Exploring the Use of Color in Architecture

An Analysis of Luis Barragan and Le Corbusier's Design Approaches and Their Influence on Educational Spaces

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ABSTRACT

This paper studies the color application in architecture during the 20th century by Le Corbusier and Luis Barragan through a thorough analysis of case studies such as Cité Frugès, Unité d'Habitation, Casa Gilardi, and the Chapel for the Capuchinas, as well as relevant literature reviews. It then explores how color affects users' perception of a space from a psychological aspect through Goethe's color theory (1810) and the Ecological Valence Theory (2010). Factors that affect how people perceive color are also discussed. Finally, the paper focuses on the application of color in educational settings and discusses the impact of color. This paper aims to analyze and draw inspiration from Le Corbusier and Luis Barragan's color application approaches to apply them in educational spaces and emphasize the importance of color in educational settings.

Keywords: *architecture, color psychology, color in education space*

INTRODUCTION

Color holds an important position in architectural design and often has a great influence on the design decisions made by architects. Le Corbusier believed that color was an essential design element in architecture, not only for aesthetic purposes but also for its ability to modify the spatial perception of architecture [1]. His projects, Cité Frugès(1931) and Unité d'Habitation(1952) demonstrate how he used color to mitigate the starkness of concrete exteriors and create a sense of hierarchy within interior spaces. On the other hand, Luis Barragan used color as a way to create emotional responses and convey cultural meanings through his projects such as Casa Gilardi (1976) and Chapel for the Capuchinas (1952)[2].

The different approaches of these two architects in using color in architecture can inspire and be applied to designing educational spaces. Color can be used in architecture to modify spatial perception and create emotional responses because color affects people psychologically in general. In educational settings, colors are used to guide students' concentration and maintain class collective engagement. The findings from environmental psychology show that choosing the appropriate colors in educational spaces creates a vibrant atmosphere that encourages students to learn and promotes their results [3].

This paper contains three chapters. The first chapter will discuss the use of color in architecture by Le Corbusier and Luis Barragan through case studies and explore how it can be applied in educational spaces. The second chapter will analyze the color schemes chosen by Le Corbusier and Luis Barragan in their projects from a psychological perspective, exploring why those colors were effective in achieving the desired results. Factors like culture and personal experience, which affect how people perceive color, will also be discussed in this chapter. Lastly, as a student with a keen interest in the use of color in educational spaces, I conducted a small-scale photo-based interview with five of my peers in a campus space that I frequently use as a student. The purpose of this experiment was to explore the application of color in educational spaces. Despite its limited scope and methodology, the findings of this interview suggest that educational spaces with a limited number of dominant colors are preferred by students, as they promote increased focus and better academic performance(T.Arends, A.de Souza Mello, N.Gemiei, M.Cheung, E.Kooij, personal communication, March 20, 2023). This chapter also discusses how this interview should be properly conducted in the future.

CHAPTER 1: LE CORBUSIER & LUIS BARRAGAN: ARCHITECTS WHO ARE "GOOD" AT USING COLOR

In the 20th century, Le Corbusier considered color as an important design element in architecture as he believed "Each shade has its relevance and embodies specific spatial and human effects" (para.1) [4]. In his essay, "Architectural Polychromy" (1931), Le Corbusier states that "Man needs colors to live, it is an element as necessary as water and fire" (para.1) [5].

The practical appliance of color theory has successfully illustrated the synergy between spatial and chromatic dimensions in his project Cité Frugès in Pessac (1931). A set of contrasts has been applied on the façade: the clash of dark brown with green or white at the visual edge "amplifies the deployment of surface and causes a suppression of volume" (para.13) [6]. Here, colors were employed by Le Corbusier to mitigate the starkness of the exposed concrete exteriors. In addition, Le Corbusier describes that the use of color can drastically change the spatial perception of architecture [1]. He claims that color did not simply alter how we perceive space in architecture, but created a new, fundamentally rational phenomenon, which he has called polychromy, that introduces to the architectural symphony elements of extreme physiological power.

Figure 1: Cité Frugès, Pessac Photo : Paul kozlowski 1995 © FLC/ADAGP

The Unité d Habitation (1952) is another project in which Le Corbusier incorporated color in his architectural design. This project is commonly seen as an "unprecedented spate of new housing that was urgently required for several decades" in the post-Second World War period (p.40) [7]. Built as a prototype, it is the result of an experimental collective housing solution that contains all the facilities needed for 1,200 people to live in a community. Le Corbusier claimed that color was introduced to the façade as an afterthought to fix structural errors such as the mistake of proportions where the Modular was not in use and problems related to structural frames of the loggias caused by a careless engineer.

