International Journal of Application on Social Science and Humanities
Vol. 1, No. 2, May 2023: pp 1712-1721 ISSN-L 2987-8241 (Electronic Version)

THE APPLICATION OF BIOPHILIC DESIGN IN THE MAMMAL COLLECTION ROOM OF THE BOGOR ZOOLOGICAL MUSEUM

Silvia Wijaya[1], Eddy Supriyatna[2] & Ferdinand Ferdinand[3]

[1]Faculty of Art and Design, University Tarumanagara Jakarta
[2]Faculty of Art and Design, University Tarumanagara Jakarta
[3]Faculty of Art and Design, University Tarumanagara Jakarta
Email: ferdinand@fsrd.untar.ac.id

Submitted: July 2022, Revised: December 2022, Accepted: May 2023

ABSTRACT

The existence of today's era is increasingly advanced and modern. The existence of the museum needs to develop along with the times in order to attract public interest, especially generation z. The Bogor Zoological Museum, which is supervised by the Indonesian Institute of Sciences (LIPI), is a relic from the colonial era as a place to preserve various fauna collections, to fulfil educational and recreational functions. The design method used in the discussion of this final project is based on the design spirit of Rosemary Kilmer. The author tries to reconnect the relationship between the zoological collection at the museum and the visitors in a more interactive, attractive, and informative interior atmosphere through the interior design of the Bogor Zoological Museum by applying a contemporary style with a biophilic approach.

Keywords: *Biophilic design, interior design, museum*

1. PREFACE

The existence of museums in Indonesia has an important role in the preservation and promotion of culture. The Directorate for the Preservation of the Cultural Conservation of Museums (PCBM) also stated that the museum is a place for cultural preservation and education as well as a fun recreation space that is needed. the nation's culture.

In Indonesia, public interest in visiting museums is still very minimal, even though the number of museums in Indonesia is quite large. According to data from the Ministry of Education and Culture in 2019, Indonesia has 2,319 Cultural Conservation and 435 Museums spread from Sabang to Merauke, 200 of the 435 Museums in Indonesia fall into the category of not being suitable for accommodating historical collections (Director of Cultural Conservation Preservation & Museum of the Ministry of Education and Culture). Utilization that has not been optimal because the museum is not yet known by the public and the attraction of the museum is still less popular than other tourist attractions. So that makes people lazy to visit the museum and is considered a boring place and not suitable to be used as a place of entertainment.

In its further development, the museum is expected to be utilized optimally by the community. So that the management concept needs to be changed so that people can easily understand the collections on display with a complete information system. Seeing the problems that occur regarding public interest and lack of public appreciation of the importance of a museum and the processing and presentation of museums in Indonesia that are not paid attention to, this makes it very interesting to study more deeply and process the arrangement of the museum space which previously seemed ancient and modern. boring in order to draw back the public's attention to the importance of museums.

The Bogor Zoological Museum is a museum with the most complete fauna collection in Southeast Asia representing Indonesia on the international scene so that in choosing a theme it is necessary

to highlight the identity of Indonesia. Election. The charm of Indonesia as an archipelagic country describes every habitat inhabited by fauna ranging from land, namely mountains, forests, fields, rice fields, swamps, rivers to the ocean. This is the main reason behind the theory of biophilic design which can bring a natural environment to the space where humans are active and provide design images that allow them to move optimally.

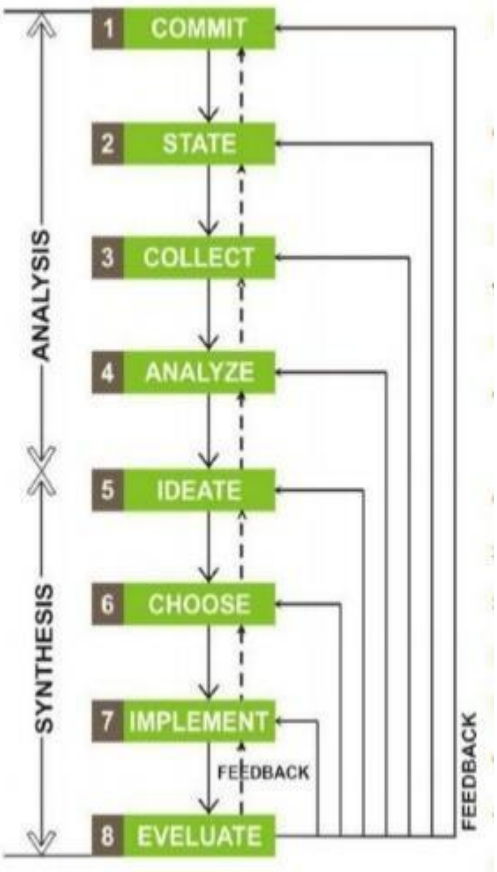
Based on the background that has been described, the formulation of the problem that can be described is, "How to Apply Biophilic Design Theory in the Mammal Collection Room of the Bogor Zoological Museum" with the aim of providing an explanation of the application of biophilic theory into the room.

