as it is dependent on the personal, sociocultural and physical contexts in which the learning occurs – that is, dependent upon their prior knowledge and interests. Museums are therefore considered 'dynamical learning

environments' which support learning in the context of what visitors already know, achieved by participation in activities driven by that context (Falk 2004; Barab and Kirshner 2001).

It is therefore proposed, in this research, that behind-the-scenes tours may complement museum galleries as an environment for this contextual or situated learning (Falk and Dierking 2004; Lave and Wenger 1991). A visitor on a behind-the-scenes tour may have chosen to attend based on their previous knowledge or general curiosity, and they have the flexibility to ask questions about areas of interest within the tour, meaning learning happens in the context of their existing knowledge (Falk and Dierking 2004; Lave and Wenger 1991). The theory of situated learning also emphasises that learning is dependent on social interactions (Lave and Wenger 1991). It is "more than simply 'learning by doing'" (Smith 2003, 2009), but rather learning by participating with experts (Smith 2003, 2009; Lave and Wenger 1991).

There has been little research into behind-the-scenes tours as a science communication technique, but previous work suggests they are a good environment for learning, with visitors describing collections and tours at the Science Museum as "educational" (Caesar 2007). To make our point, we undertook an exploratory study to explore the learning potential of behind-the-scenes tours, and how they enable visitors to understand that museums have more to offer than exhibitions alone. The research aimed to answer the questions, 'How effective are behind-the-scenes tours, with regards to visitor understandings of museum collections and the practicalities of delivering them?'

Methods

Because this was an exploratory study, we used both qualitative and quantitative methods to give a holistic picture of the effects of behind-the-scenes tours based on best practices in theory detection (Carter et al. 2014; Patton 1999). The research combined visitor questionnaires, staff interviews, and a small number of informal observations to understand the format and content of the tours. This "three-legged stool" approach results in a more complete picture, increasing the validity of the data (Hall and Rist 1999) even in a small study versus approaches that employ interviews or questionnaires alone (Cook 2009; Caesar 2007). A list of potential institutions was compiled via online research into behind-the-scenes tours at UK museums, identifying current or past use at twelve UK museums. At this writing, four are now hosting tours multiple times per week, while another four ran them infrequently as one-off events during the period of our study. These eight museums were approached by

email with information about the research and six responded and were able to participate (Table 1).

[INSERT TABLE 1 ABOUT HERE.]

A questionnaire (see supplementary material online) was designed to understand visitors' expectations and experiences, based on a similar study by Caesar (2007). Questionnaires offered a quick way to gather responses (Bell 2014) and comprised a mixture of closed and open questions, allowing a small amount of quantitative data to be gathered whilst still allowing visitors freedom to express their views (Crano and Brewer 2005). Paper questionnaires were distributed at tours in person and were designed to capture visitors' expectations prior to attending the tour, and their reflections afterwards. Time constraints meant it was not possible for questionnaires to be completed in the intended two stages (pre- and post-tour). Instead, questionnaires were distributed after behind-the-scenes tours on four occasions – twice each at MShed and the Natural History Museum (NHM) – yielding 20 responses in total (Figure 1). The total number of tour attendees was 28, giving a response rate of 71%. The opportunity to complete the questionnaire was provided to all visitors, at all four tours. Those who did not complete a questionnaire were either under the age of 18 or took the decision to opt out.

Interviews allow collection of in-depth responses and freedom of expression for interviewees (Gillham 2005) and have been utilised in similar past research (Cook 2009). Ten interviews with museum staff were conducted in person and five by telephone, across six museums. Interviews ranged in length from 14 minutes to 43 minutes, with a mean of 26 minutes. Participants were either contacted directly by the researchers to request an interview or volunteered to be interviewed after their institution was informed of the study. Interviewees comprised staff involved in delivering the tours (n=3), staff involved in organising the tours (n=6), and volunteer tour guides(n=6). This offered insights into multiple stages of running tours, from the technicalities of organising them, to the more personal interactions with visitors.

