

Establishing Sustainable Habits of students in Green School Bali through Green Interior Design

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Abstract

Adopting the green concept for building as a place for human activities will be proved a sustainable environment. However, giving awareness to care about the environment through habit in the early stage of human life is more valuable. This study aims to know the application of the green concept in their school; and to find how green building school encourages students' behaviour to be aware of their environment. The Sustainable design concept from Papanek and a habitus theory were used to explore how habits can be formed deliberately to aware of the environment. It showed that the concept of sustainability has been applied from the interior design concept. Sustainable architecture and eco-environment encourage the user to be familiar with the environmental concept.

Introduction

Based on U.S. Energy Information Administration, Total energy production in Indonesia reach the ninth place in the World with 16.062 quadrillion Btu in 2018, under eight other countries, most of which are developed countries such as the U.S and China [1]. It has become a big problem in this country. Indonesian people need to find a solution to reduce the use of energy. Therefore, they need to educate people to understand the situation and start applying the sustainable environment in every aspect. Green school in Bali, Indonesia is one strategy to start reducing global warming. It concentrates on using sustainable energy. The primary aim is to create awareness in students and the community's concern for the environment through this school. It is concentrated with the ecological principle ideals to focus on human behavior. It applies the green concept whose vision is to create a generation conscious of the environment and sustainable futures. It has specific curricula that focus on the green concept, so all aspects of the school are based on the green concept and sustainability, including the architecture, interior, and all product design in this school. This research discusses how design provides an ideal picture of thought. The buildings on this school use an environment-friendly green concept consisting of local ingredients and are designed with an open form and a few insulations.

Method

This research uses a qualitative method where the data collection method is obtained through field observations, interviews using recordings, and documenting anything encountered in the field through cameras. Meanwhile, this research's data analysis uses the green design analysis of the Papanek concept and the habitus of Bordie humans involved in it.

Result

Interior design in green school Bali

The interior design consists of two parts: aesthetics related to beauty and systems related to the fulfillment of the functions of the space in it, including its relation to lighting, ventilation, and others. The main goal is to provide solutions to the occupants of the space in it so that they can get the desired atmosphere, but lately, the issue of global warming has also touched on the designer profession, a designer is responsible for the products created related to material selection, use, and waste generated. So that one more important aspect that needs to be considered in interior design is the sustainability aspect.

A building design must prioritize good planning comprehensively, which does not damage nature but can blend with nature itself. In Papanek, it was stated that natural resource conservation planning must be considered in a good design, including the use of lighting efficiently with the maximum use of natural lighting in the room. Product planning is related to selecting safe materials, environmentally friendly production processes, product packaging processes, product finishing, production transportation, and industrial waste. The use of environmentally friendly materials such as natural materials is an essential aspect of safe finishing raw materials [4].

Green School Bali is the only school in the world whose buildings are made of environmentally friendly bamboo. The air conditioning no longer uses air conditioning but a windmill through an underground tunnel. The electric power uses bio-gas made from animal waste to light the stove. It also has a unique interior architectural concept; it only uses bamboo to make buildings. Some of the buildings using thatched roofs almost have no bulkheads, separating the outer and inner spaces because they do not have entire closed but open walls, so they look very integrated with nature. It also can be seen from the design of the building, which does not use walls fully but is an open space that blends with nature; the building only consists of pillars, floors, and roofs. So that light and air can enter freely into the room in the building. The school also uses solar panels as the first source of energy. All of its products and is even very integrated with nature and environmentally friendly; they are accustomed to recycling, using existing materials, and converting them into other products. Another thing that is also interesting about the design of this green schoolroom is in the hall or performance space, which is designed to be open without any walls, but only covered with or consisting of an arrangement of bamboo, and thatch is added at the top. It gives a sound effect that reverberates in the room, so there is no need to add it with loudspeakers when holding a show.



Figure 1. Green School Bali Classroom, a chair in the classroom, and the bridge.

