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INTERACTIVE TECHNOLOGY IN THE INTERIOR DESIGN OF BOGOR ZOOLOGICAL MUSEUM TO CULTIVATE VISITORS LOVE FOR FAUNA

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ABSTRACT

Indonesia is one of the largest archipelago countries in the world, so it has very diverse types of fauna. Fauna is a natural wealth that must be preserved, but the Indonesian people do not understand the diversity of fauna that exists and there are few facilities in Indonesia that can educate the public about the richness of fauna, either in the form of information media or tourist facilities in the form of museums. Indonesia has a Zoological Museum in Bogor. The Bogor Zoological Museum has great potential for the development of scientific tourism. However, the lack of interest among Indonesian people in visiting the Bogor Zoological Museum is a real problem. This museum was founded on August 23, 1894. This museum only made slight changes to the materials or physical aspects of the building, making the Bogor Zoological Museum seem ancient and conservative. Therefore, efforts are needed to attract people to visit the Bogor Zoological Museum. This research combines interior design methods and descriptive qualitative research methods. Literature data and empirical data in the form of direct observations of visitor activities and interview results are analyzed and described quantitatively. In designing the interior of the Bogor Zoological Museum, one of the efforts made by the author was the application of interactive technology to the facilities visited by museum visitors. By using Audio Visual Media technology, Projection Mapping, Augmented Reality, Virtual Reality and LCD Touch Technology, it is hoped that visitors will get education and new experiences. Visitors will be invited to explore the world of fauna so that a love for animals arises in each individual visitor by implementing a museum interior that is supported by interactive technology features that will add to the visitor experience.

Keywords: *experience, interactive, museum, technology, zoology*

1. PREFACE

Indonesia is one of the largest archipelagic countries in the world. Indonesia has abundant natural resources, one of which is a very diverse type of fauna. Each country has its own characteristics regarding the flora and fauna that inhabit it. Likewise with Indonesia. Reporting from the book Diversity of Fauna by Suhada (2016), the reason the fauna in Indonesia is very diverse is because Indonesia is located in the tropics, so it has tropical rain forests which are rich in various types of plants and animals. Indonesia is located on two continents, namely the Asian continent and the Australian continent. Therefore, the characteristics of animals in Indonesia are influenced by both continents, Indonesia is an archipelagic country which means that each region has its own characteristics in terms of flora and fauna, and Indonesia is located in two world distribution areas, namely Australia and Oriental.

Fauna is a natural wealth that must be preserved because it is an important component that plays a role in the balance of nature, however, there are still human actions that are not environmentally friendly and can disrupt the preservation of Indonesia's endemic fauna. Indonesian people do not know and understand the diversity of fauna that exists and there are few facilities in Indonesia that can educate the public about the richness of fauna, either in the form of information media or tourist facilities in the form of museums.

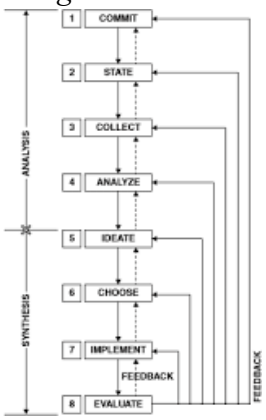
Museums function to develop, protect, utilize collections, and communicate them to the public. Museums can be centers of education, inspiration, homes of civilization, and spaces for interaction. Indonesia has a Zoological Museum located in Bogor. The Bogor Zoological Museum has great potential to develop scientific tourism in this city, where its strategic location makes it very possible to establish a Zoological Museum, supported by the existence of the Indonesian Institute of Sciences (LIPI), especially the Biology Center.

The lack of interest among Indonesian people in visiting the Bogor Zoological Museum is a real problem. The Bogor Zoological Museum is a museum that presents collections related to the animal world such as preserved specimens and animal fossils. Since its founding in 1894, this museum has made only minor changes to the materials or physical aspects of the building, giving the Bogor Zoological Museum the impression of being ancient and conventional. Therefore, innovation is needed that can change the way people view museums. So, the author tries to make the interior design of the Bogor Zoology Museum more informative, interactive, and educational.

2. RESEARCH METHOD

The journal work on "Application of Interactive Technology in the Interior Design of the Bogor Zoological Museum" uses a qualitative descriptive method with a design method initiated by Kilmer as a reference.