An interview schedule (see supplementary material online) guided the questions and responses, but the interviews were of a semi-structured format, meaning some questions were not asked explicitly if the topic had been covered, and freedom of conversation was allowed

if an insightful subject arose (Bell 2014; Silverman 2014). It covered questions on tour format, visitor response, and costs and benefits. Interviews were recorded, transcribed, and analysed using thematic analysis to search the data for patterns and key themes in NVivo Pro 11. The transcription itself was a key step for familiarisation with the data, allowing for initial interpretation (Bird 2005; Reissman 1993). Visitor questionnaire data were analysed in Microsoft Excel, with open questions analysed using a similar approach to the interviews, adapted from Braun and Clarke (2006).

The research was conducted in accordance with UWE Bristol Research Ethics protocols for Taught Masters students, and consent was given by participating institutions to give details of their tours, as well as by participants within the wider research process.

Emerging Findings and Discussion

Due to the exploratory nature of this study, the results presented here focus on the emerging themes and offer useful direction for future research. We have used pseudonym's for all participants in this report to support readability and to acknowledge the participant's personhood rather than any representativeness in the data.

We found that visitors were overwhelmingly positive about behind-the-scenes tours and believed that these programs "enrich their experience" (Chris), whilst allowing museums to "show people what actually happens at the museum" (Terry). In the post-tour questionnaire section, when asked whether the tour met their expectations, nine visitors said it exceeded their expectations, and 10 said it matched their expectations. The main themes identified from the analysis of the open-ended questionnaire visitor comments were enjoyment of seeing behind the scenes, good interpretation from the tour guide, increased understanding of behind the scenes, and finding museum collections interesting, with a variety of aspects reported to be enjoyable. Considering these responses, behind-the-scenes tours appear to meet at least four of the five elements of the AEIOU vowel analogy (Burns, O'Connor, and Stocklmayer 2003): awareness, engagement, interest and understanding, satisfying some of the key outcomes of successful science communication.

Thirteen staff interviewees believed that most tour attendees – and museum visitors in general – were unaware of the presence and uses of museum collections prior to attending a behind-the-scenes tour: "I think a lot of people don't realise how many researchers engage with our collections" (Lauren) and this was also evidenced in the visitor questionnaire data,

where we found only low numbers of visitors signed up with the purpose of learning about the museum's scientific research (n=2), or with an expectation to learn about how museums worked (n=7).

The most direct benefit of running tours to the museums was income, either through donations, ticket sales, or by encouraging visitors to sign up or renew their membership. Four guides also hoped that the tours improve the image and reputation of the museums, helping them to be seen as "forward-looking" (Pat) and "dynamic, collaborative spaces" (Lauren). Staff interviewees suggested that the museum's profile could be raised by visitors spreading the word after attending a tour, and tour guides enjoy delivering them as it was a way they could also contribute, learn, be questioned and share their enthusiasm. When asked for their opinions on the tour guide in the questionnaire, visitors were very positive; the guide 'really enhanced what we were looking at,' was 'informative and engaging,' and had a 'deep knowledge'. Visitors were driving their own learning by asking about topics of interest to them, which results in contextual and situated learning – learning which occurs in the context of what the visitor already knows (Falk and Dierking 2004; Lave and Wenger 1991). Whilst visitors did not attend tours for the purpose of interacting with museum staff, afterwards they found the guide one of the most enjoyable elements of the tour, resulting in not just learning by doing, but learning by participating with an expert (Smith 2003, 2009; Munley and Roberts 2006; Best 2012; McLean 1999).

Behind-the-scenes tours offer opportunities for interaction, they encouraged visitors to ask questions, in an effort for the tour to be a "conversation", not just "one-way" or a "lecture". Tours could be an effective way of demystifying the work of scientists, by challenging the deficit model and the top-down dissemination of information (Bodmer 1985) which a traditional museum gallery could be considered to represent (McLean 1999). A common theme was that on a tour with good interaction, visitors tended to offer their own stories about items with which they had a connection or expert knowledge. One such example came from an MShed volunteer:

"There's an old delivery bike from a grocer's in the 1930s, and this old man came in, and I noticed when we were there that he had a tear running down and I said, 'Are you all right?' And he said, 'That's my grandpa's bike!' It was his grandfather's bike and he'd never seen it since the 1930s!"