It is hoped that through the redesign of the Bogor Zoological Museum, it can function optimally in accordance with its role and purpose as an educational recreation place, as well as increase public interest, especially generation z in the science of zoology in Indonesia.

2. RESEARCH METHOD

The method used in this design is the design process from the book Designing Interiors by Rosemary Kilmer [1]. The design method according to Kilmer is divided into two stages, namely the analysis phase which aims to identify problems, understand, and analyze problems, and the second is the synthesis stage carried out to process the results of problem analysis into a solution that can be applied to the design.

Figure 1
Design Process Diagram



Source: Rosemary Kilmer and Otie Kilmer, 2014

(a) The first stage is Commit: in the first stage where you accept and commit to a project by creating a design background and recognizing the profile and history of the Bogor Zoological Museum; (b) The second stage is State: at this stage the author identifies the problem at the Bogor Zoological Museum by formulating the problem and design objectives; (c) The third stage is Collect: collecting, grouping and processing existing data, namely collections at the Zoological Museum; (d) The fourth stage is Analyze: analyze the data and facts that have been collected and make a concept map to formulate problems from the design of the Bogor Zoological Museum; (e) The fifth stage is Ideate: designers formulate ideas in the form of schematics and design concepts and solutions; (f) Sixth stage Choose: The designer determines which design alternative is the most appropriate and optimal by selecting ideas based on criteria; (g) The seventh stage is Implement: designers channel ideas in 2d or 3d form and presentations that support the visualization of the display design; (h) And the last stage is Evaluate: at this stage the designer revisits and retools the design into a final design.

3. RESULT AND DISCUSSIONS

Theoretical basis

Biophilic design is a design concept based on the verification of the phenomenon that humans basically prefer the natural environment. Several studies have also shown that humans achieve maximum performance in natural environments [2].

The relationship between humans and nature is an inseparable part of human nature, because basically humans have a strong affection for nature [3]. This relationship gives a positive mood in humans. Positive mood will help humans to face life better. These were then reconstructed using a biophilic design approach [4]. This approach puts forward a way to build a natural atmosphere. The existence of a natural atmosphere will help the soul to be calm and see life more positively.

The application of this concept is not only limited to making a building a "green" building, which is simply a matter of providing the concept of plants in the building. At first the biophilic concept was also equated with the concept of green building or what is often heard as green architecture. The difference between the two is, if green building focuses on how to make the building or discusses it with the concept of construction or even renovation, while biophilic is a concept that seeks to minimize the negative impact of warming that exists in urban life on a local micro scale that allows humans to be able to increase their level of living. physical comfort and health improvisation from humans themselves [5].

Biophilic design facilitates mutual interaction between humans and nature and living systems. The purpose of biophilic design is to create space restorative and can restore physical and psychological humans, nourish the nervous system and display aesthetic vitality.

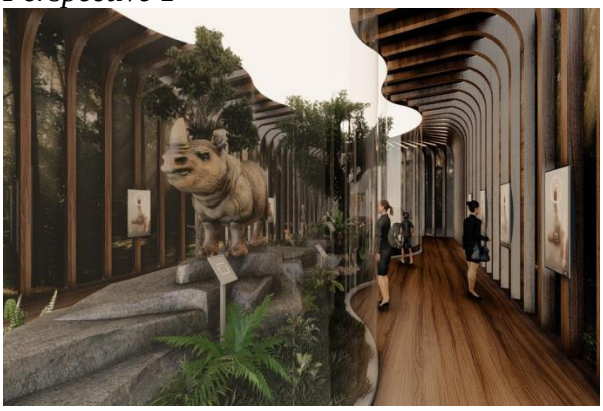
Biophilic concepts continue to develop into popular designs. The concept of biophilic design exists in various forms such as local culture, ecology, projects, and architecture as well as in the designer's perspective where biophilic elements are applied to space. Biophilic design has many positive results, that is, it seeks to reconnect humans and nature by providing all kinds of behavioral, mental, and physical benefits [6].

