Local Visitors' Engagement in Conventional and Technology-based Exhibition Space

Anak Agung Ayu Wulandari[1], Ulli Aulia Ruki[1] and Ade Ariyani Sari Fajarwati[1]
[1]*Interior Design Department, School of Design, Bina Nusantara University, Jakarta, Indonesia 11480*

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Abstract: The last thirty years has seen museums structural reform and innovations due to the development of technologies. The use of technology not only popular in modern museums abroad, but also in various exhibition space in Indonesia. Not only used as part of exhibition, some even replaced all real objects with digital and virtual objects. Past studies showed that contemporary visitors interested in a more interactive technology based-exhibition. However, by replacing real objects with digital images or other interactive technologies, how about the subject-object engagements? This study aims to analyse the engagement between local visitor with objects in a conventional exhibition space and a technology-based exhibition space through qualitative method with descriptive analysis method. The study shows visitors' engagement emerges not only because of the objects itself but also of its surroundings; the path and signage, the lighting design, how the objects displayed and labelled will create certain engagement with its audience. Technology will also give a great help to create subject-object engagement. However, to appreciate and really engaged with the objects, audience still want to see real objects and not the digital substituted.

1 INTRODUCTION

In the past museum used as a centre of scholarship and curatorial expertise, but at present museum becoming a more public and visitor-oriented institution, helping people to learn about the tangible and intangible such as history, science, culture, memories, hopes and dreams while also providing entertainment. Visitor oriented education has become very important in contemporary museums. Educational role in museum can be achieved in two ways; exhibition, which can be described as a form of mass communication and educational program, which involves face-to-face teaching and can be described as a form of interpersonal communication. Earlier, educational role in museums was limited with only exhibition, where in this model the message is one-way only and visitors only acted as passive audience. Even though audience have different characteristic and opinion on what they want to see and they do not want to see. They only see what the museum and the curator had prepared for them. This is why many museum exhibitions in the past failed to communicate. However, in the last thirty of forty years the mass communication model was rejected, replaced with the idea of active audience and moving closer to interpersonal communications. Model for interpersonal communication can be face to face conversation between two people or people in groups, for example in educational sessions, where interactive and two-way communication is occurring.

In today's museums, the communication methods are more flexible. They adopted both methods of communication; the mass communication, through exhibition and interpersonal communication, through educational programs. This called postmodern museums, where visitors are no longer expected to stand awe of the exhibits, but also to participate in the exhibitions as active audiences (Urry, 2002). Museums are now aware that they have diverse visitors with various expectations and they started to use different kinds of media to satisfy those expectations. Furthermore, to make the exhibitions more interesting they have started to add some technologies related entertainment. The last thirty years has seen museums structural reform and innovations due to the development of technologies. These changes have been the source for digitalizing museums from museum collections to their policies and from the use of human resources to their activities (Çıldırl, Z.,

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& Karadeniz, 2014). Various technologies, such as online technologies, simulations, interactive presentations and digital exhibition are more and more favoured by museum educators whether it is online or onsite. With the help of technology, exhibitions able to showcase personal or social stories and memories which presented through video or film presentations as touch screen and interactive thus, accessible for every kind of visitors from various age group. Today, in interactive exhibition environment, museums exhibit objects at a less number (Çıldırl, Z., & Karadeniz, 2014). The use of technology not only popular in modern museums abroad, but also in various exhibition space in Indonesia. Although still relatively small in number, in the last 5 years digital technologies started to enrich exhibition spaces, such as one newly renovated museum; Bank of Indonesia Museum which use various technologies as part of the exhibition as well as some art exhibitions which applied augmented reality that can be accessed from visitors' smartphones. Not only used as part of exhibition, one gallery, the Indonesia Kaya Gallery even replaced all real objects with digital and virtual objects. Here, the overall exhibition consists of multimedia and interactive devices such as touchscreen, sensory play and virtual reality.

