Investigation of Museum Exhibition Display in Terms of Inclusive Information for Blind Visitors.

Fuadianti. S. ¹, Arvanda. E. ², Isnaeni, H. ³, Nuraeny, E.⁴, Kusuma, N.R.⁵

¹ Department of Architecture, University of Indonesia, Depok, Indonesia
² Department of Architecture, University of Indonesia, Depok, Indonesia
³ Department of Architecture, University of Indonesia, Depok, Indonesia
Email: ¹saufikafdn@gmail.com
Corresponding author: ²enira.arvanda28@gmail.com; ³hendrajayaisnaeni@gmail.com

Abstract. A museum is a place where we can learn about the culture of a place. Museums rely on their exhibition display to communicate its content. Museum exhibition displays mostly use visual media in communicating its information; they store their collections inside glass boxes, use LED screens, visual projections, and so on. Then how museums can be adapted to be more inclusive to blind visitors who lost their sight? This paper investigates the museum exhibition display, that took place in Bank Indonesia Museum, in its ability to give information to blind visitors. The author observed the existing of Bank Indonesia Museum Exhibition to know what kind of display that they use. Furthermore, to acknowledge if the exhibition can give information for blind visitors, the author experienced visiting the exhibition as a blind visitor. Lastly, the author analysed if it is inclusive and informative or not based on the theories. Based on the studies that have been done by the author, museum exhibition display has to provide medias that can help blind visitors get the information provided such as audio and touch medias, considering the ability of blind visitor to get information from hearing and touching.

1. Introduction
The museum is an active learning space for all [1]. Therefore it has to widen its access to its collection to be comprehended by all kinds of visitors [2]. As the museum's communication media [3], an exhibition has to learn how to communicate to visitors that before they cannot communicate with [1].

A blind person is incapable of using their visual sensory to receive information. Meanwhile, visual aspects are believed to play a major role in mediating cognitive processing [4]. Based on [5], the hierarchy of a blind person's sensory perception majored by touch-haptic perception, followed by light perception and sound-auditory perception. But for receiving information, blind people mostly use their touch and hearing. It is believed that a blind person can only access information in sequential processing because only touch and hearing can be depended [6].

‘Do not Touch’ is a sign that made for protecting the collections or museum’s display. However, it’s an issue for blind visitors to get information from the museum[7]. If blind visitors can't touch anything in the museum, their subjectivity is mostly taken [8]. Because based on [9], a blind person can get information about texture and characteristics from an object by touching it. It can be assumed touch access is important for a blind visitor in comprehending museum displays. However, tactile perception
also needs to be supported by hearing information to help to create the mental images of the blind [10]. It also occurs when the museum only gives an audio explanation for blind visitors; they tend to easily forget it rather than with touching the objects [11].

As discussed before, access to touch is important for blind visitors to understand display content. The Victoria & Albert Museum in London tried to provide inclusive information for blind visitors by giving access for touching its collections or the replicas for collections that need special protection [12]. Thus, an organization like Smithsonian made guidelines to help the museum provide exhibition displays that informative to blind visitors [13]. It stated in [13] that the museum also needs to have tactile or braille format in label text for blind visitors to understand further information about the display. However, in [12], knowing that there is a limited person who read braille, therefore, an audio description is needed to give the explanation in a display. Research done by [14], they combined touch and audio description in sync by using sensor technology that made whenever someone touches the object, the audio track will start to play. It helped blind visitors to get rich information from a display.

The purpose of this writing is to study how the museum exhibition display can give inclusive information to blind visitors by investigating Bank Indonesia Museum exhibition displays. Bank Indonesia Museum Exhibition has a purpose of communicating about Bank Indonesia role in society to its visitors [15]. The exhibition known to use varies of technology, electronic display, and many more to deliver its information. Therefore, the author questioned those technologies and media, used in exhibition display, able to give information toward blind visitors. Hence, this paper will discuss the criteria of inclusive and informative display for blind visitors, then if it has been implemented in the Bank Indonesia Museum or not.

