

## MODERN BIOPHILIC INTERIOR DESIGN CONCEPT OF KALAM KUDUS CHRISTIANITY HIGH SCHOOL

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### ABSTRACT

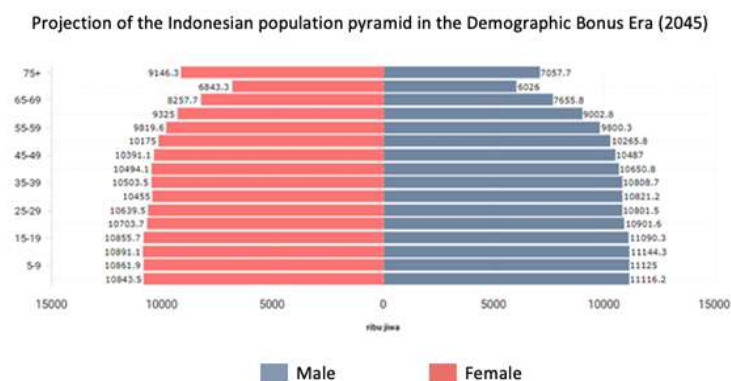
*The Golden Generation Program with the 2045 Demographic Bonus can be an opportunity to improve the country's economy by forming superior human resource candidates. However, in reality, Indonesia is included as a country with a large number of students who are lazy to study, influenced by extrinsic and intrinsic factors. Intrinsic factors such as stress levels, lack of cognitive abilities, and emotional well-being are caused by the lack of natural touch in the interior environment and the lack of attractive school facilities. Therefore, the lobby of SMA Kristen Kalam Kudus II was redesigned using a modern biophilic concept in the hope of overcoming the problems of stress, cognitive abilities, and emotional well-being in students. The lobby was chosen because it serves as the school's entrance that determines the first impression and trust of students and parents, while also functioning as a waiting area. This study used a descriptive qualitative method, collected the data through questionnaires, for the design method adapting the synthesis analysis process. As a result, the modern biophilic concept combines modern elements through color selection, furniture shapes, and geometric partitions, with natural materials, the curved shape of the furniture, spacious circulation, and lots of natural lighting access and the shape of the butterfly chandelier. The results received a 95% success rate from the questionnaire feedback, which means that this design has succeeded in implementing the modern biophilic concept that can help students reduce stress levels, improve cognitive abilities, and emotional well-being.*

**Keywords:** interior design, modern, biophilic, lobby, school

### 1. PREFACE

The government is preparing the Golden Generation Program 2045 in order to welcome 100 years of Indonesian independence. The program aims to prepare young generations of Indonesia who are qualified, competent, and highly competitive, so that there are several pillars of the vision that must be achieved, one of which is human development and mastery of science and technology (Manullang, 2013; Darman, 2017).

Along with the program, according to the Ministry of National Development Planning (PPN) and the Central Statistics Agency (Figure 1), in 2045 Indonesia will receive a Demographic Bonus, meaning that the number of productive-age population is greater than the number of non-productive-age population. In the 2015-2045 Indonesian Population Projection report, the Ministry of PPN and BPS predict that Indonesia's population will reach 318.96 million people in 2045. Of that number, the productive-age population (15-64 years) is estimated to reach 207.99 million people (Abdah et al., 2023).

**Figure 1***Projection of the Indonesia Population Pyramid in the Demographic Bonus Era 2045*

The coincidence of the Golden Generation Program with the 2045 Demographic Bonus can be a potential opportunity to improve the country's economy by forming superior human resource candidates. These human resource candidates who are still in school must be educated optimally so that they can be useful for the Indonesian Nation and State. However, in reality, Indonesia is included as a country with a large number of students who are lazy to study and go to school (Abdah et al., 2023). This has an impact on the high percentage of school dropouts among students. According to BPS records, the high school dropout rate reached 1.38 percent in 2022, which also increased by 0.26 percent from the previous year of 1.12 percent (Mahanal, 2014).

This worrying condition certainly does not occur without reason. It is known that several causes of children being lazy to study to the point of dropping out of school are external factors (extrinsic) and internal factors (intrinsic). For extrinsic factors, it is caused by the lack of support from parents, poverty, an uncomfortable environment, and unsupportive facilities (Puspa et al., 2023).

