

A qualitative study on the experience of a visit to the Natural History Museum by deaf-blind adults— With a focus on the experience of the Hands-On Exhibition –

Eriko Shima^{*1}, Shima Yagishita^{*2}, Junko Tsuchiya^{*2}, Yoshikazu Ogawa^{*2}, Shigenori Inagaki^{*3}

^{*1}Osaka Museum of Natural History, ^{*2} National Museum of Nature and Science, Tokyo, ^{*3}Kobe University

[Abstract] The aim of this study was to explore the kinds of experiences and impressions of people with both visual and hearing impairments in hands-on exhibitions at the Natural History Museum using qualitative research methods. The subjects were two pairs of adults with both visual and hearing impairments and their interpreter helpers. During a lecture in a museum visit to X Support Center for the Deaf-Blind on September 25, 2018, and through a visit to the Natural History Museum on November 29, 2018, we conducted two rounds of observations and four interviews over a six-month period from September 2018 to February 2019. The survey highlighted the importance of creating new discoveries by experiencing the same things at the same time in the same space for the deaf-blind, and by sharing things felt differently by individuals. Also, from once being considered uninteresting, the museum felt like a place where you were able to touch and share things with other people, despite not seeing them. In addition, it became clear that interpreter helpers who were happy and excited in the museum were able to communicate these feelings to the deaf-blind and provide an enjoyable time in the museum. The museum side should try to ensure that both the deaf-blind and the interpreter helpers have a fun and fulfilling time.

[Keywords] Visual impairment, Hearing impairment, Interpreter helper, Sharing, Communication, Rental specimen

1 Introduction

Museums are open to the public (ICOM (2002)). As a public educational institution, museums need to make perpetual efforts to avoid excluding specific groups of people in the diverse members of the society. As part of this effort, it has become urgent for museum education to clarify what museums should do for people in the social minority groups to enjoy the learning opportunity at the museum (Ohtaka 2012). Assumed visitors are people with various disabilities, people living in Japan who are not native speakers of Japanese, truant students and their families, and foreign visitors. The Act for Eliminating Discrimination against Persons with Disabilities entered into force on April 1, 2016 in Japan, and a measure has been strongly called for in this regard. This study focuses on people with both hearing and visual impairments.

Hitherto, museums played the role of “cultural facilities of showing/seeing that symbolize the modern society” (Hirose 2016). However, from the 1990s onward, an increasing number of exhibitions have been laid out by situating the experience of not only seeing, but also touching, listening, and bodily feeling as interactive, participatory, or hands-on exhibitions (Komami 2016). A survey on the needs of people with visual impairments showed that they seek “exhibitions accessible through five senses” (Handa et al. 2010). Hirai (2014) argues that not only does hands-on provide the experience of “touching” but it also provides “minds-on”, that is, it is intimately connected to the

issue of visitors' self-directed learning.

Many museums across Japan have been making steady efforts to be accessible to people with visual or hearing impairments (for example, "Sawatte Miru Kai" (Session for touch and see) at the Kyoto University Museum (Ohno 2013), a learning program for the school for the visually impaired at the Okayama Prefectural Museum of Art (Okamoto 2016), and learning support for people with hearing impairment at the National Museum of Nature and Science, Tokyo (Egusa 2018) etc.). Meanwhile, all these studies focus on practical reports for program development as well as program evaluation, and, as seen in a study on the appreciation experience at the museum (Handa (2018)), only a limited number of studies on the experience at the museum of visitors with visual or hearing impairments exist.

Thus, the aim of this study was to explore the kinds of experiences and impressions of people with both visual and hearing impairments (1) in a program focused on "haptic observation" in an outreach lecture given by the Museum of Natural History, in which participants observe fossil specimens by touching them, and (2) on their visit focused on haptic observation of hands-on exhibitions at the Museum of Natural History.