2. Method

For understanding what kind of display media that Museum Bank Indonesia use, the author observed the existing of the exhibition. The exhibition located on the 2nd floor of the building has one circulation route and divided into 18 exhibits. The observation took one time of the visit and following the circulation route of ordinary visitors. By observing the existing of the exhibition, the authors got to know the kind of display media that the museum used and the information they want to deliver.

Visiting the museum exhibition as a blind visitor also done by the author to confirm if the displays in this exhibition can deliver its information to people with sight loss. On 24th February 2019, the author visiting Bank Indonesia Museum as a blind visitor with FENCY community through an event called Blind Museum Tour, that gives a chance for normally sighted people to experience visiting museum as a blind visitor. In this event, the participants divided into groups consisting of 4-5 people with one blind guide and one visual guide. The participants given blindfolds to cover their eyes, non-activating their sight along the visit. To move throughout the exhibition, the participants held on each shoulder with the blind guide on the front to guide them depending on his/her cane. The visual guide is for making sure we move in the right direction also give information about the display that the information we couldn't get.

Elaborating the observe and the visit, the author will analyze them with theories and some studies about exhibition display for the blind visitor. The analysis is expected to give acknowledges if the existing display can give information to blind visitors. Therefore, the solution to give inclusive information for blind visitors will be known by relating the results to the theories and the researches.
3. Results and Discussions

3.1. Bank Indonesia Museum Exhibition Display Existing Observation

In observing the existing of the displays in Bank Indonesia Museum exhibition, known that the exhibition uses a variety of display media also technologies. The author chose 7 displays that represented the display media used in Bank Indonesia Museum exhibition (see Figure 1). In order from display number 1 to 7, the display media used for communicating information to the visitors are displaying real objects in containers, illustration carved into a metal plate, audio-visual, diorama, interactive media, displaying existing collection and tactile exhibit (further explanation see Table 1). The information format is given by the media defined as visual, audio and tactile format. Some of the display media provide only one format, but some give more than one to communicate the information to the visitors. Expected from this observation, the displays that can give information to the blind visitors are display numbers 2, 3, 6 and 7, that the display object can be touched or has an audio explanation for blind visitors to get information.

3.2. Visiting Bank Indonesia Museum Exhibition as Blind Visitor

Bank Indonesia Museum exhibition has few displays that we can touch to get more detailed information. For the Bank Indonesia logos display, which in the observation it’s number 2, we got directed by the guides to touch the carved surface that formed as logos. We can imagine how each logos shaped like. Although, we can't get an explanation from this display because it's in alphabetical text format. Besides, in this display, we couldn't touch the whole logos because of the height. Another display that we got information by touching is display number 6, an old clock display. The old clock displayed without physical barrier so we can touch the whole thing and get to know its form and texture. However, we got an explanation about this clock from the guide, not from the display.

By touching we can get information about the shape and the textures of the exhibit. Yet, to know what object we're touching we depended on the blind guide, who explained the objects helped by the visual guide. Here can be assumed that an audio explanation is important to support tactile information,
the same as the result of [10]. Thus, not all objects at the Bank Indonesia Museum exhibition can be
experienced tactically. Some of the objects we touch are only flat surfaces that bounded the original
object displayed, which are the containers. There also no further explanation regarding collection
objects, because there are no audio explanation or text label in tactile or braille format.