For intrinsic factors, the feeling of laziness that arises in children can be caused by the lack of self-motivation, fatigue in activities, addiction to electronic devices, decreased cognitive abilities and emotional well-being, and high levels of stress while at school. The causes of high levels of stress in children at school are very diverse, one of which is the space in the school that isolates students from the outdoors (Novitasari & Dwijayanthi, 2024). Research shows that to reduce stress levels, cognitive abilities, and emotional well-being can be significantly improved by designing or embedding nature into the learning environment (Zufiyardi et al., 2023). In addition, the laziness of students to study and come to school is due to the lack of attractive school facilities and adequate needs of school users.

To anticipate this, SMA Kristen Kalam Kudus II applies the Modern Biophilic design concept to its interior (Fairuzsalwa et al., 2023). The choice of this concept is because the modern concept is in line with the analysis of image, theme, and style that has previously been done. This modern concept is a lively modern type, which means modern but colourful, expected to present a lively, exciting, but functional learning environment atmosphere.

The biophilic concept is expected to align the modern concept and reduce stress levels in students (Noor, 2022). The design area is limited to the lobby space with several considerations, including: (a) The school lobby is the front line of the school, because it is the first area visited,

so it gives a first impression to anyone who comes. If the design concept looks safe in front, it will foster a sense of trust for every parent who wants to send their child to school; and (b) The lobby area is a place to welcome and accept students and other school users. It is hoped that by implementing this design concept, it can reduce stress levels in students so that students are diligent in coming to school, so from all the things that underlie the design, the author found a problem formulation in the form of how the results of implementing the modern biophilic concept in the lobby and what is the percentage of success of the design.

The design of SMA Kristen Kalam Kudus II which raises the biophilic concept is in line with the Sustainable Development Goals (SDGs) agenda of the United Nations and was made a global development agreement in 2015 with the theme "Changing Our World: The 2030 Agenda for Sustainable Development". Of the 17 targeted SDGs points (Figure 2), there are 2 points that can be achieved from this design, namely point 4 regarding quality education and point 11 regarding sustainable cities and settlements. The design results can be the development of a high school equivalent school facility that can be used as a reference for environmentally friendly, sustainable design and can improve the quality of education in Indonesia (Pedersen, 2018).

## Figure 2

*The Design of SMA Kristen Kalam Kudus II which Raises the Biophilic concept is in Line with the Sustainable Development Goals (SDGs) Number 4 and Number 11*



## 2. RESEARCH METHOD

This study uses a descriptive qualitative method, which means that the results of this study will be in the form of an explanation or description of quality, not numbers. For the data collection process, document studies and questionnaires are used (Kilmer & Kilmer, 2024).

This research process will begin with the appearance of design results images along with explanations supported by the concept behind them. Then after describing the design results, the author will create a questionnaire to get feedback regarding the percentage of effectiveness of this design. The target respondents are students of SMA Kristen Kalam Kudus II, several teacher representatives, and fellow interior designers (Ismanto, 2017).


For the design method, the author applies the synthesis analysis method proposed by Rosemary Kilmer which is written in a book entitled *Designing Interior* (Kilmer & Kilmer, 2024). Where at the analysis stage, the author analyzes all data related to image, facilities, materials, space utilities, and space organization to find keywords or design references. The image keywords obtained are love, growth, and universal. At the synthesis stage, the author combines all the keywords that are used as answers or design results (concepts). The design theme is “*Joy in Livelicity*” with a modern biophilic design concept.

### 3. RESULT AND DISCUSSION

#### Project identification

**Table 1**

*Project identification of Kalam Kudus II Christianity High School*

<b>Object</b>	SMA Kristen Kalam Kudus II
	
<b>Location</b>	Jl. Angsana Utama II Blok F6 No. 1, RT.3/RW.9, Duri Kosambi, Kecamatan Cengkareng, Kota Jakarta Barat, Daerah Khusus Ibukota Jakarta
<b>Building Area</b>	1500 sqm
<b>Users</b>	students, teachers, school officials, staff, guests, parents
<b>Vision &amp; Mission</b>	<p>The awakening of a whole person who fears God, is independent, and useful to the world (referring to Ephesians 2: 19-20, I Corinthians 9: 19, and Proverbs 1: 7)</p> <ul style="list-style-type: none"> <li>• Inviting students, educators and education personnel to have a heart that fears God;</li> <li>• Guiding students, educators and education personnel to love fellow human beings and appreciate the natural environment created by God;</li> <li>• Fostering, providing knowledge, equipping students and empowering stakeholders to become education personnel</li> </ul>

SMA Kristen Kalam Kudus is one of the private high schools in Jakarta City that provides knowledge based on Christianity to students who study there (BNSP, 2019). SMA Kristen Kalam Kudus II was officially established at the end of 1993, based on the decree Kep.901A/101.A1/I/93 in Kosambi Baru, 2 years after SD and SMP Kristen Kalam Kudus III were established in June 1991. Project identification as described in Table 1 above.