2 Study methods

According to Fukushima (2001), the difficulties faced by people with both visual and hearing impairments can be categorized into three types: communication, access to information, and transfer. He argues that, more than any support, they require "personal support" by interpreter helpers. In investigating the experience of a museum visit for people with both visual and hearing impairments, it is considered that the presence of interpreter helpers as well as interactions with them constitute a major element of their visiting experience. For this reason, not only people with both visual and hearing impairments but also interpreter helpers were asked to participate in this study and observation and interviews were conducted with them.

(1) Study participants: A letter of request for study participation was given to people with both visual and hearing impairments and their interpreter helpers scheduled to participate in an outreach lecture of the museum and a museum visit beforehand, and two pairs of adults who agreed to participate in our study were interviewed.

(2) Survey content: (1) In an outreach lecture of the museum (Late September, 2018) and (2) a museum visit (Late November, 2018), particularly during haptic observation of the specimens and exhibitions, participant observation was used to record exchanges between people with both visual and hearing impairments and interpreter helpers and staff. Moreover, exchanges of one pair of participants only were recorded and videotaped after they gave their consent. Subsequently, a 60-minute interview survey was conducted immediately after the outreach lecture of the museum and the museum visit and about one and a half months after the lecture and visit. On these occasions too, interviews of one pair of participants only were recorded and videotaped after they gave their consent.

a. On participatory observation

The lead author participated as a staff member of the museum and was involved in the

coordination of the outreach lecture and museum visit. On the day of the lecture, she made an overall observation by recording diverse parts of the program, particularly focusing on exchanges (communications and interactions) between participants, interpreter helpers and museum staff as they observed fossil specimens and models by touch. She took notes during the lecture as well as provisional notes on communicated contents after leaving the event, and created field notes at home based on notes and recordings.

b. Consideration for research ethics

As this study was to ask each participant to talk about their experience when they participated in the outreach lecture of the museum, the study was conducted after explaining the following points carefully and receiving their consent: anonymity of study participation and freedom of revocation, harm and benefits of participating in the study, protection of private information, method of disclosing data and the study results, and handling of data after the end of the study.

3. Implementation of a workshop entitled “Let’s learn about ancient species!” in an outreach lecture of the National Museum of Nature and Science at X support center for the deaf-blind

The outreach lecture of the National Museum of Nature and Science, Tokyo (hereinafter NMNS) was conducted at X support center for the deaf-blind (hereinafter Center X). In Center X, in 2017, just a year before the lecture, a field trip program was implemented for the first time at NMNS. As the participants received the field trip program well, an outreach lecture in late September and a visit to NMNS in late November were planned in succession in 2018. For the visit to NMNS in late November 2018, in view of the implementation of a program that is focused on haptic observation of “touchable exhibits” entitled “Museum time travel: Explore the ancient Earth” (Refer to Shima et al. (2018) and Shima and Iwasaki (2018) for details of the program), the authors determined the following as aims of the outreach lecture: to promote participants’ interest in ancient creatures and enhance their expectations for the next museum visit, through a dialogue with museum staff and physical contact with ancient creatures like fossils, real or replica. In the outreach lecture, the old rental specimen set D (with explanation via braille. *The specimen rental project for learning purpose of the National Museum of Nature and Science was terminated) of NMNS and replicas of ammonites and dinosaurs were used (Table 1).

Table 1. Fossil specimen used

Fossil specimen	Explanation in the description (partial excerpts)	Era
Acesta goliath	A species of bivalve Limidae.	Cenozoic
Vicarya	A shell. A species of Batillaria multiformis in Gastropoda .	Cenozoic
Carcharodon’ s teeth	Cartilaginous fish. Lamnoid shark Carcharodon. Carnivore.	Cenozoic
Merycoidodon’ s mandible	An even-toed ungulate. A herbivore.	Cenozoic
Merycoidodon’ s maxilla	An even-toed ungulate. A herbivore.	Cenozoic
Rhacolepis	Osteichthyes, closely related to ladyfish .	Mesozoic
Hadrosaurus’ s arm bone	A herbivorous dinosaur.	Mesozoic
Hadrosaurus’ s mandible	A herbivorous dinosaur.	Mesozoic
Ammonite (Parkinsonia)	Mollusca, Cephalopoda.	Mesozoic
Ammonite (Dactyloceras)	Mollusca, Cephalopoda.	Mesozoic
Leptolepis	Osteichthyes.	Mesozoic