The expertise of the guide was another contributing factor to the interaction on tours. When the guide was a curator or researcher, visitors recognise their expertise and that "they can answer all kinds of different things" (Jean). Tours therefore vary in nature, with all having the potential to be shaped by the particular questions asked on the day, which might take the tour off in an unexpected direction and dependant on the guide and/or visitors. There were examples of both visitors and guides selecting their own favourite objects to explore: "The thing about the tour is it's like an Aladdin's cave in there so it could sort of go in all sorts of different directions" (Dylan).
Despite such opportunities staff interviews suggested tours were not always well marketed: "it's still too much of a secret" (Marion), "the publicity for it is not very good" (George) and "people don't know about the tours" (Kerry). This means that even at large museums such as the NHM or MShed, tours are not always full or people have not signed up. Marketing can be difficult and expensive, especially for smaller museums with low income (Kotler, Kotler, and Kotler 2008). However, it is possible that tours could become a major source of income if their popularity was boosted, there were increased 'word of mouth' about them via social media (Hausmann 2012) or they were linked to membership schemes.

The most frequently mentioned challenge of running behind-the-scenes tours amongst staff was access, with issues regarding navigating difficult spaces highlighted by nine staff interviewees. All museums except the Science Museum had to keep visitor numbers small, with narrow corridors and tight spaces mentioned. In very old buildings, some areas are simply unnavigable by wheelchair users. A core element of behind-the-scenes tours is that the areas explored are working areas, which often means navigating around researchers and curators during tours, though this added an extra layer of authenticity.

Staff time and resources are another key difficulty in delivering behind-the-scenes tours, especially for curators and researchers who have work besides the tours. One staff interviewee pointed out "they're [scientists] meant to be doing, I think, 10% public engagement. It's 90% of their other work, which might be conservation, research… So, they can't spend too much more time doing more tours" (Jesse). Therefore, although the best interaction was seen in tours led by curators and researchers, who could offer the most in-depth explanation of the collections, an expertly trained tour guide is also a good option to give visitors a good level of interpretation of the collections without taking researchers away

from their core work. Both of these difficulties, access and staffing however, mean the reach of behind-the-scenes tours can be quite small and the proportion of tour visitors may be less than 1% of the total number of museum visitors (ALVA 2017).

Overall, behind-the-scenes tours were perceived to be extremely well received by visitors, with positive responses being described by all staff interviewees. Some interviewees said the tours are "mind-blowing" (Ashley, Mac) for visitors, and they can tell how much visitors enjoy them by responses such as "Woah, that was great!" (Pat), "This is the best thing I've done all week!" (Fran) and sometimes even applause (Pat). Staff interviewees described buzz of excitement when the group is led through into the non-public areas and the guide swipes their pass to let them through:

"…just seeing the look on their face, because you're just confronted with taxidermy and antlers... Racks and racks and racks of antlers and massive specimens. I think there was like an elephant and there's a whole stack of giraffe heads, you know, it's really something. You just see their eyes light up, and it's like a giddish excitement." (Jaime)

Guides discussed playing on this "element of theatre" (Odell), by emphasising that they are entering the "restricted area" (Cary), and staff interviewees explained that what gives the tours particular impact is the element of 'privilege' – that visitors are seeing something truly special, which makes the tours and their messages more memorable. This was also reflected in the visitor questionnaire data, when asked 'What words/phrases would you now use to describe museum collections?' there was a host of positive responses, of which 'interesting' (n=5) and 'fascinating' (n=4) were the most commonly used words. Other phrases included 'out of this world' and a 'treasure trove'. There was a clear 'wow' factor when visitors realised the size of the museum's collections and alongside a guide offering a high level of interpretation and interaction (Falk and Storksdieck 2005; Weiler and Ham 2001; McLean 1999), museum staff believed visitors both learn better and feel more personally engaged with the collections by attending a behind-the-scenes tour than by visiting a museum gallery alone.

