

# Increasing the Interactivity of the Museum Collections Case Study: Museum Nasional Indonesia Building A

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## ABSTRACT

This paper describes how to improve the interactivity of The Indonesian National Museum Collections – Building A. Interactivity between visitors and object collections is important because it could create some sense of experience in the display even collections. Some theories said there are many techniques that the museum collections can be presented, from display techniques or even conventional display. The interactivity, there are lots of media that can be applied. It is the biggest challenge to attracts visitors by displaying museums. The application of interactivity in the museum is full of varieties and adjusted by age. Objects are exhibited to attract visitors to interact with the collectibles. The method used in answering this problem is the descriptive qualitative research method by conducting online interviews with the museum. Then the data on layout plans, lists of collectibles, and photos of collections were obtained from the museum as comparative data by googling at other museums. The data selected is limited to Building A because of the increase in collection objects and virtual transformation activities in presenting historical stories related to collection objects. Data processing is done by comparing existing data with additional data and with theories related to the arrangement of interactivity between objects and visitors so that conclusions are obtained in an optimal arrangement of object interactivity.

**Keywords:** Display, Interactive Media, Objects Collection, Communication

## 1. INTRODUCTION

One of the best museums in Jakarta is Museum Nasional Indonesia or recognized Museum Gajah. A museum is a permanent institution in terms of serves and developing the community, open to the public that studies, preserves, research, conduct delivery, recreation, and informs the public about real and unreal valuable assets about their environment[1]. Museum visitors certainly will not miss the types of collections on display, especially if there are more objects in the collection when visiting. Therefore, capable display and interactive support to the visitors and even the museum can learn to study the objects collection.

Display representations are an important thing in managing a museum. Presentment of collections can use many techniques, ranging from conventional display techniques that visitors only see to interactive ones by utilizing the sophistication of digital devices that actively require visitors to do something with the object of the collection. Interactive displays allow visitors to have a sense of experience, attracting more attention [2]. The application of Interactive is not just for entertainment, but also as a support for educational facilities in museums with the application of technology.

So, it is necessary to study further how the arrangement of museum collections with interactive devices can invite

visitors' curiosity even more deeply. It is hoped that more visitors will come and get better information provided by the Museum. This paper research applied qualitative with a descriptive method. It is focused on the exhibition hall, in exhibition halls discussing criteria of interactive display, media, and the proposed plan as a reconsideration for interactive exhibits. There is a phenomenon of increasing types of collectibles to be exhibited on Museum Nasional Indonesia. So that, the interactive strategy arrangement is needed to attract more visitors.

## 2. RESEARCH OF METHODS

This research paper focuses on exhibition halls - Building A on display and interactive media improvement to gain more attractive experiences to visitors by applying supporting media interactive and representing proposed displayed layout based on collections. Applies a qualitative method with a descriptive approach whose purpose is to describe interactivity between visitors and objects collection. Data acquisition method carried out by observations; depth interview by WhatsApp call and chat.

### 3. RESULTS AND DISCUSSIONS

An interactive museum presents an object that visitors could directly interact with displayed objects collection [3]. Interactive definition its emphasizes to the [4]:

- **Physical Activities**  
Interactive as a direct component because it conveys the physical and tactile components.
- **Results**  
Involve the idea of the engagement that promotes further involvement with the subject matter of the exhibition.
- **Technology**  
As an online based interactive environment to integrates media to allow visitors to explore the material.
- **Information**  
Interactive is a tool that allows users to manipulate information to suit the interest of visitors

The interactivity of Museum Nasional Indonesia is a structure of displayed collections for visitors to enjoy to communicate and observe to feel some experiences of the objects on display.