Despite the reasons why colors were applied to facades, the color scheme of red, yellow, blue, and green established a strong accent and made the facades more pronounced compared to the bare concrete building skin. The use of yellow can be interpreted as Le Corbusier's concealed desire to spark happiness in inhabitants, while the use of blue and green was meant to express people's connection with nature [8]. The contrast of balconies, painted with a wide choice of specters, with the raw concrete of side walls and finished façade, ensures the balance between the stonelike reliability of living-machine and freedom of self-expression for those who use it.

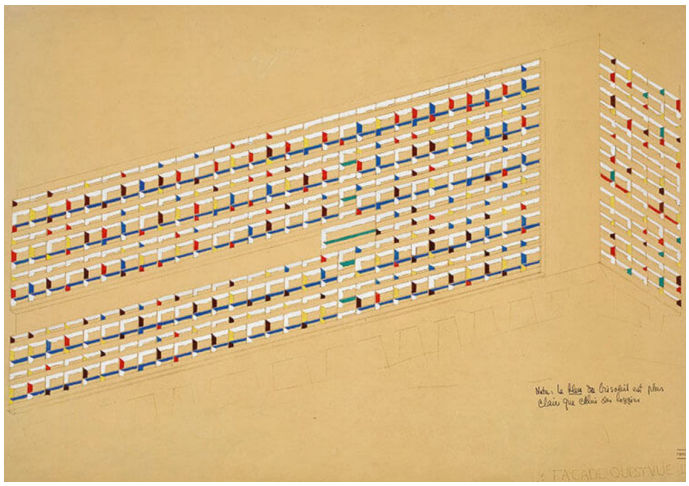

Figure 2: Unité d'Habitation, Marseille, France, 1945 © FLC/ADAGP

In addition to aesthetics, the color on the façade of Unité d Habitation was implemented with a product called "Maitrol" to resist ultraviolet rays. Compared to Cité Frugès, where color was directly applied to the concrete facing, the effect of bouncing off light from the concrete surface is stronger as the color was applied to recesses [7]. Moreover, Le Corbusier employed color as a means

to substantially transform the architecture. Color can be used to organize and create a sense of hierarchy in space as he wrote that by using color “You can bring forward a wall (black), push it back (pale blue), and even destroy it (a yellow wall)” (p.94). The decision of applying a color scheme to the apartment interior was made intentionally, and there is a nice interaction between exterior and interior outlook. The arrangement of color from facades was the same order as the color for the apartment doors. Unfortunately, there is no documentation that clearly states the original color within the apartment. Since Unité d Habitation was constructed more than seventy years ago, the interior of apartments has been repainted by the inhabitants. In the book Le Corbusier: The Unité d Habitation in Marseilles, the color scheme within the apartment was documented by comparing two apartments 215 - repainted according to the original color scheme, and 725 – the color scheme within this apartment has been discussed in a written commentary. There are eight colors within the color scheme: black, iron grey, pearl grey, whitewash, pale yellow, red-brown, clear blue, and medium green. What noteworthy is that colors within the apartment were not assigned based on the function of rooms; instead, they are distributed based on how the space is constructed. Stated differently, “planar surfaces delineated by their edges instead of prismatic structures” (p.97). In this way, color has been utilized as a means of modifying space, thus possessing the power to shape and transform people’s perceptions of it.

Generally speaking, Le Corbusier used color as a way to alter architecture. As mentioned previously, he indicated that color can be used to drastically change the spatial perception of architecture [1]. A similar approach can be applied when designing educational space. Color can be used to strengthen spatial hierarchy and create wayfinding cues for students. It can also be used to create a visual difference to improve the limitation within the interior of the built environment. For example, as mentioned in the previous paragraph, black can be used to bring forward a wall while pale color helps to push it back visually. In this way, an educational space can be enlarged or shrunk according to the design principle and program for the space.