Museum visits should not be about looking at objects, it is also an experience. Museum visitors as the active learner should be informed, provoked, moved or inspired by the objects they see, or the subject-object engagement. So many possibilities with subject-object engagement in museum, not only to read the text panel that explain historical story associated with an object, but also to experience an embodied engagement with that object and thus form their own ideas and a tangible physical connection with those who made and used it in the past (Dudley, 2013). Past studies showed that contemporary visitors interested in a more interactive technology based-exhibition. However, by replacing real objects with digital images or other interactive technologies, how about the human-object engagements? As it is also mention that originals and reproductions or replicas are experienced in different ways (Saunderson, H. M., Cruickshank, A. G., & McSorley, 2009), how does visitors engagement with digital objects different from seeing real objects?

Even though research in digital technologies in museums context are still in infancy as well as its application in Indonesian museum, the topic is urgently needed to be discussed and applied to developed Indonesian museums. This study will look further subject-object engagement by comparing a conventional exhibition space, which only display real objects in conventional manner without any use of technology and a technology-based exhibition, which only use multimedia and interactive presentations without any real objects. Both exhibition spaces display similar objects; Indonesia's art and culture, such as traditional clothes, architecture and both have strong educational purpose; to introduce and educate visitors about Indonesia's art and culture. 1 out of 34 pavilions erected in Taman Mini Indonesian Indah, the largest open-air museum in Jakarta, will be used as the conventional model, while a recently opened Indonesia Kaya Gallery in Grand Indonesia, Central Jakarta will be used as the technology-based model. This study aims to analyse and compare the engagement between local visitor with display objects in a conventional exhibition space and a technology-based exhibition space.

Museum history in conventional sense dated back to 17th century, where collection of strange and rare treasures were preserved and maintained (Ambrose, T., & Paine, 1993), while to some surprise the use of technologies in museums and exhibition spaces begun not long after that. It begun in the 18th century, as Christensen summarised the development of technology in four steps (Christensen, 2011). It was in Boydell Shakespeare Gallery (1789-1805), where for the very first-time artwork were mass produced using stipple engraving technology. Not only this change the relationship between the work of art and its audiences, but it is also made possible for public to experience and own the artwork physically. Using this technology, visitors could have relatively cheap reproduction of the oil paintings at home. It is an early example of how museum exhibition has taken part in the development of technologies, as a new stipple engraving technology was applied and it was the technology that made the mobility of the work of art possible from gallery to the home of the visitors. In the post-photographic museum (1850s), reproduction of work of art continued using photography, however not only as tools for reproduction, photography can also be an object of exhibition in its own right or used as museum tools. With combination of printed and verbal text and photos on graphic panel then digitally converted and added interactivity using various multimedia such as touchscreens, making it possible for visitors' participation. This digital exhibition mode can be expanded spatially as it may take place outside the walls of the museum through the internet and mobile

media. The next step of technology in museum is the audio guide. The audio guide is a popular, simple and widely used exhibition technology that facilitates an efficient communication of texts to museum visitors. Today, with the fast-growing technological development, the use of technologies in an exhibition space is with endless possibilities.

2 MANUSCRIPT PREPARATION

Three approach commonly used in art and design studies includes; qualitative approach, quantitative approach and multimethod approach (Sachari, 2005). To achieve the aim of the study which is to to analyse and compare the engagement between local visitor with display objects in a conventional exhibition space and a technology-based exhibition space, qualitative method with study case approach will be used. By using this approach, an in-depth study about a case or phenomena will be done by collecting detailed information through various data collecting methods within a determined time frame (Cresswell, 2009). Based on the determined approach, data collecting was done in two stages. First stage is collecting secondary data or desk research. In this stage, all relevant data from various sources, such as books, journal articles, websites and other previous studies that had been done about the phenomena will be studied and analyse. The purpose of this stage includes; giving general information about the topic, analyse previous studies that had been done as well as to know what other writers think and to have basic theory and understanding about this topic.