Besides that, objects requirement are very important for the interactivity of the museum. Objects Requirements are [5]: Historical, Scientific and Aesthetics; Identified as to form, effort, style, function, meaning, origin, historically and geometrically; Documented as a proof of reality and existence for scientific research; Used as monuments in natural and cultural history; There are original, replica or reproduction objects that are legal to museum requirements. Objects Criteria of the museum have different material modes and characteristics. There are three kinds of objects [6]: Organic objects are made from animals and plants, such as paper, woods, tusk, leather, and fossil. These objects are easily damaged due to insects and fungus. So regular maintenance is needed; Inorganic objects are made from iron, stone, ceramic, glass, etc.; Particular objects are susceptible to damage and should be protected differently by paintings.

#### 3.1. Interaction between Visitors and Objects Collection on Exhibitions Halls

Prioritised the quality and value of the experience of objects. There's 3 context that explain about museum experiences whom interact to each other, that's are **Personal Context**, **Social Context** and **Physical Context** [7].

Current interaction based on existing display of Museum Nasional Indonesia is just focused on physical context and the interaction to each other are not optimized well.

Types of interaction on museum could be described as follows:

- **Symbolic**  
Symbolic Interaction emphasizes on the meaning of cultural interactions of community. There are 3 basic

propositions are Human, Means develop through human interaction and impact on human behaviour [8].

- **Conceptual Affinity**  
Affinity to the museum use the preferences of visitors to identify proximity to anything, including people, places and objects [9].
- **Aesthetics**  
Prioritised the quality and value of the experience of objects. The implementation such a Music or Game [10]. It's classified into 4 processes by humans to gain museum experience while interacting with objects includes Attention; Perception; Memory and Learning [11].

As the types of interactions above, it hopes could optimizing any interactions between visitors and objects to feel more experience on the exhibits. It also makes any exhibit halls to be more interactive.

#### 3.2. Interactive Displays on Exhibition Halls

Interactive media is essential because its implementation can support and facilitate visitors to enjoying the displayed object collections and, at the same time, imply information that has not been revealed in the collection objects. So that, there several types of interactive media it possibly could apply to Museum Nasional Indonesia on the exhibits, such as:

- **Augmented Reality**  
The technology combines 2D objects or 3D objects into a natural environment and is projected in real-time [12].
- **Virtual Reality**  
It is representing visual experience on screen or other devices. Virtual Reality involves humans sensing such sense and sound through speakers or headphones [13].
- **3D Hologram**  
The aspect of the system it covers on easily reproducible and adaptable to the intended use and available budget (Scalability); it Should be suitable for different settings (Customization) [14].
- **Tangible User Interface**  
That is a Media device that connects the virtual environment through the real environment or real physical. Their environment concept combines a virtual environment and a real environment to represent and control the physical objects [15].

Interactive displays focused on the exhibits that used one of the five senses (eyesight, smells, hearings, tastes, touches) to engage the exhibits [16]. Interactive display of Museum Nasional Indonesia on Exhibitions possibly such as:

– Peradaban Islam Exhibits

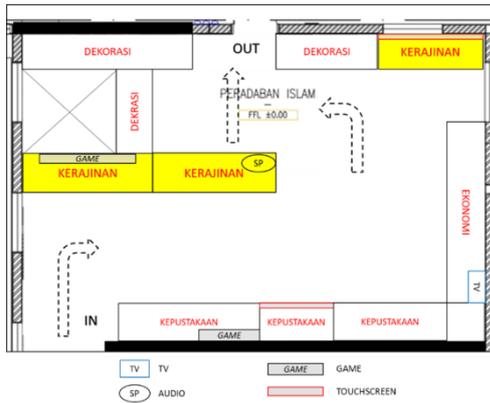


Figure 1. Proposed Interactive Plan on Peradaban Islam Exhibits

There are three interactive aspects, which are:

- Displays  
It's applied in open space so that visitors can freely saw and travelling on the displayed objects. Display interactivities it such a digital media on entrance to attract more visitors in order to enjoy and feel the experiences on displayed collections
- Circulations  
Circulation form is still applied to opened space on both sides between Terakota exhibits and Kebudayaan Indonesia exhibits. Movement flows space applied structured flows so as the visitors could feel the objects without missed.
- Collections and Media