#### Image analysis

Based on the results of image analysis, there are 3 keywords taken, namely: love, grow, and universal. Love, the first one, is presented by showing the image of love with many organic or curved forms; while Grow is presented by giving natural elements into the school environment; and Universal is presented by an interior with white with a touch of pop color as a universal symbol.

#### Design concept

From the three keywords and their implementation plans, a modern biophilic design concept was produced with the design theme “*Joy in Livelicity*”, which means a mixture of modern and biophilic styles makes school users more 'alive' and can carry out activities optimally so that they can grow, both in knowledge and faith. The design concept as seen in Figure 3 below, and Figure 4 is a visualization of the design concept in the form of a moodboard.

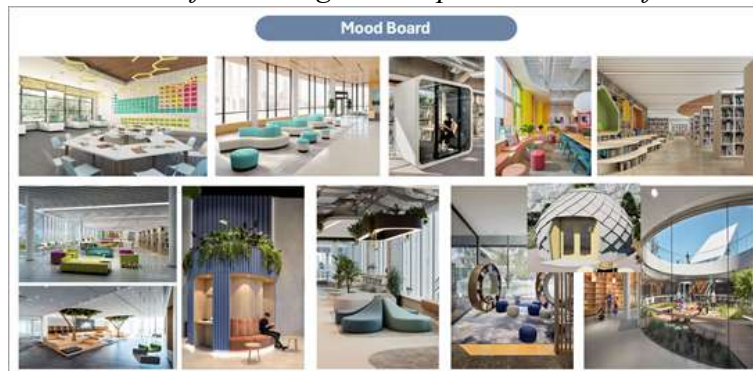
**Figure 3**

*The Design Theme “Joy in Livelicity”, from the Three Keywords and Their Implementation Plans, a Modern Biophilic Design Concept*



**Figure 4**

*Visualization of the Design Concept in the Form of a Moodboard*



### Design Implementation Lobby

The concept of living city joy design is implemented using a modern biophilic design approach. The area division from the entrance is directly faced with the reception desk and lounge area. Starting from the entrance door, you will see a circulation space with a width of 3 meters with a seating area on the left and a reception area on the right. In front of the reception area there is a large garden area with a glass house for Biology lessons. The placement of the two areas is done so that when entering, all school users can feel the spacious atmosphere of the room with fresh air from the garden. Then with the large space, it can make it easier for school users to find the room they want to go to, in the lobby there are also information guides to make it easier for all school users.

**Figure 5**

*Perspective View of Lobby Area from Entrance*



**Figure 6**

*Perspective View of lobby Reception Area from Lounge*



For the reception area, a modern impression is seen from the composition of white with geometric patterned mirror partitions and minimalist shapes of the reception desk and chairs. The modern concept is balanced by the biophilic style with a curved ceiling shape, the use of backdrop materials in the form of natural stone panels with wooden trim, floor materials in the form of marble tiles, a circular butterfly shape as a pendant lamp, and lots of natural lighting in the room.

**Figure 7**

*Perspective View of Lounge Area with Living Plants Blocked from Lobby Reception*



The lobby area also applies the Kalam Kudus logo as the identity of a Christian school. In the seating area, the biophilic concept is very pronounced in the placement of natural plants, curved seating shapes, natural stone backdrops and WPC wood trim. The modern concept is seen in the combination of white, light brown, and green in the seating area.

The “*Joy in Livelicity*” design concept is seen in the combination of fun colors, but not sharp with natural elements and a modern impression from the combination of colors and furniture shapes, this concept refers to the use of the following material scheme (Figure 8).



**Figure 8**

*The Material Scheme of Design Theme “Joy In Livelicity”*



The following is a summary of the application of the modern biophilic concept in the lobby of SMA Kristen Kalam Kudus II which is arranged in Table 2.

