

The Influence of Interior Element Color on The Activities of Classroom Users in Sps Mutiara Bunda

Dina Kristiana Seftianingsih^{a,1,*}, Dian Muhammad Rifai^{a,2}

^a Sahid University, Jl. Adi Sucipto No. 154, Surakarta, Indonesia 57144

¹ dina.kristiana@usahidsolo.ac.id, ² dian.rifai@usahidsolo.ac.id

* Corresponding Author



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ABSTRACT

This study investigates the influence of interior element colors on the activities of classroom users at SPS Mutiara Bunda. In the context of early childhood education, color is a critical factor that can impact children's mood, behavior, and learning outcomes. The research aims to explore how the selection of colors in classroom elements—such as walls, furniture, and decorations—affects children's concentration, creativity, and social interaction. The study employs a descriptive qualitative methodology, involving observations, interviews, and document analysis to gain an in-depth understanding of the behavior and responses of children in different classroom settings. The results reveal that certain color schemes significantly enhance children's participation in learning activities, foster positive social interactions, and create an environment conducive to both emotional and cognitive development. The findings provide actionable insights for educators and designers in creating classrooms that better meet the developmental needs of young children.

KEYWORDS

Interior Color
Early Childhood
Education
Classroom Design

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1. Introduction

Early childhood education places are a place for every child who has the right to get learning opportunities and self-development supported by an infrastructure that is under the needs of learning activities. Some early childhood children spend their time in educational places that their parents have chosen as a place for activities outside the home environment. For this reason, early childhood education places must have proper buildings as well-functioning learning and playing places. Mutiara Bunda SPS (Similar Early Childhood Unit) is a learning and playing place located in an area in Yogyakarta. The shape of the school building is physically sufficient to meet the needs of students for activities, but the application of colors used in the classroom becomes one of the influences in teaching and learning activities in the classroom. Early Childhood Education or often called PAUD is one of the places to organize children's education that prioritizes the basics of physical growth and development (fine and gross motor coordination), intelligence (thinking power, power to create, spiritual intelligence, emotional intelligence), language and communication, socio-emotional (attitudes, behavior, and religion), which are by the character and developmental phases that are passed by early childhood. The determination of colors for interior elements and supporting elements in early childhood learning spaces not only focus on aesthetic values but also the impact of the atmosphere of space on the psychology of space users through the application of color to interior elements or buildings.

The aim of this research is to determine the effect of color applied to the classroom and its impact on teaching and learning activities. Based on a search conducted by researchers, it turns out that there are similar studies, one of which was conducted by (Afandi & Hayati, 2021) with the title "Choice of Color, Shape and the Influence of Anthropometric Scale on Kindergarten Design" where in his research shows that in the application of design, the scale of space is determined based on the physical proportions

of children, the shape of the building is adjusted to the context and color theory is used as a guide in choosing the color of space-forming elements to match the function of each space.

Similar research was also written by (Fitriasari, 2024) stating that the school activity program runs optimally and child development reaches its peak, the classroom as part of the physical environment must be adjusted to the needs and development of children, one of which is through color which can play a role in creating classroom interior conditions that support learning activity programs, so that child development can reach its peak. (Beatrice & Susanto, 2021) explains that inclusion schools can help develop children's mental health positively through the application of color to the interior of the room. Colour in the interior design of a room not only concerns the visual aspect but also has a negative impact as well as a positive impact on the user of the space. Color has a significant impact on the psychology of space, is able to increase focus, provide stimulation and evaluate child development.

The basis of these previous studies focused on exploring the influence of classrooms on the behavior of space users in schools. These findings provide an important foundation for future research, helping to form a basic understanding of the relationship between space color and child development in an educational context. The latest research aims to explore how the influence of classroom color can optimize various aspects of children's development such as creativity or social interaction, improving concentration, mood, and learning and teaching ability for learners and educators. This new research adds other factors such as class groups based on the age of the children, the type of activities in the class groups, the application of color in each class and the influence of color on the classroom to see these factors affect the activities of space users. The influence of color on classrooms in SPS Mutiara Bunda will be different from other schools because the selection of color schemes in the classrooms of each kindergarten is applied according to the concept, culture, and type of school, helping to see that previous findings are not universally applicable. This latest research measures the response of space users based on direct observation and interview results based on age, activities, type of class and application of classroom colors.

