Designing Interactive Museum Exhibition

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Abstract: Museum as a place to store collection objects for research and pleasure nowadays grows rapidly. Many young people today are very fluent in the modern technology. Meanwhile a lot of museums now a day still looks a lot less up to date. How is the museum effort in maintaining the sustainability of it to interest the visitors. This paper explores modern art museums focusing how the application of modern digital technology in those museum to attract more young visitors. This research uses field observation method, field experiments and literature study supported by drawings obtained from the field observation and literature. Observation of the field by conducting surveys at several museums, museum of science Salt Museum in Tokyo and MACAN museum (Modern and Contemporary Art in Nusantara) in the city of Jakarta. The results show that the design of interactive digital technology applied in the modern contemporary art museum attracts visitors. Expected with interactive design in the museum can increase visitor interest.

1 INTRODUCTION

The museum is a place to exhibit, to collect, preserve, take care, document historical objects or introduce unique objects to the public. Not only ancient objects but also modern objects that have high artistic value for example. The definition of the museum according to ICOM, International Council of Museums: “A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acqui res, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment” (ICOM, 2018). Meanwhile, according to Ambroise. T: "A Museum in an institution which collects, documents, preserves, exhibits, and interpret material evidence and associated information for the public benefit” (Ambrose, T., & Paine, 1993). While the definition of conservation is business maintenance, maintenance, repair, prevention and care of collectibles of the causes of damage.

The museum can be divided into several categories including public museum, museum national, provincial museum, local museum, archeology museum, art museum, biography museum, children museum, history museum, ethnology museum and others museum based on the collection.

The Museum serves as a place to develop the availability of scientific research objects as well as facilitators for those who need information related to. In addition, the museum is in charge of providing the answers for such research activities and spread the results of research for the development of science. The museum problem in digital era is the lack of adaptation to the latest technology. This research wants to answer and give examples of how the museums maintaining their sustainability to interest the visitors. It seems there are still many museums that do not catch up the modern era and growing technology now a day. Meanwhile the younger generation is so familiar with advance technology and eager to do experience more. Researchers pointed a museum located in Tokyo, museum of science Salt and Tobacco Museum and MACAN museum (Modern And Contemporary Art in Nusantara) in the city of Jakarta. These two museums apply some interactive digital system for the visitor to get closed and experience the messages from the museum.

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2 METHOD

This research uses field observation method, field experiments and literature study supported by drawings obtained from the field observation and literature. Observation of the field by conducting surveys at several museums, museum of science Salt Museum in Tokyo and MACAN museum (Modern and Contemporary Art in Nusantara) in the city of Jakarta. Both museums serve as an example because they have succeeded in using an interactive system on their exhibition displays to convey the messages. Field experiment is conducted in a real situation. In field experiments researchers can do the experiment by himself and practice some interactive ways either with the digital technology or manually. From this experience of trying directly, the visitor will get the messages or lessons delivered in those museums.

3 RESULTS AND DISCUSSION

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In earlier times, the kind of communication applied in is one direction communication, which in communication theory, it means the communication that does not occur interaction between visitors and display exhibition. Visitor was only as a spectator passive. They had only one choice, saw the object already prepared by the curator museum or often called as curatorial hypodermics (Hooper-Greenhill, 1994). It also said that on a fair traditional, the museum and designers just prepare the contents of exhibitions with consistent display.

Some museum obstacles in maintaining the sustainability are: monotone display techniques, the absence of two-way interaction between visitors and museum collections, the weakness of the museum's maintenance and management system, and lack of the visitor's awareness of museums.

The best quality for all visitors regardless of the background and their interests will get information and a similar experience. This is why the museum in the old time failed to communicate with the visitors. At the moment, communication theory one direction start left, replaced by a new conception that lead to models of communication interpersonal. Visitors are invited to actively and can be directly involved in a fair. One of them is museum recently participatory (Simon, 2010). In this program the museum or institution supports the multidimensional experience of visitors. Museums only serve as a 'foundation' linking visitors, where visitors can act as designers, dealers, users, critics, and collaborators of the exhibit. This means the museum can't guarantee the uniformity and consistency of the visitor experience as it does in traditional exhibitions. On the other hand the museum provides an opportunity for visitors from diverse backgrounds and interests to create and produce mutual experiences (Ury, 2002). It mentions this type of museum is a postmodern museum. Visitors are no longer just expected to stand uprightly admire an exhibit object but also to participate actively in an exhibition.

Two-way interpersonal communication model can be achieved through educational programs, participatory, living interpretation, and interactive exhibitions through various media such as audio-visual, touch screen and multimedia. Current technological advances strongly support the development of this kind of exhibition. With the application of interpersonal communication model of a museum becomes more interesting. Museum not only has the function of education but also has the values of entertainment, recreation, and relaxation so that the purpose of visiting the museum and the public expectations of the museum will be achieved.

There are three levels of interaction based on the quality of learning (Schweir, 1993). The three levels in full are shown in the table.

Table 1: Interactive levels based on learning quality.

Tingkatan	Fungsi	Transaksi
Reaktif	Konfirmasi	*Space bar / Return key*
Proaktif	*Pacing*	*Touch Screen* Target
Mutual	Navigasi	*Touch Screen Ray Trace*
	Inquiri	*Mouse Click*
	Elaborasi	*Mouse Drag*
		Barcode
		Keyboard-key Response
		Keyboard-Construction
		Voice Input
		Virtual Reality Interface

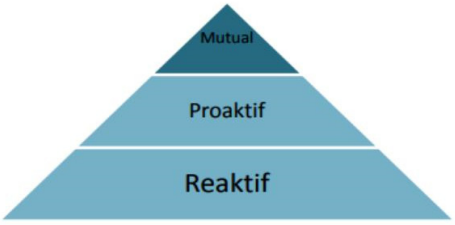

Figure 1: Interactive levels based on learning quality.