**Table 2**

*The Application of the Modern Biophilic Concept in the Lobby of SMA Kristen Kalam Kudus II*

Area	Modern	Biophilic
Entrance	A combination of white, light brown and green	Wide and spacious circulation
Receptionist Area	<ul style="list-style-type: none"> <li>White color composition</li> <li>Geometric patterned mirror partition</li> <li>Minimalist shape of reception desk and chairs</li> </ul>	<ul style="list-style-type: none"> <li>Curved ceiling shape</li> <li>Backdrop material in the form of natural stone panels with wooden lists</li> <li>Floor material in the form of marble tiles</li> <li>Circular butterfly-shaped chandelier</li> <li>Lots of natural lighting in the room.</li> </ul>
Lounge Area	A combination of white, light brown and green in the sitting area.	<ul style="list-style-type: none"> <li>Placement of natural trees and plants,</li> <li>Curved seating shape,</li> <li>Backdrop made of natural stone and WPC wood list,</li> <li>Round green cushion.</li> </ul>

### Design implementation class room

The modern and natural impression of biophilic is seen through the hidden lights on the walls and the curved play on the green ceiling panels. On the ceiling panel, there is a hidden projector that can be turned on when needed (Figure 9).

**Figure 9**

*Classroom Interior Design with a Modern and Clean Look to Create a Focused Space*



The modern and clean impression of the school is also seen through the arrangement of the lights and ceiling materials used (Figure 10). This classroom study table uses a modular system that allows users to adjust the shape of the table according to learning conditions. This classroom mostly uses custom furniture, starting from curved charging stations, periodic table cabinets, notice boards and class benches for relaxing.

**Figure 10**

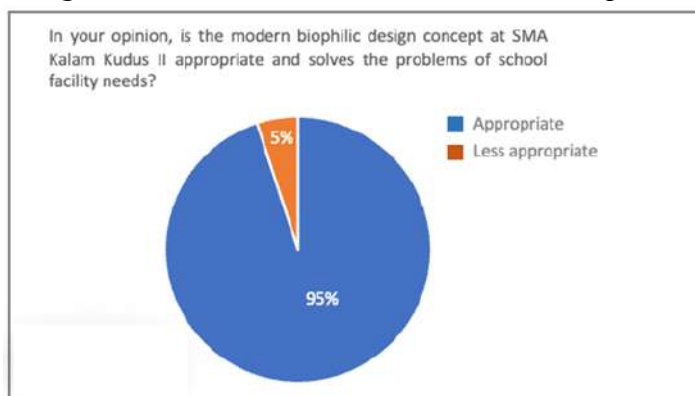
*The Modern and Clean Impression of the School is Also Seen Through the Arrangement of the Lights and Ceiling Materials Used*



From the design results, a questionnaire was given to respondents to get feedback on the implementation of the design concept in the lobby and classroom spaces related to the percentage of design success through a Google form that will be given to students of SMA Kristen Kalam Kudus II, teachers, and fellow interior designers. From the feedback results, the percentage of success of the interior design of the lobby and classroom of SMA Kristen Kalam Kudus II with the Modern Biophilic concept was 95% by stating that they agreed and liked the design results with the modern biophilic design concept.

**Figure 11**

*The Questionnaire Results Shown that 95% Respondent Agreed with the Design Concept*





#### 4. CONCLUSIONS AND RECOMMENDATIONS

Implementing the design theme “*Joy in Livelicity*” which means producing a modern but lively and cheerful room atmosphere. then the design style that represents the theme is modern biophilic. The modern concept was chosen because it is neutral; which means it can be combined with other design styles, and is functional; so that it can meet the needs of school users. The modern concept tends to be attractive, so it is not boring to look at.

Then the biophilic concept was chosen to create a stress-free and relaxing learning environment, so that it can reduce stress levels in students, restore cognitive function and emotional well-being of students. For its own application, the author applies a combination of white, light brown, and green to the entire interior which illustrates a fun modern concept. Then, the author uses geometric partitions, and simple but functional furniture shapes.

The modern concept is balanced with the biophilic concept which is seen in the majority of materials; both on the backdrop, floor, and furniture. Then the spacious circulation, the shape of the chandelier, the presence of natural lighting, the curved shape of the ceiling and furniture, and the placement of plants behind the seating area and next to the lobby area and classroom.

The results of this design received a positive response in the form of a high percentage of success, which is 95%. This is a sign that modern biophilic design has succeeded in becoming an attractive, functional design that reduces stress levels, improves cognitive function, and the emotional well-being of school users.

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