Luis Barragan is another architect who is famous for combining color with architectural design. While Le Corbusier’s use of color is primarily technical, using color to visually alter the architecture, Barragan’s approach to color application is more sensational, utilizing colour to help “architecture evoke pure aesthetic emotion” (p.25) [2]. The purpose of using color in his design is not to convey meaning, but simply because he liked it. Colors are added to give dimensions to a space or, in his phrase, to add a “touch of magic” to it.


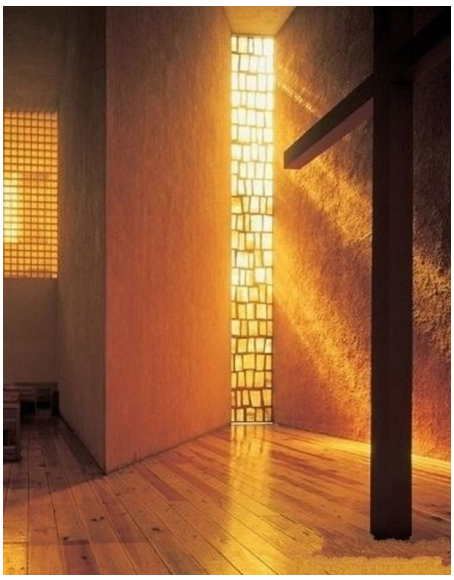


Figure 3,4,5: Chapel for the Capuchinas View of the freestanding cross and the quilla Source: Armando Salas Portugal

His work shows a significant connection with his predecessors and fits seamlessly into its chronological and geographical context. Many of his projects feature colors such as pink, yellow, purple, and red, which are inspired by the vivid variety of hues found in Mexican culture and the local environment. His core idea was to use multiple shades to create a sense of hierarchy and apply

color to important minor elements such as windows, lattice screens, and balustrades to help express the spirit of the place [9]. In his design, color normally works in combination with natural elements such as light and shadow to convey spatial sensations. For example, the Chapel for the Capuchinas (1952), also known as “a space blessed by light” (p.127) [2], successfully expressed Barragan’s design philosophy of color integrated with natural elements in architecture. Within the chapel, his use of light as a fundamental component of architecture, which was strained, colored, and diffused through yellow stained-glass windows and lattices, falls on a free-standing cross in Mexican pink and extends further into the confession space. With the use of color and light, Barragan achieved an unexpected level of poetry and sophistication in the space.

In Casa Gilardi (1976), Barragan also played with the sense of light together with color, to create illusions and tensions within the mind of an observer. With the combination of light, he induces a sense of serenity, while building perception gradually transforms into a narrated journey from one reflection to another. The pronounced purple wall color in the courtyard next to the jacaranda tree mimics the shade of jacaranda flowers. The tinted window illuminates the white walls with a natural yellow hue, evoking a sense of ascended spirituality along the corridor path that leads to the pool. The artful combination of light, form, and color in the space creates an exquisite composition that frames the blue-colored pool wall [10]. A curious red wall stands in the pool which supports the skylight. According to Barragan, the column in the pool is necessary as he indicated that “the column in the middle of the pool goes against all the rules… but it needed to be there to bring another color into the composition” (p.198) [2]. The scene undergoes a transformation throughout the day as the red wall sinks into the water, echoing the patterns created by the changing angles of sunlight.

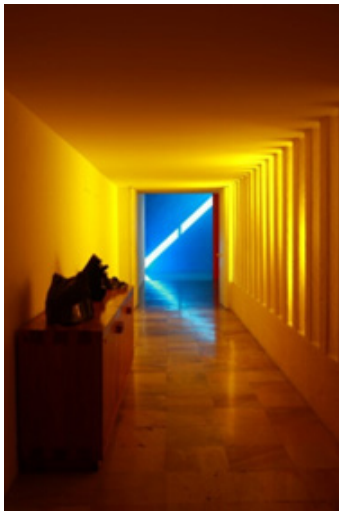

Figure 6:Corridor Space_© Eduardo Luque

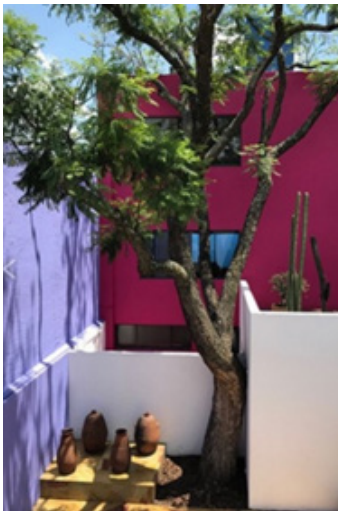

Figure 7: View of the first-floor courtyard and jacaranda tree, as seen from above_© Mark English

Generally speaking, Barragan used color together with natural elements like light to create an emotionally engaging space. By contrasting color, light, and shadow, he imbued spaces with a poetic and sophisticated character and the ability to elicit strong feelings.