2. Method

2.1 Observation

The researcher made the observations by observing the atmosphere of the SPS Mutiara Bunda Yogyakarta classroom and taking notes using an observation sheet. This observation method uses direct observation of the condition of the classroom, the situation of teaching and learning activities, and the behavior or response of space users to classrooms that apply certain colors. Then make observations regarding the application of color to interior elements in the classroom such as floors, ceilings, walls, and also space-supporting elements, namely furniture.

2.2 Literature Review

Color plays a significant role in shaping the psychological and emotional environment within early childhood education spaces. Research has shown that the application of specific colors in classrooms can influence children's behavior, mood, and cognitive abilities, making it a critical element in interior design for educational environments (Afandi & Hayati, 2021). Bright, vibrant colors are often associated with increased stimulation and engagement, while softer, more neutral tones can promote calmness and focus. These findings underscore the importance of carefully selecting colors to match the developmental needs and activities of young learners. The psychological effects of color are particularly pronounced in settings involving young children. For instance, colors like red and yellow are known to stimulate excitement and creativity, making them suitable for play areas or activities that require active engagement. On the other hand, blue and green tones are often associated with tranquility and concentration, making them ideal for areas dedicated to focused learning (Beatrice & Susanto, 2021). The choice of color can thus directly affect how children interact with their environment, influencing their ability to learn, socialize, and express themselves within the classroom.

The design of classroom interiors at SPS Mutiara Bunda incorporates a variety of colors to create environments that support different activities and developmental needs. For example, the use of neutral colors like white and brown in certain classrooms helps create a sense of spaciousness and security, which is important for young children who may feel overwhelmed by overly stimulating environments

(Shafira et al., 2022). In contrast, the use of brighter colors in other classrooms supports activities that require more energy and creativity, such as singing and playing. This strategic use of color not only enhances the aesthetic appeal of the space but also supports the pedagogical goals of the school. Color also plays a crucial role in promoting social interaction and cognitive development among young children. Classrooms designed with a balanced color scheme that includes both stimulating and calming tones can help children navigate their emotions and interactions with peers more effectively (Fitriasari, 2024). For instance, a classroom with vibrant murals may encourage group activities and social bonding, while softer colors can help children focus during individual tasks or quiet times. The integration of color in this way aligns with the broader goals of early childhood education, which emphasize holistic development through both social and cognitive engagement.

Based on the findings from SPS Mutiara Bunda, it is recommended that future classroom designs continue to prioritize the thoughtful application of color to enhance the learning environment. Educators and designers should consider the specific needs of the children and the intended activities when selecting colors, aiming for a balance that stimulates without overwhelming. Additionally, incorporating elements that allow for flexibility in color—such as adjustable lighting or movable partitions—could further optimize the learning environment to suit various activities and moods (Putri & Nur'aini, 2022).

2.3 Interview and Questionnaires

To gain further insights, the researchers conducted interviews and distributed questionnaires to students and teachers at SPS Mutiara Bunda. The interviews aimed to gather qualitative data on participants' perceptions of how classroom colors influenced teaching and learning activities. The questionnaires, distributed via a Google Form, supplemented these interviews by providing quantitative data on the respondents' experiences and views. This combination of methods allowed for a comprehensive understanding of the psychological and emotional impact of classroom colors on users.

2.4 Documentation

Documentation was employed to capture visual evidence of the classroom settings and activities. Photographs and videos of the classroom environment during teaching and learning sessions were taken to support the observations and provide a concrete basis for analysis. This visual data was crucial in illustrating the specific color schemes used and their effects on the classroom atmosphere.

The collected data from observations, literature reviews, interviews, questionnaires, and documentation were analyzed qualitatively. The analysis involved narrative descriptions of the classroom conditions, supported by visual documentation and a detailed table outlining the influence of different colors on the activities and behavior of classroom users. This comprehensive approach allowed for a nuanced understanding of how interior colors affect the learning environment at SPS Mutiara Bunda.

3. Result And Discussion

Designing a fun learning space for early childhood requires an interior design approach that takes into account children's developmental needs and creates an environment that supports children's learning process as well as for play activities. To create a pleasant learning space atmosphere, interior color selection plays an important role. The appropriate color composition can create a comfortable environment and support the improvement of children's learning process (Tantona & Gani, 2021). Colors and children are two things that are closely related. Toddlers can recognize colors from what they see. Children tend to be more interested in objects or toys with bright colors than pale colors.