Natural materials will no longer be the right choice when designers only exploit materials that exist in nature without reforestation and conservation efforts. If this happens, then what happens is only environmental destruction under the pretext of making environmentally friendly buildings. In selecting materials, a designer does not just choose; the use of certified eco-materials and legal materials is one way a designer can eradicate illegal logging and environmental destruction.

The use of bamboo material was chosen because of the abundance of these raw materials around the school was built. In addition, the life cycle of bamboo is relatively fast and easy when compared to wood. The construction adapts to the contours of the land and plants, not the plants that have to match the building. The construction of this school did not cut down any trees on the land. The building adapts to the existing trees without having to cut or move them. Aesthetic aspect from the interior design elements that are pretty interesting are ropes and fabrics that are used as elements to decorate the room, which are very interesting accentuations in the middle of the room. In addition, there is also a collection of plastic that is converted into other decorative products in the form of attractive installations. The interesting aspects about this school, it also include meaning on the room. For example there are several bamboo poles was written with the names of important people in this school such as founding fathers and alumni of the school. It adds meaning to the room; a pillar becomes more valuable.



Figure 2. Exhibition Hall and Staging Room in Green School Bali

Then, there is also a toilet which is quite eye-catching, all the walls are still made of bamboo, and the unique thing is that they use soil to clean dirt instead of water. It is one solution to reduce water use; in fact, the dirt can be used as fertilizer or biogas too, so that nothing is wasted, everything can be used, this is following the principle of zero waste. Exciting additions are hand washing basins made of stone and old tires and soap bottles made of natural stone.



Figure 3. Toilet and Sink

Establishing a habit in green school Bali

Habitus is a Latin word that refers to a typical or habitual condition, setting, or situation, especially in the body [8]. It is manifested in behavior and is an integral part of it (and vice versa). It has become one in one's body and soul. Third, the 'practical taxonomy' discussed in Chapter Two, which lies at the heart of the generative schema of the habitus, is rooted in the body[9]. Things that have become commonplace are obtained based on sensory experiences related to what is felt and experienced by the five senses.

It is interesting to give awareness to students to respect the environment apart from building design and product design in the room; there are signs in the school environment that always remind them to apply habits that respect the environment. It becomes close to them. Something that is done repeatedly, over time it will become used to it, then it turns into a habit which then becomes a character that cannot be separated. Here are some pictures of the signs in the Green school environment to train students' habits.



Figure 4. green sign/instruction to Green School Bali students

This sign looks simple, but it is pretty eye-catching. The media they use to convey information is quite interesting, such as drawn wood, a delaminating paper that provides transparent information about their vision and mission always to be remembered. They also sort waste into different categories and order waste from leftover materials in attractive shapes.

At this school, they have been taught how to grow various types of crops such as rice and mint leaves consumed every day; all the food available at the school is everything they grow themselves and long-term plants such as trees. Then for wilted plants and dirt are also used as compost. So awareness of cause and effect starting from planting, consuming, and processing waste materials has been well implemented in this school. They also have a shrimp pond where they are cultivated and, at the same time, a cattle farm. Furthermore, other facilities to support other school activities such as sports arenas, laboratories, and libraries. They have several practice rooms for producing compost from organic waste that has been sorted. Then, land to grow their crops, such as rice fields to grow rice and produce their rice. Also, other crops in the garden, such as corn and mint leaves. Rice packaging is converted into bags; coir bottles are made of natural stone.

Conclusion

From the description above, it can be seen that all space facilities and building designs, and spaces in this Bali Green School have consistently utilized natural energy as much as possible. By not eliminating the aesthetic elements and system elements in it. Sustainable design has been applied following lighting systems, energy-efficient ventilation, and the use of sustainable materials. Thus, people who are in the place and directly interact with the design of such a building will feel familiar with everything that is applied in the building. Coupled with the activities and green design curriculum implemented in this school which always involves sustainable thinking, it will undoubtedly be a good provision for students when they graduate from this school.