Drawing inspiration from Luis Barragan’s use of color theory in his architectural design can be highly beneficial in the design of educational spaces. Following Barragan’s color philosophy, color can be used as a way to create joy and a comfortable atmosphere within an educational space which may help to encourage academic activities. Barragan used color to highlight minor elements within the space to create focal points in his project. Similarly, in the educational setting, color can be used to draw attention to important features such as whiteboards and screens, thus creating focal points that enhance the learning experience.

CHAPTER 2: COLOR AND PSYCOLOGY – HOW DOES COLOR WORKS IN ARCHITECTRAL SPACE

Le Corbusier and Luis Barragan both utilized color in their architectural designs but in different ways. Le Corbusier approached color from a functional standpoint, using it to visually transform constructed spaces. On the other hand, Barragan employed color in conjunction with natural elements to create a poetic atmosphere and emotionally engaging space. Despite their divergent approaches to color, the underlying question remains: why do these colors work? To answer this question, one should explore the fundamental matter of how color affects people psychologically.

The linkage between a visible spectrum and human emotions has been a subject of scientific study for centuries. Isaac Newton's decomposition of white light and his creation of the color wheel provided a foundation for subsequent research into the psychological impact of different colors on the human mind. This was the first step in the quantitative discovery of spectrum's impact on humans. Later, in 1810, Johann Wolfgang von Goethe published his theory that color is linked to emotions and moods from a psychological point of view [11]. He argues that colors are a complex subjective experience perceived by people, rather than a simple scientific measurement, and that it is difficult to draw general conclusions about these links. The Ecological Valence Theory (2010), proposed by Stephen E. Palmer and Karen B. Schloss, indicates that color preferences arise from people's average affective responses to color-associated objects [12]. This theory is supported by an empirical evidence: people's preferences for color are strongly associated with things and notions they like (e.g. blues with clear skies and clean water). Conversely, people dislike colors that are associated with concepts they dislike (e.g browns with feces and rotten food). We can see that people tend to like color if they have experienced positive emotions with an object in that color.

With these in mind, let's take a closer look at the color schemes developed by Le Corbusier and Barragan. Architectural Polychromy is a 43-color palette and a 63-color palette created by Le Corbusier in 1931 and 1956 [13]. In the 43-color collection, he categorized the colors into 12 charts, known as "claviers". Each clavier is composed of three background colors, referred to as "valeurs de fond" in Le Corbusier's naming convention, and two horizontal strips of color tones arranged in a keyboard-like sequence. The twelve claviers are Space; Sky; Velvet I and II; Masonry I and II; Sand I and II; Landscape; and Checkered I, II, and III. Each clavier was named after color schemes associated with a concept from nature. For example, "sky" and "space" are associated with blue, "Sand" is associated with yellow, "Masonry" is associated with red, and "Landscape" is associated with green[14]. These colors associated with nature have been successfully implemented into his design. For example in his project Cité Frugès in Pessac, the color green is connected with the concept of a far-off forest or rooftop garden, blue with the background sky, and red is used to "anchor" the façade as a solid masonry and to enhance its visual impact.

We can argue that Le Corbusier drew inspiration from nature to incorporate colors into his designs. As nature is often associated with pleasant feelings, the color schemes he created are also pleasing to people. Therefore, it can be said that to some extent, Le Corbusier's color choices are derived from nature, making them attractive to people.