Conclusion

This small study of behind-the-scenes tours in six UK-based museums demonstrates that there would be value in studying how behind the scenes tours influence learning and the

public narratives surrounding museum work. Further research could also develop a more nuanced understanding of how attendees' backgrounds and interests influence learning priorities. Methodologically there is also an opportunity compare how different types of tours or museum type impact understanding.

With the advent of museums making digital versions of their full collections available online, how museums and curators engage with participatory programs is also likely to shift how learning happens. Through gathering staff and visitor opinions, our snapshot of behind-the-scenes tours found, not surprisingly, that there was a high level of engagement generated by seeing behind the scenes, both operations and artifacts. As many anecdotal reports have suggested, the tour is conducive to more advanced learning since the activity combines participatory learning modes, novelty in objects, and guided inquiry supported by in-group dialogue. While these programs cannot happen at scale, the outcomes of these tours suggest that the participants in the tour may also be a new group of advocates who can share different stories about museum content and role in society. These exploratory data suggest that research into the full depth and breadth of the behind the scenes experience worthy of future research.

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Table 1: Participating institutions and data collected from each.

	Data collected		
Institution	Observations	Staff interviews	Questionnaires
MShed, Bristol	✓	✓	✓
Natural History Museum, London	✓	✓	✓
The British Museum, London	✓	✓	
Bristol Museum and Art Gallery		✓	
Science Museum, London		✓	
Oxford University Museum of Natural History		✓	

NOTE TO PRODUCTION TEAM:

Supplementary Material

Visitor Questionnaire and Staff Interview Schedule

Please complete the following questions before the tour if possible:

Gender

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

Employment status

- ☐ Employed
- ☐ Unemployed
- ☐ Retired
- ☐ Student
- ☐ Prefer not to say
- ☐ Other

Age range

- ☐ 18-25
- ☐ 26-35
- ☐ 36-45
- ☐ 46-55
- ☐ 56-65
- ☐ 65+
- ☐ Prefer not to say

How was your decision to visit the Museum influenced by the tour?

- ☐ Was coming to the Museum anyway
- ☐ Encouraged to visit by the tour
- ☐ Visited just for the tour

What are you expecting to see or do on the tour today? (Tick all that apply)

- ☐ See unusual items
- ☐ See things not everyone sees
- ☐ Learn something new
- ☐ Explore hidden parts of the museum
- ☐ Learn about the museum's archives/collections
- ☐ Learn about how the museum works
- ☐ No preconceptions
- ☐ Other (please mention)

Why did you choose to attend the tour? (Tick all that apply)

- ☐ To see behind the scenes
- ☐ To interact with museum staff
- ☐ Relevant interests/hobbies (please mention)
- ☐ General interest/curiosity
- ☐ To learn about the museum's science/research
- ☐ Other (please mention)

What words/phrases would you use to describe museum collections? (Not specifically this museum)

Please complete the following questions <u>after</u> the tour:

How did the tour meet your expectations?

- ☐ Exceeded expectations
- ☐ Below expectations
- ☐ Matched expectations

What did you find most enjoyable about the tour?

How would you describe what you saw?

Has your understanding of museums changed? If so, in what way?

How would you describe the level of explanation given by the tour/guide?

What words/phrases would you *now* use to describe museum collections?

Thank you for taking the time to complete this questionnaire

Interview schedule

How often does the museum run behind the scenes tours?

What is the duration of the tours?

How do you feel visitors respond to the tours?

How do visitors participate and interact with the tours?

How do you feel visitors generally perceive museum collections?

Do behind the scenes tours influence these perceptions?

What are the most common reactions to seeing the museum archives?

Do the tours affect visitor perceptions of the museum itself?

How do tours influence visitor awareness of museum research?

What are the main difficulties in running tours? Has this influenced the frequency and duration (and exclusivity) of your tours?

What are the key benefits of the tours, to both the museum and the visitors?

Anything else you'd like to add?

[i] This article uses the term 'store' to mean a location in which things are kept until they are needed, rather than a museum shop or store for purchasing goods and gifts.