The biophilic design theory applied to building design contains several principles. One of them is described by Terrapin in his book 14 Patterns of Biological Design [4]. All of these principles can be divided into three main groups: (a) Nature in The Space. It includes non-visual relationships

with nature, simple relationships with nature, the effects of water and temperature on the air in a room or building, the element of water in design, lighting control, and the relationship between buildings and natural systems increases; (b) Natural Analogues. Various elements of nature are applied in the form of analogies in this design principle. This can be seen in the application of biomorphic forms to buildings, complex ornamental forms and the application of natural materials; (c) Nature of the Space. Various elements of nature are applied in the form of analogies in this design principle. This can be seen in the application of biomorphic forms to buildings, complex ornamental forms and the use of natural materials.

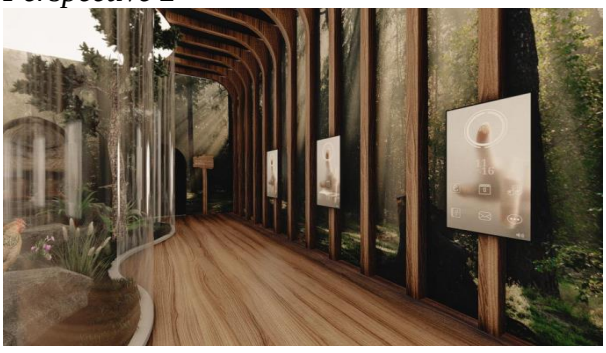
Based on the theoretical explanation regarding the biophilic design so that a space design like this is formed:

Figure 2
Perspective 1



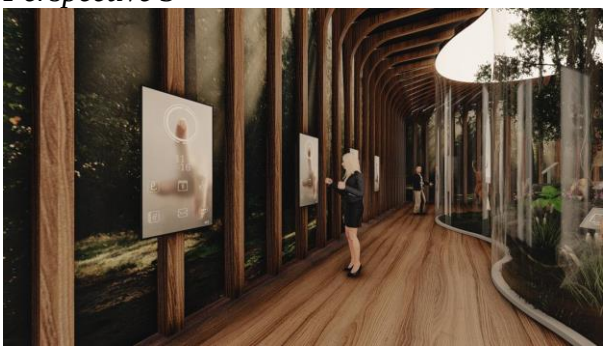
Source: Silvia Wijaya, 2021

Figure 3
Perspective 2



Source: Silvia Wijaya, 2021

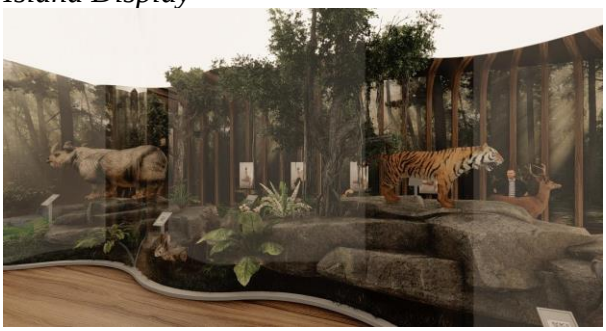
Figure 4
Perspective 3



Source: Silvia Wijaya, 2021

Design implementations
Nature in the space
Visual connection with nature
When entering the mammal collection room, the island display will be the main point in this room. The island display is filled with plants and also a collection of animals placed here as if they were in nature.

Figure 5
Island Display



Source: Silvia Wijaya, 2021

Non-Visual Connection with Nature
Sound. In the room there are speakers that play the melodious sound of birds chirping as well as the flow of water and the sound of the wind so that it brings visitors as if they are in nature.

Figure 6
Speaker in The Room

Source: Silvia Wijaya, 2021

Touch. On the walls of the room, the material is dominated by wood (lattices that connect to the ceiling) and also on the walls using a custom wallpaper with a natural/forest view. The wooden lattice used is wood with a rough texture, representing tree trunks. The lattice is made vertically upwards to make the space seem tall like trees in the forest.