Bank Indonesia Museum exhibition display for Blind Visitor

| Display Number | Display Media | Information Format | Information Delivered | Blind Visitor Experience |
|----------------|---------------|--------------------|-----------------------|-------------------------|
| 1              | Spices showcased in glass jar and box with LCD screen display their detail pictures. | Visual | Appearance and Kind of Spices in Indonesia. | No information |
| 2              | Direct-speaker, LCD screen | Audio, Visual | Explanation of Bank Indonesia history with scenes regarding it. | No information |
| 3              | Bank Indonesia Logos Carved on Metal Plate | Visual, Tactile | Logos of Bank Indonesia Transformation and the story regarding it. | The texture of the logos that informed the form of the logos but no further explanation about the time information |
| 4              | Diorama | Visual | Visualization of the past event and the story regarding it. | No information |
| 5              | Motion-sensor controlled interactive media with digital projection on the book-shaped surface medium | Visual | Graphics and text about Syariah economy system | No information |
| 6              | The exhibit displayed without any physical barrier with interpretation label text. | Visual, Tactile | The appearance of the clock's properties and history. | Texture and form of the clock but no further explanation about the properties, and history |
| 7              | Gold Bar Replica, Label Text | Visual, Tactile | The appearance of the Gold Bar, the properties and history. | Texture and form of the gold bar but no further explanation about the properties and history |

Based on existing observation, display numbers 2, 3, 6, and 7 expected to be able to give information to
the blind visitor, as the displays give tactile and audio information format. In the visit as a blind visitor,
the writer can get tactile information like texture, physical properties, and temperature from the display
objects. However, the explanation about the display object provided in the alphabetical text, made the
blind visitors can’t get the information. For blind visitors can understand these displays need to have an
audio explanation to deliver the information, maybe as [14] has applied. It is needed to provide label
text in tactile or braille format, but since not all blind visitors read braille [12], an audio explanation is
better to provide.
Thus, for display number 7 that delivered audio format information, couldn't give information to the writer when visiting as a blind visitor. That caused by it use direct-sounder to deliver the information. To listen to the audio description from the direct-speaker, visitors have to stand right below the speaker. Hence, there’s no sign, media, or sensor that made the blind visitor know where to stand. Therefore, blind visitors can’t get any information from the audio-visual display even though they already provided audio description.

Display numbers 1 and 4 couldn't give information to blind visitors because they didn’t give touch access to the display objects, and the description text wasn’t provided in braille text or equipped by audio description. Touch access wasn't provided because they got physical barriers that separated visitors with the display objects. Physical barriers exist for protecting the collection or position of the display objects [8]. However, blind visitors need access to touch display objects to understand its physical attributes ([8],[9]). Without access to touch, blind visitors’ subjectivity is mostly taken [8]. The explanation in display number 1 is provided in an LCD screen in alphabetical text, while in display number 4 the explanation provided on acrylic but also in alphabetical text. That made the blind visitors couldn’t get the explanation about these displays, Audio explanation or braille text needs to be provided by those displays for blind visitors to get further information.

Bank Indonesia Museum has provided technology in its interactive media, which is display number 5, but it didn’t affect much for blind visitors to get enough information from the display. It uses a motion sensor to control the media but didn’t have sound notification when we changed it. Also, the information in the display is in a visual format so blind visitors didn’t get any information from the display. Based on [13], interactive media in an exhibition need to provide special instructions for all visitors can operate it, also give multisensory information.

4. Conclusions

Museum, as an active learning environment for all visitors, should expand their information access for all visitors, included blind visitors. As the exhibition display is part of the museum's communication media, it should be able to give information to all kinds of visitors, including blind visitors. Mostly blind people get their information through their auditory and haptic perception, so the important format of information media that has to be available or provided by the museum exhibition display are audio and touch media. Bank Indonesia Museum has tried to provide displays that visitors can touch or have audio descriptions, but it’s not enough for blind visitors to get information about the contents. Since the displays that provided access to touch not complemented by braille text or audio description to give explanation about the display objects, and audio explanation in Bank Indonesia museum exhibition display isn’t easy to be accessed because it doesn’t have sign, media or sensor that made the blind visitor know the spot to hear the explanation. Interactive displays in Bank Indonesia museum also need to be able to be operated and provide information format that blind visitors can comprehend, so it’d be able to give inclusive information to blind visitors. If those strategies done by displays in Bank Indonesia museum exhibition, they can be informative and inclusive for blind visitors.

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