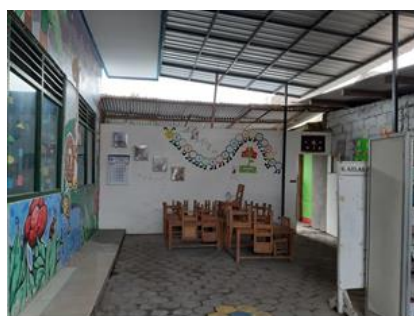
As they get older, children experience emotional and psychological changes that affect how they respond to their environment including play and learning areas. Colors, layout and design elements should be adjusted to create an atmosphere that suits their emotional needs at the developmental stage. According (Laksitarini & Purnomo, 2022) children's character is a very broad and complex scope of research, covering how children begin to grow up, from birth to adolescence and the various important changes that occur in their vulnerable lives. There are differences in the character of 3-year-olds, 7-year-olds and teenagers. Their experience of the environment and the influence of the biological changes occurring internally in their bodies may account for this.

In the world of education for toddlers such as early childhood education, color has an important role in helping color recognition which can affect the process of forming early childhood personality development. Early childhood children need an environment that supports their creative process by providing a comfortable atmosphere and attracting children's attention by applying colors that match the colors of the study room which are calm and peaceful so that psychologically they can motivate learning and teaching activities optimally in the classroom. Colors in children's study rooms can also create children's moods and shape emotions and perceptions in learning activity programs. There are three elements of education that play a major role in the development of children in kindergarten, namely the teacher, acting as a teacher helping to lay the foundation towards the development of attitudes, behavior, knowledge, skills and creativity needed by children in adapting to the environment and for further growth and development (Sari, 2004).

The choice of colors in interior elements, the suitability of furniture and the comfort of the space can contribute to creating classroom interior conditions that support learning programs according to children's needs, so that their development can take place optimally (Thenius et al., 2019). By choosing appropriate colors, the classroom can become a supportive environment for learning by regulating children's mood and attention levels. Furniture designed specifically for children such as tables and chairs that fit their bodies can promote comfort and good posture as well as playing with bright colors. A comfortable and well-organized space also helps create an atmosphere conducive to teaching and learning. A clean and tidy space combined with the application of bright colors allows children to focus more on learning.

3.1. Group Class A (aged 2-3 years)

Classrooms for early childhood learning activities require an atmosphere that provides a sense of comfort and fun. Children can move freely and develop their creativity in a space that can be changed according to the concept, not too full, and apply neutral and light colors. Neutral color schemes are the best choice for creating an atmosphere that supports early childhood activities (Shafira et al., 2022). In the classroom interior situation, namely the atmosphere created from various parts of the interior design which includes shapes, colors, and other elements that can psychologically motivate learning activities so as to support the development of students (Sumarno & Prasetyo, 2022). Class A is a class for children aged 2-3 years who have class activities to play, sing and recognize surrounding objects. In doing activities in the classroom environment, of course, it must be supported by adequate space facilities for children to learn.



(a) Group Class A (aged 2-3 years)



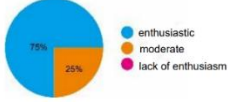

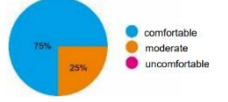

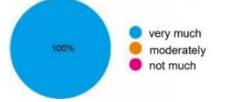

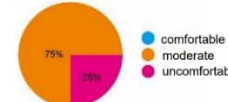


(b) Activities in Group Class A

Fig. 1. Conditions in Group Class A

Apart from color, the ambience of the space also plays an important role in child-friendly interior design. The ideal atmosphere for children is a design that is fun and inspires a sense of play (Permatasari & Nugraha, 2020). A comfortable and pleasant classroom atmosphere is an atmosphere created from various aspects of interior design, including shape, color and other interior elements that can psychologically stimulate learning activities to help the development of students. The group A classroom is located in the school yard in one area with the playground. This classroom has 7 students and 3 teachers with 2 tables, 10 chairs and several bookshelves and lockers to meet the needs of the classroom. The colors presented in the classroom are dominant neutral colors, namely white on the walls and brown for the furniture. Then one side of the outside of classrooms B and C which are part of Group A classrooms applies wall murals with bright colors.