Table 1 Interactive media based on collection lists on Peradaban Islam exhibits

OBJECTS	INTERACTIVE MEDIA	
	SYMBOLIC	AESTHETHICS
Al Quran	Slide Digital	Touchscreen
Papan Aksara Arab	-	Game
Wayang Suluh	Narasi	Audio
Wayang Punakawan		
Kain Basurek	Touchscreen	Game
Keramik Tiongkok	Augmented Reality	-
Uang Keuh	Supporting Background	Video TV
Uang Kasha	Supporting Background	Video TV
Uang Kampua/Bidah		

– Alam Exhibits

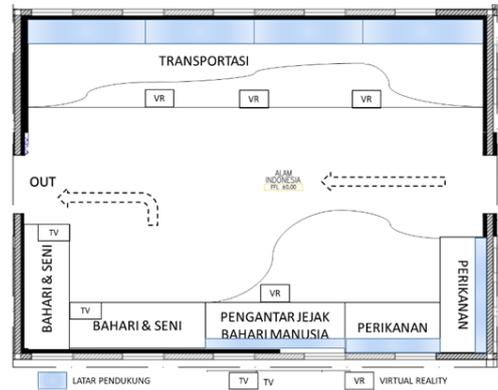


Figure 2. Proposed Interactive Plan on Alam Exhibits

There are three interactive aspects, which are:

- Displays  
It applies diorama display system with a supporting background of the object collections on display as a form of interactivity.
- Circulations  
Circulation form is still applied opened space on both sides and applied directed circulation form in one line to immediately enjoy the objects on display or go straight out to the next exhibit halls.
- Collections and Media

Table 2 Interactive media based on collection lists on Alam exhibits

OBJECTS	INTERACTIVE MEDIA	
	SYMBOLIC	AESTHETHICS
Kjokkenmoddinger	Narasi	Virtual Reality
Jaring, Tanggok, Sesar/Serok, Perangkap Ikan	Supporting Background	-
Bubu		
Ciruk	-	TV
Khombouw	-	
Nampan Kayu	-	Virtual Reality
Perahu kora-kora	Supporting Background	
Lancang Kuning		
Perahu Arwah	-	-

– Kebudayaan Indonesia Exhibits

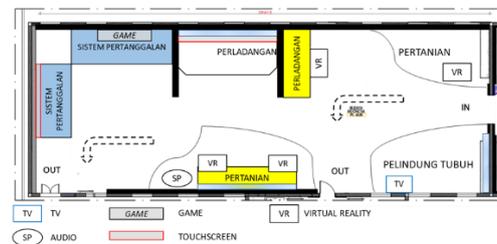


Figure 3. Proposed Interactive Plan on Kebudayaan Indonesia Exhibits

There are three interactive aspects, which are:

- Displays  
Its applied diorama display system with a supporting background of the object collections on display as a form of interactivity.
- Circulations  
Circulation form on this exhibit applied opened space on the one side on the border of Peradaban Islam on the entrance. Flows applied the suggested approach so that visitors were directed to the next path.
- Collections and Media

**Table 3** Interactive media based on collection lists on Kebudayaan Indonesia exhibits

OBJECTS	INTERACTIVE MEDIA	
	SYMBOLIC	AESTHETHICS
Minyak Lampu Cempor	Supporting Background	Touchscreen
Keranjang		Virtual Reality
Cengkrung Canthel		
Pisau Gobed		-
Cengkrung Pacul		
Miniatur Garu		Augmented Reality
Miniatur Bajak Pecut		
Bel Ternak	Supporting Background	-
Kelontongan		
Sekop	Virtual Reality	Video
Alu	Supporting Background	
Cungkir Pancong		
Miniatur Alat Teras Tebu	Video	MDA
Kolenjer	Touchscreen	Reactable
Penanggalan		
Buku Parlahan		

#### 4. CONCLUSIONS

Based on results and discussions, could be summed up that interactive display museum cannot be is depending on technology developments such as interactive media digitals, holograms, etc. The conventional display is history and could combine with interactive devices or media to be more attractive and interesting.