However, in reality, the linkage between humans and color is not that simple. The previous explanations regarding the appeal of Le Corbusier's nature-inspired colour scheme can only be valid if natural elements are universally pleasing. In ither words, if a person does not find nature appealing, the connection between their preferred colors and their desired emotions may not exist. For instance, an individual who dislikes the sky and sea may not find blue as interesting as someone who finds these elements pleasing. Another example, some people consider brown as the color that is associated with unpleasant situations such as decay and rotting processes. In this case, these unpleasant feelings will trigger negative emotions towards this color, like the feeling of heaviness, dullness, or disgust. On the other hand, brown can also be the color that represents earth and

nature. Wood is a natural brown-colored material commonly used in interior spaces to create a cozy and warm atmosphere. Brown can also be associated with coffee and chocolates, which can trigger positive emotions in some people. The linkage between an individual's preferences and emotions is complex. There are no universal solutions to apply for regulating people's impression of a certain color. Thus, when designing education space architects must be aware of the context of the building. It is important to conduct interviews or questionnaires to get users' preferences. It is possible to achieve color harmonization within a space, for example using the color palette from Le Corbusier, however, it is generally hard to control individual preference towards the designed education space with an assigned color scheme.

Culture is another factor that affects how people perceive color. With knowledge being more accessible globally, we can refer to the result from The International Colour-Emotion Association Survey (2020), which shows that participants found it easy to visually refer emotions to certain shades. This varies according to socio-cultural contexts. One color can convey different meanings in a different region. For example, red is associated with joy and prosperity in Chinese culture while Nigerian consider red as a color representing fear. Another example, in Greek, purple is considered a color of sadness whereas purple is recognized as a positive color with no exact emotional association in most countries in the world[15].

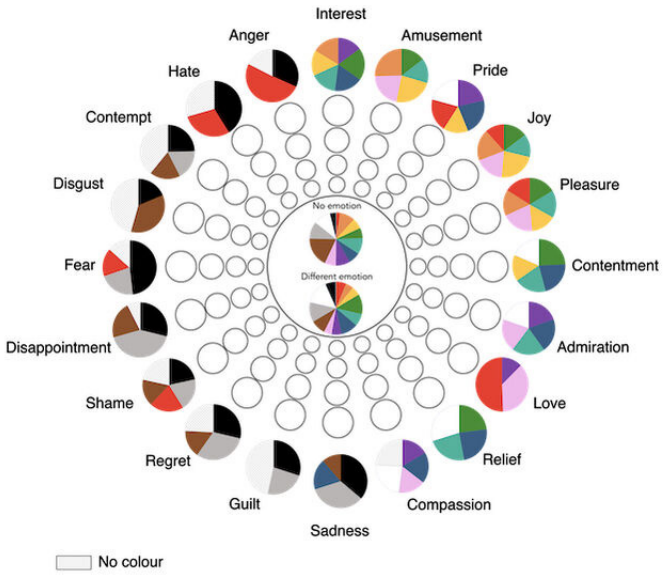

Figure 8: Source: Figure by Alessia Garzilli for Domicele Jonauskaite and Christine Mohr Eduardo

With this knowledge as background, cultural relations can also be one of the reasons why Luis Barragan's color scheme is successful. The color scheme within his design is heavily influenced by Mexican culture. Mexican pink frequently appears in Barragan's work, for example, a large area of this color was applied in Casa Luis Barragan (1948), Gálvez House (1954), and Lover's Fountain (1968). This color is considered an element of national identity and a symbol of Mexican charisma [16]. However, the same color holds different values in another country, for example, Switzerland. Pink is considered a color that helps to tranquilize feelings of anger and perform a calming effect on nerves for a certain period in Switzerland. Thus, pink is used in Switzerland's prison system to confine aggressive inmates to pink jail cells [17]. The color pink, in this case, can be less favorable compares to Mexico in an architectural context, as one is normally associated with a jail cell, and the other represents national charisma. Similarly, the pink color in Luis Barragan's design can be less poetic and popular in a different cultural context. Thus, people's preference for color is also heavily affected by cultural influence. Apply to the educational context, apart from personal preference, color is also embodied with certain meanings. When choosing a color scheme for educational space, architects need to be aware of cultural differences. Thus, to design a successful architectural space, the cultural background needs to be taken into consideration before curated colors for the designated site.