Table 1. The Effect of Group A Classroom Color on Teaching and Learning Activities

| Classroom | Activities in the Classroom | Interior Color Element | Visual Color | The Effect of Color on Class | The Effect of Color for Users |
|-------------------------|---|---|---|--|---|
| Room Class A (aged 2-3) | Feeling free, brave, safe, comfortable, happy, and creative. - Sing - Coloring - Stick - Ask and answer questions - Watching video | Ceiling: Metal galvalume |  | Less | The number of users 10 people |
| | | Wall: • Zoo-themed mural. • White paint |  | The color of the mural displayed on the wall gives a cheerful feeling and stimulates children's visual senses and encourages creativity through colors and images on the wall. | How is the enthusiasm for activities in the classroom?  |
| | | • White adobe |  | Giving the impact of the space feels larger and wider. | How comfortable do users feel while engaging in activities in the classroom?  |
| | | Floor: Gray Conblock |  | The room turned pale | Does the color of the classroom affect the enthusiasm for learning and teaching?  |
| | | Furniture: tables, chairs, storage shelves, decorative shelves. Unfinished wood brown. |  | Not comfortable, too neutral | Does the color applied in the classroom provide comfort?  |

3.2 Group Class B (aged 3-4 years)

The classroom as a place for children to learn must be carefully designed according to the function of the classroom and creatively so that children can do interesting, inspiring, meaningful, and challenging things in a well-organized, safe, and directed atmosphere. In the classrooms of group B, there is one area with the class of group C, with the distribution using sticky boards so that the learning and teaching process will be heard one after the other.



(a) Group Class B (aged 3-4 years)





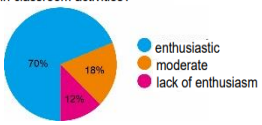

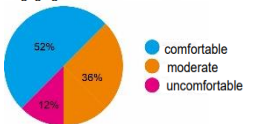

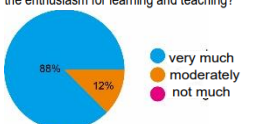

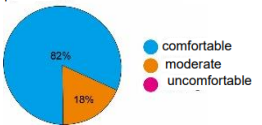

(b) Activities in Group Class B

Fig. 2. Conditions in Group Class B

The Group B classroom accommodates fourteen students and three teachers, equipped with four tables, sixteen chairs, one bookshelf, and two storage shelves. The interior color scheme is diverse, with white used for the ceiling and floor as a neutral base. The walls feature a combination of dark red, light blue, and yellow, while the tables and chairs are in mixed colors. Although the variety of colors might seem overwhelming, both students and teachers generally find the environment pleasing and comfortable. The vibrant colors serve an educational purpose, particularly in helping children learn about

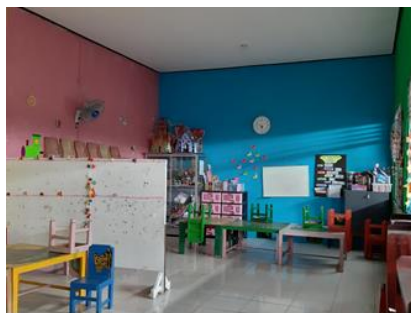
color recognition, while also stimulating engagement and maintaining a lively atmosphere conducive to active learning.

Table 2. The Effect of Group A Classroom Color on Teaching and Learning Activities

| Classroom | Activities in the Classroom | Interior Element | Visual Color | The Effect of Color on Class | The Effect of Color for Users |
|-----------------------------|--|--|---|---|--|
| Class B (aged 3-4 years) | Feeling free, brave, independent, safe, comfortable, happy, and creative. - Sing - Practice making lines - Practice reading vowels - Coloring - Stick - Answer questions - Watching video | Ceiling: eternity Putih |  | Plain gives an effect that makes the space feel bigger, spacious, and clean. | The number of users 17 people |
| | | Walls: Wall paint • Dark red |  | Warm, stimulating children to activity have power, energy, passion can evoke strong emotions | How is the level of enthusiasm for participating in classroom activities?  |
| | | • Light blue |  | Giving the effect of developing creative freedom and can control emotions. | How comfortable do users feel while engaging in activities in the classroom?  |
| | | • Yellow |  | Demonstrating spontaneity, positive emotions, curiosity and optimism | Does the color of the classroom influence the enthusiasm for learning and teaching?  |
| | | Floor: white ceramic |  | Quiet, relaxing, clean | Does the color applied in the classroom provide comfort?  |
| | | Furniture: tables, chairs, storage shelves, decorative shelves, Colorful Blue, green, pink and yellow. |  | Colorful classroom furniture makes the classroom more visually appealing, enhances children's enjoyment of being in the classroom and contributes to children's satisfaction and happiness. | |

3.3 Group Class C (aged 4-5 years)

The Group C classroom accommodates 12 students and three teachers, furnished with three tables, 12 chairs, one study shelf, two storage shelves, a teaching aids cupboard, and a bookshelf. The color scheme includes white for the ceiling and floor, with pink, light blue, and green applied to the walls. The furniture, including tables and chairs, features a mix of colors such as green, pink, yellow, and blue, creating a vibrant and visually engaging environment.