The next stage is the primary data collection using both qualitative and quantitative data collecting method or methodological triangulation (Easterby-Smith, M., Thorpe, R., & Lowe, 1991). Data collected in two exhibition spaces; Riau Islands Province Pavilion in Taman Mini Indonesia Indah is selected as the conventional model because it has the most adequate conventional exhibition display compare to other pavilions, which still lack of design elements, such as lighting, display, etc. While Indonesia Kaya Gallery, located in Grand Indonesia shopping mall, chosen as the technology-based model because it is the only exhibition space equipped with technology for its display as well as information. Both exhibition space share similar size and purpose, which is to educate visitors about Indonesia's art, culture and tradition. Qualitative data collection was done observation to find out about the general content, layout and display from both exhibition space. Quantitative data collection through questionnares aim to find out about the visitors' engagement with objects. For this purpose, closed-questions questionnares are designed, consists of 4 parts; general questions about the visit and layout of the exhibition space, visit to conventional model, visit to technology-based model and comparison between the two model. As respondents of these questionnare, a group of students were selected and asked to visit both exhibition spaces and fill in the questionnare after their visit (purposeful sampling).

Both primary and secondary data is analysed using descriptive analysis method to gain conclusion related to general layout and design, as well as visitors' engagement with objects in the conventional and technology-based model.

3 RESULTS AND DISCUSSION

The results will be discussed in 2 subsections; general layout and design of both exhibition space and comparison between both exhibition spaces according to the respondents.

3.1 General Layout

Riau Island Province Pavilion as the conventional exhibition space model occupied a 10 x 10 m two level building and exhibits various Riau Islands' art and historical artefacts. Objects such as bride and groom mannequin seated in their bridal stage or *pelaminan* as the focus of exhibition on the first floor and also available other valuable objects; pictures of important figure in Riau Islands, traditional headdresses and equipment as well as children toys. The upper floor exhibits various ceremonial equipment, jewelries, textiles and antique manuscripts (Figure 1). All objects are displayed in conventional display cases and vitrines completed with written information of each object in Bahasa Indonesia and English. Although no special layout or circulation are applied, all display cases are arranged neatly and with limited exhibition objects, thus makes the room appear spacious with lots of space for visitors to move around. Despite its attractive and valuable objects, there is no certain message, narration or story in the exhibition, just row of displays without any emphasis, point of interest and of course technology available in the exhibition space, thus make the room seems flat and rather boring.

Figure 1: Second floor exhibition space of Riau Island Province Pavilion.

While the technology-based exhibition space model, not only occupied a bigger space but also has a small auditorium that can be rented for various traditional performance. If Riau Island Province exhibits objects originated from Riau Islands, Indonesia Kaya Gallery presents various traditional art and culture from Indonesia through multimedia and interactive display and no real objects (Figure 2). Some of the digital presentations are Greetings Indonesia, multimedia screens that show Indonesians wearing various traditional clothes and greet visitors with their traditional languages; wayang video mapping that shows fragments from Mahabarata stories; Indonesia's smart glass, presenting a collection of cultural objects from all over Nusantara using touchscreen; Explore Indonesia, another touchscreen which describe various Indonesia's culture from geographic, custom and heritage aspect; Traditional clothes in harmony, visitors can take pictures with digital traditional clothing from some area in Indonesia, this application connected with social media thus visitors can directly upload their photos; Traditional melody, various traditional musical instrument digitally presented in touchscreen; Indonesian children cheers, here visitors can play virtual traditional Indonesian games called *congklak*; and Explore Indonesia, where visitors can digitally fly around Indonesia's archipelago and see important and iconic objects around Indonesia. Here, a straight and direct plan from one digital exhibition to another is applied, thus visitors will see and interact with each digital exhibition. Some of the digital instruments are attached nicely on the wall and some other are located on the table with adequate lighting design and some interior treatment on the ceiling and wall as emphasis, thus creating a comfortable and attractive ambience for visitors to explore.