Color term	Cross-cultural similarity 0 = no similarity 1 = identical associations
Red	.89
Orange	.92
Yellow	.85
Green	.90
Blue	.86
Turquoise	.91
Pink	.93
Purple	.66
White	.86
Grey	.91
Brown	.87
Black	.91
All colors together	.88

Figure 9: Source: Domicele Jonauskaite and Christine Mohr

Another aspect that can affect the choice of color scheme is light. Normally, light defines how we perceive color in architectural space, we cannot simply focus on one aspect and ignore the other. Generally speaking, color and light work hand in hand when creating the desired atmosphere in architecture. In Casa Gilardi, apart from colors inspired by local culture and nature, Luis Barragan also placed architectural elements like screened windows intentionally to alter the light within the space. Together with color, light imposes a sense of tranquillity. In the corridor, bright daylight was filtered through yellow opaque glass which tinted and soften the light when shines into the interior space. Without the colored glass and the yellow wall, this space may be less poetic. The pool area of Casa Gilardi is illuminated by natural daylight that enters through the skylight, interacting with the red wall and water to create a dynamic scene with colour changes that evolve throughout the day with the changing angle of the sun. Without light, there would be no color transformation within the space. When designing a color scheme, architects cannot simply consider the color in isolation; it must be evaluated in a particular context, taking into account both natural daylight and artificial light sources.

Although color and emotions relate to individual factors like culture, personal experience, and natural elements, many color-emotion associations are still universal. This is shown in the experiment result below. Thus, some common colors can be suggested for classroom design. Depending on individual visual experience, color can stimulate different emotions and affect people's behavior and mood naturally. Therefore, in the context of education space, color is an important aspect of visual experience that influence students' behavior.

Figure 10: Lecture Hall in SUTD Source: SUTD

Figure 11: Orange Hall in TU Delft

Research from the Qingdao University of Technology concludes that classrooms with warm-colored walls were more effective at improving students' self-rated ability to pay attention whereas cold-colored walls were associated with higher ratings of pleasure and relaxation. [18] My experience of using the education space in TU Delft and Singapore University of Technology and Design (SUTD) for my master's and bachelor's degrees respectively can also verify this conclusion. In SUTD, the wall color of the lecture hall is purple, which makes me feel calm. On the other hand, the dominant orange color in the architecture building in TU Delft makes me more excited but the large area of orange can be interrupting the focus during the lecture.

Generally speaking, is also important to consider the number of colors and the area applied within a space. Colorfulness to create a sensory-enriched environment can be found to distract attention and impair performance [19]. The number of colors and the area where they are applied should be in moderation. Two to three colors are considered optimal for classroom environments to promote effective learning [20]. Research showed that type and difficulty of the task together modulate the effect of color on cognitive performance. For example, red links with danger and mistake, which makes individuals pay more attention to prevent error and falling into danger. Therefore, red as a color should enhance performance on detail-oriented tasks. Blue, however, should induce an

approach motivation as it is a color usually associates with openness and peace. In this case, blue encourages individuals to be creative and exploitative [21]. We can conclude that study spaces with different purposes normally should associate with different dominant colors. Thus, based on the studies mentioned above and my own experience, library or reading space should be dominated by cold colors like green and blue whereas classroom or lecture space requires warm colors like yellow, orange, or red.

When designing a color scheme for educational spaces, architects need to consider various factors, including cultural background, lighting, and psychological aspects. Additionally, it is important to consider the potential physiological reactions that may be induced in the human psyche. In most cases, surface colors are used to create an overall “room experience,” incorporating a variety of design elements. However, simply relying on generalizations such as “red excites” or “blue calms” without understanding the psychological interconnections at play will normally lead to an inability to achieve the desired effect [22]. To effectively design with color in an educational context, it is necessary to consider it within the context of the overall design and not apply generalizations across the board. While some generalities may be effective in certain situations, it is crucial to analyze each case individually to determine their applicability to the specific design.

CHAPTER3: COLOUR IN EDUCATION SPACE ANALYSIS THROUGH INTERVIEW

In the previous chapter, we explored the significance of color in architecture and drew inspiration from the approaches of Le Corbusier and Luis Barragan when designing educational spaces. It is essential to conduct background research when designing an effective educational space, as color preference can be influenced by various factors such as culture, personal experience, and geographic location.

This chapter aims to illustrate how the impact of color on students' academic performance can be investigated in an educational context. An interview was planned to gather data on the color scheme of two classrooms in TU Delft and investigate the relationship between color in the classroom and students' performance. However, due to time constraints, the experiment remained incomplete. The interview was designed to demonstrate the approach and its potential for future development.

In this interview, students were only asked to select the classroom they preferred based on two photos. However, the atmosphere of a classroom is influenced by numerous factors such as lighting, building location, noise level, and room size, among others. Additionally, to fully experience these spaces, students should perform academic activities within them. While selecting a preferred classroom from a picture provides some insight into student preferences, the results may be limited to some extent.