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#### REFERENCES

- [1] B. Harsrinuksmo, *Ensiklopedia Nasional Indonesia*, Jakarta: PT Delta Pamungkas, 1988.
- [2] A. O. Sati Zein, "Peran Media Interaktif terhadap Pengalaman Pengunjung di Museum Rockheim, Norwegia," *Itenas Rekarupa*, vol. 6, no. 1, pp. 18-27, 2020.
- [3] A. Finna, G. I. Vanessa and S. M. Endro, "Faktor Daya Tarik Display Interaktif Terhadap Pengunjung Di Museum Ocean World Trans Studio Bandung," Vol. 3, No. 2, April 2019.
- [4] Smithsonian Institution, *Developing Interactive Exhibitions at the Smithsonian, Washington DC*: Smithsonian Institution, 2002.
- [5] *Proyek Pengembangan Permuseuman*, Jakarta, Department Pendidikan dan Kebudayaan, 1984, pp. 18 - 26.
- [6] Wahono, "Konservasi Benda Budaya Dimuseum Merupakan Realisasi Sistem Manajemen (Studi Kasus diMuseum Ronggowarsito)," *Fokus Ekonomi*, vol. 2, no. 2, pp. 92 - 106, 7 Desember 2007.
- [7] Y. Peter and P. Plénacoste, "Which Interactions To Foster The Social Dimension Of Museum Visit?," *Hal Archives-Ouverters. Fr*, 8 June 2015.
- [8] D. Setiawati, "Interaksionisme Simbolik Dalam Kajian Sejarah," *Agasty*, vol. 1, pp. 99 - 115, January 2011.
- [9] N. G. Laysya, *Museum Kriya Logam di Jakarta Pusat*, Jakarta: Fakultas Seni Rupa dan Desain Universitas Trisakti, 2018, p. 57.
- [10] M. G. Petersen, O. S. Iversen and P. G. Krogh, "Aesthetic Interaction - A Pragmatist's Aesthetics," in *Research Gate*, Aarhus, 2004.
- [11] C. Tresnadi and A. Sachari, "Estetika Interaksi : Pendekatan MDA pada Game Nitiki," *MUDRA Jurnal Seni Budaya*, vol. 30, no. 2, pp. 238-246, May 2015.
- [12] A. R. Yudiantika, E. S. Pasinggi, I. P. Sari and B. S. Hantono, "Implementasi Augmented Reality Di Museum: Studi Awal Perancangan Aplikasi Edukasi Untuk Pengunjung Museum," *KNASTIK ( Konferensi Nasional Teknologi Informasi dan Komunikasi )*, p. 507, 2013.

[13] D. Banjarnahor, M. F. Ginting and I. Widyaningrum, "Museum berbasis virtual reality untuk mempromosikan kebudayaan Sumatera Utara Toba Museum. Vol. 2, No. 2,," *ISSN : 2442-5826, Vols. Vol. 2, No. 2, p. 733, Agustus 2016.*

[14] M. Chessa, M. Garibotti, V. Rossi, A. Novellino and F. Solari, "A Virtual Holographic Display Case for Museum," *INTETAIN 2015, June 2015.*

[15] C. d. B. Wall and X. Wang, "InterANTARCTICA: Tangible User Interface for Museum Based Interaction," *The International Journal of Virtual Reality, vol. 8 , pp. 19-24, 2009.*

[16] B. Stillwell, Putting The "Play" BckK Into Display: Interactive Exhibitions In Small Museums, Oregon: University of Oregon, 2017, p. 23.