Seen from visitors' perception, there are 5 environmental implications that give respond toward choices of consequence, this alternate option gives flexibility to choose their path while exploring the exhibitions. Second, is a clear and readily labelled objects, which will give further information about the objects and create further understanding or even curiosity, third is the appreciation towards lighting that can make dramatic effect to the environment within the exhibitions, the next implication is about color that reinforce the interpretive content and the last is how the layout of furniture give the opportunity to get clearer visual form nearest distance and variety angle (Forrest, 2015). These implications will affect visitors' appreciation and engagement toward the objects and exhibition as a whole. In relation with these implications 73 students were asked to visit both exhibition space and fill in questionnaire. The first five questions asked about general design and layout of the exhibition; circulation, signage, information, lighting and display. These questions aim to get the respondents' general experience of the exhibition. Regarding general layout and circulation, more than 50% respondents agree that they understand the general layout and circulation in both model, this result also similar when asked about the signage system. In both model, more than 50% respondents agree that the signage system is clear and can help them explore the space. Relatively small exhibition space and simple circulation path might be the reason why most visitors find it easy to explore the exhibition space. Next question related to labelling and information, more than 50 % respondents agree that objects in both model completed with adequate text or information. Related to suitable lighting techniques, in the conventional model, 3 respondents strongly agree and 21 respondents agree while, 36 respondents answer undecided, while in the technology-based model, 23 respondents strongly agree and 44 respondents agree that the exhibition space have adequate lighting techniques. Last question about whether the overall display makes visitors want to know more about the displayed objects; 35 respondents in the conventional model have undecided answers, with only 6 respondents strongly agree and 28 respondents agree while in the technology-based model 22 respondents strongly agree and 41 respondents agree. From these answers we can conclude that the overall interior and exhibition design in the technology-based model are better and more engaging to the visitors rather than the conventional model.

Figure 2: Indonesia Kaya Gallery exhibition space.

3.2 Visitor Engagement

Next set of questions related to visitor's engagement with objects. Seeing from the respondents' time spent in the conventional model, 82.2 % respondents spent less than 45 minutes inside the exhibition space. While in the technology-based model 56.2% respondents spent less than 45 minutes inside and 42.5% spent 45-90 minutes inside the exhibition space, contrary with the conventional model with only 17.8% respondents who spent 45-90 minutes inside the exhibition space. This number shows that more respondents spend more time in the technology-based model rather than the conventional model. When asked about objects observation, in the conventional model, 61.6% spent 1-3 minutes observing each object, only 12.3% spent more than 3 minutes observing objects and 26% spent less than 1 minutes, while in the technology-based model 43.8% respondents spent 1-3 minutes interact with each display, 28.8% spent more than 3 minutes and 27.4% spent less than 1 minutes. From this result, most respondents spent 1-3 minutes observing or interact with each object, however there are also respondents who show more interest in the display objects and spent longer observation or interaction time. In the technology-based model, 28.8% respondents spent more than 3 minutes observing objects in the technology-based model, while in the conventional model only 12.3% respondents spent more time, this result shows that respondents' engagement with objects are stronger in the technology-based model than in the conventional model. From the overall time spent inside exhibition space, as well as the time spent for each object can be concluded that the objects and exhibition design in the technology-based is more attractive and engaging thus more respondents spent more time there.

In relation to respondents' understanding towards the exhibition messages; in the conventional model only 8.2% respondents strongly agree that seeing real objects can increase their understanding of the exhibition message, 27.4% respondents agree and 39.7% respondents answered undecided. On the contrary with the technology-based model, when asked whether technology can help them understand the exhibition messages, 23.3% respondents answered strongly agree, 34.2% respondents answered agree and 16.4% respondents answered undecided. This results also similar when asked whether they understand the exhibition messages or narration; in the conventional model, 6 respondents answered strongly agree, 33 respondents answered agree and the highest respond of 36 respondents answered undecided, while in the technology-based 22 respondents answered strongly agree and 38 respondents as the highest respond answered agree. From these responds, can be clearly seen that more than 50%, respondents agree that technology can help them towards better understanding of the exhibition messages. In addition to this, more than 50% respondents also agree that the availability of technology increase their curiosity and makes them want to know more about the objects, thus in the technology-based model, once again, visitors' engagement with display objects is stronger that in the conventional model.