Figure 1
Design Method



The following are the stages in working on this Journal according to the Kilmer and Kilmer (2014) method reference: (a) Determining the Title: Researchers determined the Bogor Zoological Museum as a design object to apply interactive technology to foster visitors' love for fauna; (b) Analysis: Analysis stage of the type of technology that you want to apply to the design and its impact on visitors; (c) Idea Development: Search for several technologies that suit visitors and their realization in interior conditions; (d) Concept Decision: Selection of technology in the interior design of the Bogor Zoological Museum; (e) Design Implementation: The results of work on the concept of designing the interior of the Bogor Zoological Museum.

Literature data and empirical data in the form of direct observations of visitor activities and interview results are analyzed and described quatitatively.

3. RESULTS AND DISCUSSIONS

The Bogor Zoological Museum, which is located in the Bogor Botanical Gardens area, has a strategic location because it is an icon of the recreation area in the city of Bogor, which is one of

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the advantages of this museum. Therefore, efforts are needed to attract public interest in visiting the Bogor Zoological Museum.

According to Neufert (2002), museums can not only be used as exhibition venues, but also as multifunctional cultural centers that offer interesting experiences for visitors, so that they do not feel bored. Museums need exhibition space and entertainment space, where there are several things that must be considered, including: (a) The rooms in the museum are protected from humidity, theft, disturbance, dryness and dust or dirt particles; (b) The room is equipped with adequate light, this is a determining component of a good exhibition.

The museum needs to be made into a museum with interactive technology so that it can attract people to visit the Bogor Zoological Museum. Several things that can be considered in creating an interactive museum, namely: (a) Creating a linear flow in the museum; (b) Designing a design that invites visitors to interact; (c) Museum design that involves physical activity to optimize the visitor experience; (d) Interesting collection display; (e) Use of modern technology such as audio, video and mobile in design.

The application of this interior design is to create the Bogor Zoological Museum which can give visitors the impression of being in the natural habitat of these animals. There are several types of interactive technology that can be used in designing the interior of the Bogor Zoological Museum, including:

Audio Visual Media

Audio visual media is a means of conveying information that displays audio and visual characteristics. Audio visual media is divided into two types, namely: (a) Silent audio visual, namely media that displays sound and still images; and (b) motion audio visual, namely media that displays moving sound and image elements. Another division of audio visual media is: (a) pure audio visual, namely sound and visual elements that come from one source; and (b) impure audio visual, namely media whose audio elements and visual elements come from different sources.

Audio visual media devices are implementations intended to provide interactive experiences to visitors. This equipment is available in every series of exhibition halls with different display sizes. Audio visual media is used to present digital content such as videos, to display three dimensions of costumes that have previously been scanned via 3D scanning. The devices used are TV screens of various sizes according to needs. With this device, visitors can not only enjoy static and general content, but the dissemination of information becomes more diverse and easily conveyed through audio-visual media.

The bird collection room in Bogor Zoological Museum is designed with a replica collection display. Visual media provides collection information that is more interactive and effective. The use of audio also influences the atmosphere of the room, so that the room is given harmonious audio of bird sounds.

Figure 2
Audio Visual Media at Bird Collection Room

Projection mapping
Projection Mapping is a technique that uses light and color to project virtual images onto media of any shape or texture, even uneven surfaces such as industrial sites, public buildings, and urban landmarks, thereby creating a more interactive and enhanced experience for visitors through graphic effects. visuals, animation, and other creative visual techniques.

Important elements in video mapping include: (a) Projector; (b) Image Processing; (c) Hardware; (d) Software; (e) Audio Visual Content; and (f) Field. The projection mapping process includes five important steps, namely, choosing a location, developing content, starting to arrange the physical sequence, and finalizing the presentation.

Projection mapping will be applied in exhibition areas, one of which is the fish and mollusk exhibition area. This tool uses a Kinect sensor which can record visitor motion sensors, so that the tool can interact with visitor movements. The material presented in this mapping is an abstract gradation spectrum.

The fish and molluscs collection room is designed with the concept of water and rocks. The ceiling uses video mapping to resemble water to create an atmosphere like being under the sea.

Figure 3
Projection Mapping Applied to The Fish and Mollusk Collection Room

Augmented reality
Augmented Reality (AR) is a technology that connects computer-generated digital content with the real world in real time. Augmented reality allows users to see virtual objects, both 2D and 3D, projected into the real world (Juliarto, 2020).

Augmented Reality can be used in various devices such as mobile phones, cameras, special glasses, monitors, webcams, etc. This tool acts as an output device so that it displays information in the form of images, videos, animations, and 3D models. Users can see the results in both artificial and natural light. Augmented Reality uses Simultaneous Localization and Mapping technology, sensors, and depth sounders.