Development of interactive multimedia learning is a level of interaction that should not be exclusive, but can be combined several levels of interaction. These interaction levels are hierarchical, meaning the highest mutual interaction quality, and the lowest reactive interaction quality (Soemarto, 2005).

In the current era of computers, where the younger generation is very familiar with the use of gadgets and computers, museum must adapted with the development of technology. It is an effort for not abandoned by visitors, especially from younger age visitors. Building interactive museum can be a powerful tool to build visitor engagement. It is important to identifying what factors that make them successful, and can significantly contribute to a museum's long-term relationship with the visitors. It is a good opportunity and nice attraction, in using interactive museum. It can attract more visitors to come. In this study, surveys have been conducted to several museums using interactive techniques in delivering messages to visitors. Interactive techniques provide an opportunity for museum visitors to experience themselves.

As in the examples below, in the Salt and Tobacco museum in Tokyo, Japan, we can find a table from a touch screen computer, on both sides of the compound they served preparations plates containing of salt samples from various countries. When visitors want to know more about salt in one plate preparations, they can move the plate on the touch screen table. Computer screen will react by releasing data about where the salt comes from, how is the salt content and so on.

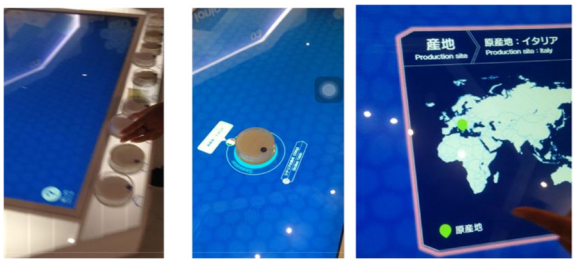

Figure 2: Interactive computer system in salt and tobacco museum, Tokyo.

The description of the Figure 2 is as follows: left side is a figure of salt preparation plate. In the middle figure shows the salt plates placed on the computer. The right figure shows the location data where salt is taken. In addition of computerizing a museum, an interactive system can developed not only using computers help, but also can be done manually as in the example below. An example is taken from the salt museum in Tokyo city. Using human body image, the museum describes to visitors how importance salt to the human body, and how much salt in human body needs, and how much salt contained in human bones, in human blood. There is a hole that is covered by leather sheet in parts of the human body.

At the front of the leather, we can find the question: how much salt that content in human bones. So the visitor just lifted up the leather cover and could find the answer in an acrylic-covered hole, how much salt in the human body, represented by a bottle of kitchen salt and the size in grams, which is 84 grams of salt. This manual interactive quite interesting and also urge the curiosity of the visitors to find their own answers.

Figure 3: Interactive manual system in salt and tobacco museum, Tokyo.

The picture descriptions as follows: the left side figure is an image of the human body with a description of why salt is important for human bones. The middle one of the figure is a pink leather cover with the question 'how much salt content in human bones?' meanwhile the right side of figure 3 is when the leather cover opened and the answer will be found, the salt content in human bones is 84 grams or the equivalent a small bottle of salt.

Not only in science-themed museums required have interactive in presenting their contents. In art museums such as Modern and Contemporary Art in Nusantara (MACAN Museum) in Jakarta. Some displays are presented in an interactive way. For example, a rectangular form in 2 m x 1 m wide dimensions is provided. On the four sides of the rectangular they provided several tiny holes with different heights. So that visitors with a certain height can choose the appropriate hole with their height. The hole is made so small that visitors can only peek with one eye. Inside the hole visitor can

see an art works that made with combinations material of lights and mirrors, so the colors and shapes can change following the light bulb with different colors that on and off in sequence time. The artwork view can be seen in the picture below.

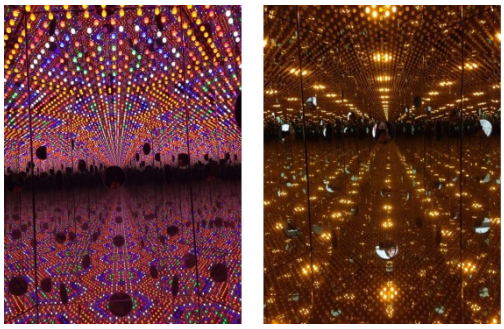

Figure 4: I want to love on festival an interactive display in MACAN museum, Jakarta.

In other areas, we can find other art objects packaged in a room. We can only enter in this room for 15 seconds, then have to alternate with other visitors. Inside the room we find that all sides of room has been coated with Yayoi Kusama artist artwork. All walls, ceiling and floor were covering in yellow with lots of black dots. On the center of the room mounted mirrors with many sides, so that visitors will find themselves besieged in the artwork is yellow and black. During the allotted time, visitors can take photos using hand phone camera, but are not allowed to use flash lights.

Figure 5: Mirror room (pumpkin) an interactive display in MACAN museum, Jakarta.

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4 CONCLUSIONS

Museum as a place to keep the artworks, painting, photograph has a social function that allows visitor to do social interaction among the visitor. Visitors can enjoy the artwork not only passively, but can also be actively in direct contact with the artwork on display. The design of interactive digital technology applied in the modern contemporary art museum attracts visitors.

Museums in today's digital era must be able to adapt to technological advances. Modern society has been very eloquent and close to digital technology. In order to attract visitors to come to the museum to get information or just look at the collection, it can be by using digital technology. Thus, today's society dominated by young people will be more interested to visit the museum. The expectation is with the interactive design in museum can increase visitor interest.

This research contribution for museum in Indonesia: museum display is not only shows in one direction, it should stimulate more than one sense by using advanced technology in order to maintain the sustainability of museum.

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