In order to obtain more comprehensive data in the future, the two sample classrooms should be in the same condition, with the color scheme being the only variable. The experiment should be conducted within the same room and lighting conditions to control for external factors that may affect the results. To further improve the accuracy of the collected data, VR technology and physiological measurements should be implemented in the experiment. Additionally, to ensure consistency, the same academic activity should be performed in both classrooms. This will provide more accurate data and enable us to draw more meaningful conclusions regarding the impact of color on students' performance in educational spaces.

Figure 12:Lecture Hall R Source: TU Delft

Figure 13:Instruction Room B2.100 in Applied Sciences Source: TU Delft

For this interview, I selected five participants who are all students from TU Delft. Four of them are master's students from the Architecture faculty, while the other one is a master's student from the Applied Science department. I presented the participants with two classroom options shown in Figure 12 and Figure 13. Figure 13 depicts a classroom located in the Applied Sciences building that is dominated by white color, while Figure 12 shows a more colorful classroom located in BK City, with red as the dominant color on the carpet and chairs of three different colors - orange, black, and grey. The participants were asked to choose their preferred classroom, and all of them indicated

that they prefer the classroom with colors over the white-dominated classroom. One participant commented, “I prefer the red one. I think it gives a more interesting feeling than some plain boring color, this will help me to focus during class” (T.Arends, personal communication, March 20, 2023). Generally speaking, a colorful classroom makes students feel more excited, ultimately improving their study interest and enhancing their performance during class. In contrast, a colorless classroom makes participants feel dull within the space and leads to problems such as a decrease in study motivation and difficulty concentrating during class.

Moreover, most of the participants also indicated that the dominant color within the classroom should not be too intense, and large areas of color should be avoided. One participant commented, “For the classroom, I would prefer less intense colors. I think it is easier to pay attention to a class if you are not analyzing the room itself. I prefer a plain floor and chairs with a single color” (A. de, personal communication, March 20, 2023). Another participant agreed, stating, “Strong and large areas of color within a classroom are more distracting. For me, chairs with colors add personality, making me feel more comfortable, so I prefer colored chairs and a plain floor within the classroom” (E. Kooij, personal communication, March 20, 2023). Based on the result of this interview, we can conclude that students prefer moderate colors applied in the classroom over a colorless educational space. This is because visual stimulation rewires the brain and creates stronger connections while enhancing learning and behaviors, which also verifies theories between color and student performance in chapter two to some extent.

However, it is important to note that the results obtained from this interview may be limited, as the atmosphere of a classroom is influenced by numerous factors, as mentioned earlier. Further experimentation and research are necessary to draw meaningful conclusions regarding the impact of color on students’ performance in educational spaces. Due to the limited time and scope of this interview, the number of participants involved was small. In the future, I aim to conduct a more extensive study on how color affects students’ emotions by implementing the experimental framework mentioned above.

CONCLUSION

Generally, we can draw inspiration from Le Corbusier and Luis Barragan's approaches to color application and apply them in educational spaces.

Le Corbusier employed the color to transform the perception of architecture, and a similar approach can be taken in designing educational spaces. Color can be utilized to reinforce spatial hierarchy and provide wayfinding cues for students. Moreover, it can help overcome limitations within the built environment's interior by creating visual contrasts. For instance, black can accentuate a wall while a pale color can visually push it back. Thus, an educational space can be expanded or contracted as per the design principles and the program's needs.

Applying Luis Barragan's color theory to educational space design can be highly advantageous. By following his color philosophy, color can be utilized to create a comfortable and joyful atmosphere that promotes academic activities. In his projects, Barragan used color to accentuate minor elements and create focal points. Similarly, in educational settings, color can be utilized to draw attention to important features like whiteboards and screens.

However, due to the influence of factors like culture and personal experience on how people perceive color, there is no universal color palette that can be applied to all educational settings. Therefore, the color scheme in educational spaces should take into consideration various factors, including cultural background, lighting, and psychological impact. It is crucial to understand the potential physiological reactions that may be induced in the human psyche when considering color in architectural design. To effectively design with color in educational settings, it is necessary to consider it within the context of the overall design, rather than applying generalizations across the board. Although some generalities may be useful in certain situations, analyzing each case individually is critical to determine their applicability to the specific design in question.

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