Figure 7
Wood Lattice

Source: Silvia Wijaya, 2021

Figure 8
Wood Lattice

Source: Silvia Wijaya, 2021

Scent. The room is using air freshener with a woody aroma. This scent is suitable to describe the forest atmosphere that you want to display in this collection room.

Taste. Towering trees in the middle of the room with a combination of lights that become light accents give a feeling as if they are in the wild and make visitors relax their minds

Figure 9
Island Display

Source: Silvia Wijaya, 2021

Figure 10
Island Display

Source: Silvia Wijaya, 2021

Figure 11
Island Display

Source: Silvia Wijaya, 2021

 10.24912/ijassh.v1i2.27786

Nature Analogues
Material Connection to Nature
The use of natural materials such as wood is applied to this room. The room is dominated by wood which can be seen on the wooden lattice and also on the floor.

Figure 12
Wall Area

Source: Silvia Wijaya, 2021

Vinyl with a wood motif is used for the floor area. The color used matches the grid on the wall.

Figure 13
Wood Vinyl Flooring

Source: Silvia Wijaya, 2021

Synthetic grass carpet and artificial stone are used in the island display area.

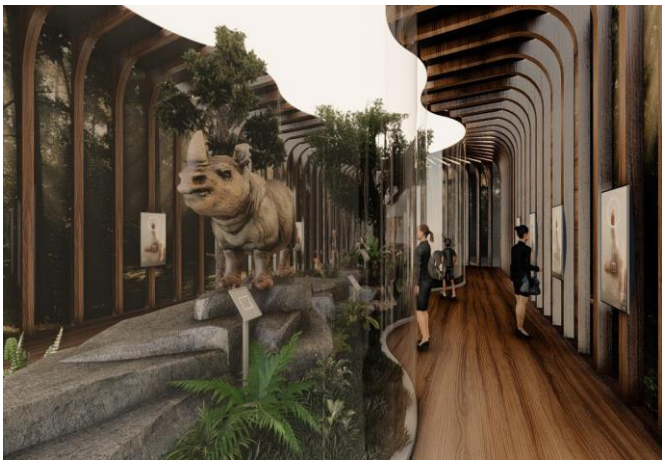
Figure 14
Island Display

Source: Silvia Wijaya, 2021

Nature of The Space
Prospect & Refuge
Elements of nature are applied in the form of analogies in this design principle. This can be seen in the application of biomorphic forms on the island display, complex ornaments, greenery in the space and the use of natural materials in the room.

Mystery
When entering the room, visitors have to walk around the island display so that they are curious about what is in the next section.

Figure 15
Mammal Collection Room



Source: Silvia Wijaya, 2021

Figure 16
Mammal Collection Room

Source: Silvia Wijaya, 2021

4. CONCLUSIONS AND RECOMMENDATIONS

Based on observations from the literature study, it can be concluded that the application of the biophilic theory has been applied to the mammal collection room. The author knows that this paper still has shortcomings in the research process carried out from beginning to end. Therefore, constructive criticism and suggestions from readers are very helpful for further evaluation.

Therefore, the authors suggest that more in-depth research and collection of reliable literature data be carried out.

Acknowledgment
Researchers thanked participants who had provided the necessary data in the study.

REFERENCES

Almusaed, A. (2011). *BiophiIic and BiocIimatic Architeture AnaIytical Therapy for the Next Generation of Passive SustainabIe Architecture*. Springer.

Browning, W. D., Ryan, C. O., & Clancy, J. O. (2014). 14 Patterns of Biophilic Desain Improving Healthy & Well-Being in The Built Environment. Terrapin Bright Green LLC.

Kellert, S. & Calabrese, E. (2015). *The Practice of Biophilic Design*. Biophilic Design.

Kilmer, R. & Kilmer, W. O. (2014). *Designing Interiors*. Wiley.

Priatman, J. (2012). "Konsep Desain Biophilia" sebagai Dimensi Hijau pada Arsitektur Empatik. *Seminar Nasional Menuju Arsitektur Berempati*, 35-45.

Wilson, E. O. (2003). *Biophilia: The Human Bond with Other Species*. Harvard University Press.