The last set of questions used to find out the actual preference of respondents in the conventional and technology-based model. Previous results show that respondents' engagement in the technology-based model is stronger than in the conventional model, however when they are asked to choose between real objects or digital/virtual objects; 78.1% respondents agree that they are more engaged with real objects rather than virtual or digital objects (Figure 3) and 68.5% respondents chose real objects when asked whether they can have better understanding and appreciation about Indonesian art and culture. This shows that to learn and understand Indonesia's culture better, visitors actually want to see real objects rather than virtual or digital objects and by looking at real objects visitors also expect to have better appreciation of Indonesia's culture as well. Contemporary visitors are no longer passive audience who will be satisfied by observing objects through glass and reading information labels, they need to be inspired and provoked by the objects. Visitors also need to be part of the exhibition as an active audience, this is why most respondents agree

that the availability of technology help them understand the objects and the exhibition better. This conclusion can also be seen from the last three questions in the questionnaire; when asked which exhibition space they will visit in the future, 74% respondents chose the technology-based model; which exhibition space they will recommend to their friends or relatives, 78.1% respondents also chose the technology-based model and last question; in which exhibition room they learn about Indonesian art and culture the most, 74% respondents chose the technology-based model.

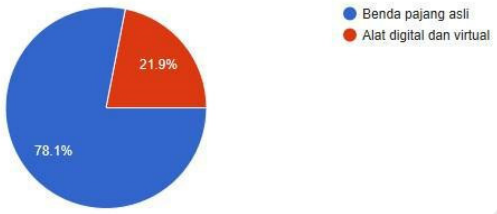

Figure 3: Respondents' engagement result.

4 CONCLUSIONS

Museum visits should not all about looking at objects, but also experience. With the growth of technology and to make museum learning more flexible, modern museum the past years started to apply technology as part of their exhibition. Some museums also started to change their objects into digital or virtual objects. If objects, which should inform, moved or inspired visitors are changed into digital objects, it will change the relationship or engagement between subject and object as well. To find out about visitors' engagement with objects, a group of students were asked to visit two exhibition spaces; a conventional model and technology-based model and fill in a questionnaire. Both exhibition space model occupied similar size area and displayed various art, culture and traditions from Indonesia. Forrest states 5 implications of exhibition design that give respond and affect visitors' engagement with objects and exhibition as a whole; such as signage, path, label, lighting and so on

These implications were asked in the first set of question and resulting in the technology-based exhibition space as the better space design that are more engaging for visitors. Other factors in relation to visitors' engagement including the time spent in the exhibition area and respondents' understanding toward exhibition message. Results for both factors show that more respondents spent more time and have better understanding toward exhibition message in the technology-based model. From these results can be concluded that technology play a big part in shaping respondents interest to learn more about Indonesia's culture and visitors have stronger engagement with objects in the technology-based model. However, opposite result emerges when asked to choose between real objects or virtual objects, most respondents agree that they are more engaged with real objects rather than digital/virtual Furthermore, respondents also agree that with real objects they can have better understanding and appreciation about Indonesian art and culture. It is true that technology is very attractive, however as the result shows, to be engaged with exhibition objects visitors still need to see and observe the real objects.

Visitors' engagement emerges not only because of the objects itself but also of its surroundings; the path and signage of the whole exhibition, whether it tell a story or not; the lighting design and how the objects displayed and labelled will create certain engagement with its audience. Technology will also give a great help to create subject-object engagement by presenting the objects' past history for example or as an interactive tool make objects come to live as this will make learning process in exhibition more attractive and interactive especially for today's contemporary visitors. However, to appreciate and really engaged with the objects, audience still want to see real objects and not the digital substituted. Thus, to make education in museum more attractive, today's museum need to start to implement suitable easy to use technology according to its object and visitors needs.

Very limited research on digital technologies in museums in Indonesia has become the limitation of this study, this might be as a result of limited number museum in Indonesia that has applied technology in their museum. Another limitation of this research, the quantitative collection data method does not give in-depth answers about the subject-object engagement, it only gave general view of the visitors. For further study, another qualitative data collection method, such as focus group should be applied to acquire more in-depth answers. However still in its infancy, with the fast-growing technology in various sector, research in museum and technology field are still open for further research.

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