4. Implementation of the visit to NMNS hosted by Center X

There was a field visit to NMNS in late November 2018, two months after the outreach lecture. The program prepared by the museum was entitled “Museum time travel: Explore the ancient Earth”. The objectives of the program were to get participants

- To feel that the museum is a safe and delightful place to be.
- To know that the museum has many “touchable exhibits.”
- To know the functions and roles of the museum in which several real materials from ancient times to the present are kept, some of them are displayed, and educational activities are organized.
- have an interest in links from ancient creatures to modern creatures by actually touching ancient creatures like fossils, real or replica (haptic observation), or through a dialogue with museum staff at the museum.

The actual order of the program was first to listen to the talk of the researcher specializing in paleontology at the multi-purpose room. Participants were then divided into three groups and made haptic observations of touchable exhibits in the first basement floor of the Global Gallery and the third floor of the Japan Gallery, and then made haptic observations of specimens of modern birds and a replica of Archaeopteryx in the multi-purpose room (Table 2). In each case, museum staff accompanied the participants, providing explanations and responding to questions as needed. Finally, they gathered at the multi-purpose room for a QA session.

Table 2. Hands-on Exhibitions that were touched

	Hands-on Exhibitions that were touched
First basement floor of the Global Gallery	Legs of a dinosaur and reptile (Maiasaura, Saltwater crocodile)
	T. rex’s teeth
	Hadrosaurus’s teeth
	Tails of Stegosaurus and Scolosaurus (replica)
Third floor of the Japanese Gallery	Ammonite
Multi-purpose room	Archaeopteryx (replica)
	Large-billed crow
	Northern goshawk

5. Results

Impressions obtained from the interview survey are presented below.

(1) From surveys right after the outreach lecture and one and a half months after the lecture

-Importance of being able to have direct physical contact, imagine what they got from the direct physical contact, and share emotions on hands-on experience with others: Two pairs of participants mentioned the importance of having direct physical contact, and their acquired ability to imagine fossil specimens for themselves after having direct physical contact with them, emotions evoked by this experience, and the delightful feelings of being able to share these motions with other participants.

-Importance of attentively touching a specimen: Two pairs remembered the shark fossil that they all touched at first and the subsequent fossil specimens each pair attentively touched well. However, they did not remember other fossils that were subsequently passed over to their table in order well.

(2) Surveys right after the implementation of the museum visit and one and a half months after the visit

-The importance of experiencing and sharing the same object at the same time, same space: For people with both visual and hearing impairments, the surveys highlighted the importance of experiencing the same object at the same time, in the same space, and sharing the differing impressions they got from it, and in so doing, discovering something new.

-Change in the impression of the museum: The impression of the museum was found to have shifted from an uninteresting place to visit, to a place in which objects, which they cannot see, can be shared with others by touching them.

6. Discussion

Fukushima (1997) contends that the most difficult things for people who have become blind and deaf are their inability to understand their surroundings, as well as severe difficulty in communicating with others. The present survey revealed that being able to share the emotions they experienced through their own discovery with other participants leads to the sense of pleasure. According to Hein (1998), the central concept for adult learning is the notion of the “learning community”. In this study, the museum was invited to give an outreach lecture at a workshop held regularly at the support center for people with both visual and hearing impairments. This might have provided an opportunity for delightful learning for the participants as they had direct physical contact with fossil specimens, talked about their discoveries, and shared their discoveries. We would like to take our research a step further in future and explore, through museum outreach lectures and museum visits, the kinds of experiences and impressions of people with both visual and hearing impairments.

Regarding the method of touching specimens in a learning program, Toriyama (2017) has pointed out the importance of attentively touching one specimen already. In program planning, some people may contend that “all people should be able to touch the same object and all people should be able to touch all prepared specimens.” However, once again, we would like to stress the importance of attentively touching a single specimen and sharing emotions.

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