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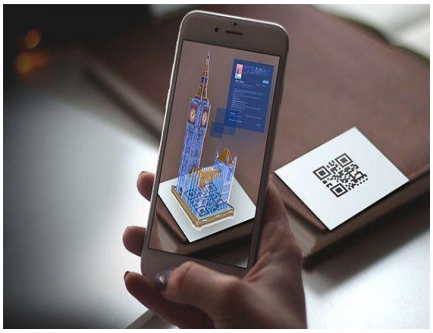
The augmented reality (AR) technology used in this museum is in the form of visual projections of collection items. The tools used in this technology are a television screen connected to a computer and a Kinect sensor, which is installed on special stand-alone furniture. This tool is available in several areas of the exhibition hall, such as the Bird Collection Room and the Mammal Collection Room. With this device, visitors can explore further and can also become a medium for publication through visitors.

Figure 4
Augmented Reality

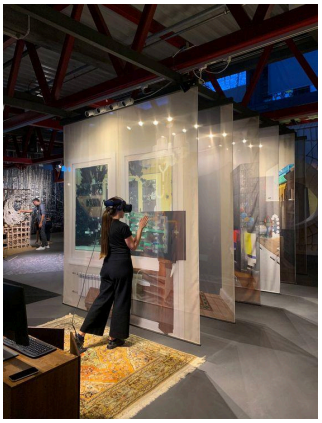


Virtual reality
Virtual Reality or what is often called VR is a technology that provides an immersive interactive experience for users. In the resulting virtual world, users can interact with objects and experience a 3D environment that resembles the real world. The use of virtual reality usually requires a virtual reality headset worn on the user's head and a hand controller, so that the user can interact directly with the objects and 3D environment created.

The virtual reality headset is equipped with a screen that is related to the sense of sight, as well as sensors that can track or follow the movement of the user's head. When wearing a headset, users can feel like they are in a virtual environment controlled by a computer.

Virtual reality is also equipped with other controller devices for users to interact with the virtual world. This controller will detect hand movements and send this information to the virtual reality system which is then processed and responded to in a simulation environment. Virtual Reality in this museum is in one exhibition area, namely the interactive area. This ride requires a special area and device in the form of a VR Headset. The material is presented using virtual reality technology, namely the virtual natural habitat of Indonesian fauna.

Figure 5
Virtual Reality



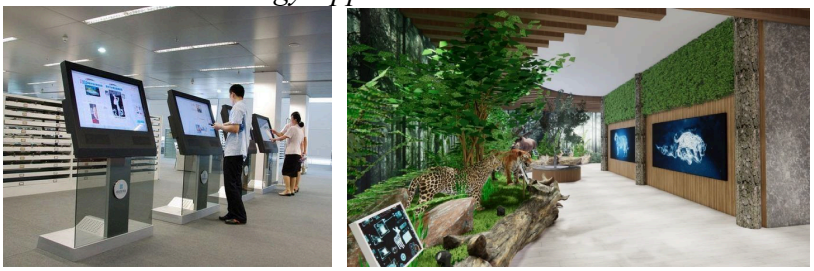
LCD touch technology

Touchscreen or also known as touch screen is an innovation in computers which relies on touch sensors, either the touch of a finger or a stylus. In this way, smartphone and computer users can operate the device with touch. The function of the touchscreen itself is almost the same as the function of other input devices, namely sending data as input and executing it by the system. This touch screen device is permanently integrated into the monitor screen. Users cannot move touch screen devices from one location to another. The LCD touch technology used in this design is a small LCD display and will be used by visitors to obtain information on collectibles or information on the display.

The mammal replica collection display is on the left of the mammal collection room, and the right side of the room is an interactive area with technology. There is an LED touch screen which is useful for displaying information about collections.

Figure 6

LCD Touch Technology Applied to The Bird Collection Room



4. CONCLUSIONS AND RECOMMENDATIONS

The application of interactive technology in the Bogor Zoological Museum is designed to use interactive multimedia in the museum. The media used are Audio Visual Media, Projection Mapping, Augmented Reality, Virtual Reality, and LCD Touch Technology. It can be concluded that the application of technology aims to attract visitors to visit the Bogor Zoological Museum. This design aims to provide education, information, and new experiences to visitors. Visitors will explore the world of fauna by implementing a museum interior which is supported by the concept of interactive technology which will add to the visitor experience.

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