(a) Group Class C (aged 4-5 years)




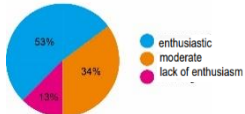

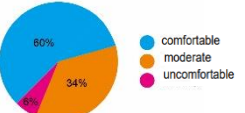


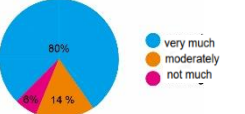


(b) Activities in Group Class C

Fig. 3. Conditions in Group Class C

The colors applied in this classroom have a positive impact on both students and teachers. The students feel more comfortable and enjoy their learning experience, while the teachers find that the chosen colors contribute to a calm and focused environment. However, the limited size of the classroom,

given its space requirements, also plays a role in the overall comfort of the occupants, with the compact space sometimes affecting movement and interaction within the room.

Table 3. The Effect of Group A Classroom Color on Teaching and Learning Activities

| Classroom | Activities in the Classroom | Interior Element | Visual Color | The Effect of Color on Class | The Effect of Color for Users |
|---|---|---|---|--|---|
| Class B (aged 4-5 years) | Feeling free, brave, independent, safe, comfortable, happy and creative. - Sing - Practice making lines - Practice reading vowels - Coloring - Stick - Answer questions - Watching video | Ceiling: eternit Putih |  | Plain, gives an effect that makes the space feel bigger, spacious and clean | The number of users 15 people. How is the level of enthusiasm for engaging in classroom activities?  |
| | | Walls: wall paint •Pink •Light blue •Dark green |  | The space becomes less cheerful | How comfortable do users feel while engaging in classroom activities?  |
| | | |  | Help calm the nerves of the child. | |
| | | |  | Inclined to be optimistic and good-minded, describes the color of nature and security. | Does the color of the classroom affect the enthusiasm for learning and teaching?  |
| | | Floor: White Ceramic |  | Quiet, relaxing, clean | |
| Furniture: tables, chairs, storage shelves, decorative shelves, Colorful Blue, green, pink and yellow |  | The colors in this classroom furniture help improve concentration in children in remembering and recognizing their seats. Warm colors also create a more positive and energetic classroom atmosphere. | | | |

Each color has a distinct influence on the classroom environment, impacting the behavior and development of children at SPS Mutiara Bunda. Bright colors, while stimulating and engaging, can sometimes overstimulate children, making them overly active, though they typically calm down after some time. Conversely, dominant pastel or faded colors may lead to fatigue and low energy levels, causing children to become easily agitated or irritable. An excess of white can create a sense of insecurity and fear by making the space feel too expansive, while overly dark colors can make the space feel oppressive. The various colors used in the classrooms at SPS Mutiara Bunda play a crucial role in shaping the atmosphere, directly affecting teaching and learning activities. The psychological and emotional impact of color is significant, as it can alter the perceived temperature of a room, making it feel warmer or cooler, and influencing how calm or happy the occupants feel (Putri & Nur'aini, 2022).

4. Conclusion

This study concludes that the color of interior elements in SPS Mutiara Bunda classrooms significantly influences children's activities and behavior. The careful selection and strategic placement of colors can enhance the effectiveness of the classroom as a learning environment, supporting children's physical, cognitive, social, and emotional development. The findings demonstrate that specific colors within the space can notably increase children's concentration, creativity, and social interaction. Based on these results, the following recommendations are made: First, select appropriate colors to create a conducive teaching and learning atmosphere. For example, soft colors like blue and green can aid concentration, while yellow and red can stimulate creativity. Second, use a balanced color palette, combining bright colors with neutral tones to prevent overstimulation. Third, consider incorporating adaptable color elements, such as interchangeable accessories or non-permanent wall paint, to allow flexibility in the classroom environment. This approach can help create a dynamic learning space that supports the optimal emotional and cognitive development of children. Future research could explore

the interaction between color composition and space design, focusing on how the combination of color schemes and spatial layout influences the effectiveness of classrooms for various activities, such as learning, playing, and resting.

Reference

- Afandi, A. A., & Hayati, A. (2021). Pilihan Warna, Bentuk, dan Pengaruh Skala Antropometri pada Perancangan Taman Kanak-Kanak. *Jurnal Sains Dan Seni ITS*, 9(2). <https://doi.org/10.12962/j23373520.v9i2.56555>
- Baafi, R. K. A. (2020). School physical environment and student academic performance. *Advances in Physical Education*, 10(2), 121-137. <https://doi.org/10.4236/ape.2020.102012>
- Beatrice, A., & Susanto, L. N. F. (2021). Pengaruh Perancangan Interior Terhadap Psikologi Pada Sekolah Inklusi Taman Kanak-Kanak di Era New Normal. *PROSIDING: Seminar Nasional Psikologi Dan Ilmu Humaniora (SENAPIH)*, 158-174.
- Fitriasari, D. (2024). Penerapan Warna Pada Desain Interior Playgroup IT Permata Insani Jamil. *JURNAL ASOSIATIF*, 3(2), 100-106. <https://doi.org/10.47942/asosiatif.v3i2.1418>
- Kimmons, R. (2020). Color theory in experience design. *Learner and user experience research: An introduction for the field of learning design & technology*. EdTech Books. <https://edtechbooks.org/LIV>.
- Laksitarini, N., & Purnomo, A. D. (2022). Analisis Warna Dan Bentuk Pada Interior Prodia Children's Health Care Terhadap Psikologi Anak. *Jurnal Dimensi*, 18(2), 181-188.
- Mulati, D. F., Rizqi, F., Yuniarti, E. P., Bastian, A. A., Gustianing, D., & Ariyanti, S. (2023). Teacher Written-Corrective Feedback: A Case Study in Efl Writing Classroom. *Project (Professional Journal of English Education)*, 6(3), 619-626. <https://doi.org/10.22460/project.v6i3.p619-626>
- Mumpuni, P. (2023). Hubungan Pencahayaan Perpustakaan Terhadap Produktivitas Mahasiswa (Studi Kasus: Perpustakaan Institut Teknologi Bandung). *INSIDE: Jurnal Desain Interior*, 1(2), 81-98. <https://doi.org/10.31849/inside.v1i2.15703>
- Permatasari, Rr. C., & Nugraha, N. E. (2020). Peranan Elemen Desain Interior Dalam Membentuk Atmosfer Ruang Tunggu CIP Lounge Bandara. *Dewa Ruci: Jurnal Pengkajian Dan Penciptaan Seni*, 15(2), 59-70. <https://doi.org/10.33153/dewaruci.v15i2.3027>
- Pourbagher, S., Azemati, H. R., & Saleh Sedgh Pour, B. (2020). Classroom wall color: A multiple variance analysis on social stress and concentration in learning environments. *International Journal of Educational Management*, 35(1), 189-200. <https://doi.org/10.1108/IJEM-06-2020-0282>
- Putri, S. A., & Nur'aini, R. D. (2022). Konsep Arsitektur Perilaku Di Lasalle College Of The Arts, Singapore. *JAZ: Jurnal Arsitektur Zonasi*, 5(2), 381-391. <https://doi.org/10.17509/jaz.v5i2.40455>
- Rizqi, F. (2023). Teachers' Perspective: Revolutionizing English Classroom Interaction with Technology Integration. *Journal of Islamic Studies and Education*, 2(2), 71-79.
- Sari, S. M. (2004). Peran Warna Interior Terhadap Perkembangan Dan Pendidikan Anak Di Taman Kanak-Kanak. *Dimensi Interior*, 2(1), 22-36.
- Shafira, D., Armanila, A., & Siregar, I. K. (2022). Hubungan Interior Ruang Belajar dan Bermain Terhadap Perkembangan Sosial Emosional Anak Usia Dini. *Journal of Early Childhood and Character Education*, 2(1), 1-16. <https://doi.org/10.21580/joeccce.v2i1.10261>
- Sumarno, & Prasetyo, E. B. (2022). Soft finishing: A safe and comfort furnikids design for preschool children. *Journal of Early Childhood Care and Education*, 4(1), 23-30. <https://doi.org/10.26555/jecce.v4i1.2471>
- Tantona, L., & Gani, A. C. (2021). Pengaruh Pemilihan Warna Cat Dinding pada Ruang Belajar dalam Meningkatkan Niat Belajar Anak. *Jurnal SRIMDI*, 1(1), 195-202.
- Thenius, H. P., Joedawinata, A., & Asmarandani, D. (2019). Kajian Dampak Elemen Interior Pada Fasilitas Ruang Belajar Taman Kanak-Kanak Terhadap Perkembangan Kreatifitas Anak. *Jurnal Seni & Reka Rancang*, 1(2), 261-290. <https://doi.org/10.25105/jsrr.v1i2.6738>