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COMPARATIVE STUDY OF COLOUR USAGE ON CLASSROOM WALL: A CASE STUDY OF SMK TENDONG PASIR MAS, KELANTAN

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ABSTRACT

Colour schemes are crucial in assessing educational environments as they impact the teaching and learning process, as well as students' behaviour and attitudes. Inappropriate or unsuitable use of colour can diminish students' enthusiasm and reduce their focus in classroom. The aim of this research is to investigate the impact of wall colours in classrooms on the mood and behaviour of students. The study focuses on three secondary school classrooms at SMK Tendong Pasir Mas, Kelantan where each painted in a different colour which are blue, orange, and white. A total of 71 students were given questionnaires and the classroom painted with blue colour (cool colour) is the most preferred by students which is found to promote focus and induce a sense of calmness and followed by white which was discovered to evoke a feeling of relaxation. In contrast, orange, the least preferred colour stimulates excitement but may disrupt sense of calmness and diminish freshness. For future research, it is recommended to involve broader range of schools as participants and enable more comprehensive analysis of how different types of educational institution perceive and evaluate the impact of colour usage on classroom walls. Understanding of colour will enable designer to make informed decisions when choosing appropriate colour for educational environments, aligning them with their intended purposes.

Keywords: *wall colour, mood, behaviour, classroom*

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INTRODUCTION

Colour possess the capacity to influence human emotions and create distinct moods by directing the eye towards specific shapes or forms (Nurendra & Ismaniati 2019). Similarly, research by Mendez (2022) colour influence our thoughts and sentiments as well as our moods, both positively and adversely. Additionally, the study by Nurlələwati et al. (2012) highlights the significance of colours as a component of spatial information, influencing human behaviour within their environment. It is a prominent architectural element that has the potential to become a significant representative element in the design process.

The colour of the walls is one of the most prominent physical components in a classroom, and it stimulates students' cognitive reactions while also influencing their behaviour. (Azemati & Pour, 2020). According to Jodi (2022), choosing colours based on your students' needs is an excellent method to manage behaviour and support them. Supports by Hajo (2018) in the importance of colour in classroom, colour in the learning environment should be used to "maximize information retention and inspire involvement." "The key is to avoid overstimulating children, create a learning environment in the classroom. Large volumes of bright hues, particularly reds and oranges, can produce overstimulation.

Students' performance deteriorated when images were shown in colour but assessed in black and white, and vice versa, according to the Wichmann et al. (2002) in the research of "The contribution of colour on memory tasks for natural scenes", this study demonstrates the relevance of colour uniformity in the classroom. The application of specific colours in the learning environment can boost learning productivity by 5 to 10%, lower absenteeism, and boost morale. Bright colours are supposed to increase brain activity and attentiveness. Cooler shades of green can help you relax, while blue can help you feel better. Even our senses of temperature may be influenced by colour. Despite this, universities frequently go for the easy way out, as if the colour spectrum were made up only of magnolia tones.

PROBLEM STATEMENT

Colour scheme is becoming an increasingly important part in the evaluation of educational environments. Colours have an effect on teaching and learning process, as well as on students' behavior and attitudes. Students' preferred colours can influence their muscular tension and motor control (Spaces, 2021). The use of less appropriate or boring colours will make students less enthusiastic or less focused on learning. If not properly treated, a classroom can be set up in a way that stifles innovation or does not encourage a healthy learning atmosphere (Hannah, 2013).

According to the students of SMK Tendong, too much colour in classroom wall can cause sensory overload in them, producing an atmosphere in which they are less likely to be intensely interested and more likely to be distracted. In the worst-case scenario, an overstimulating brightly coloured classroom might result in uncomfortable youngsters and behavioral disorders.

This research aims to identify and appraise the criteria of practical design and characteristics of green space in the following aspects; To study the effects of colours on students' mood and behaviour; To analyse the effect of different classroom walls colour based on selected case study as well as to determine which colours are appropriate for classroom wall in learning spaces.

The study will be carried out on 3 classrooms of secondary school in Pasir Mas, Kelantan. The study will be conducted through-out Semester 6. This study will look at the available different colours of three classrooms, how students perceive them, their psychological qualities, and how they impact students' behavior in learning space. This study will be conducted with limited amount of time framework, tools and selected secondary school in Pasir Mas only.

Types Of Colours and Its Importance to the Classroom Environment

The Impact of Colour on Students' Mood and Classroom

Colours and moods are inextricably intertwined. Warm colours elicit various emotions than cool hues, while bright colours generate different emotions than muted colours. It all relies on how colour's psychological impacts are used. The brightness, shade, tint, or tone of a colour, as well as whether it's chilly or warm toned, all influence how it affects emotions. (Allison, 2018). Because of the impact on our emotions, colour can influence our feelings, memory, attention, and motivation to work (Mooreco, 2019).

Colour can influence how students behave in class, keep focus, and recall information. Blues and greens can be calming, reds and oranges can boost productivity, and neutral hues can aid with concentration. As a result, selecting a colour range for learning environments is critical, as colour is one of six design characteristics that have a 25% impact on learning. (Barrett, Davies, Zhang & Barrett, 2015). When selecting colours for a learning space design, it is critical to consider the effect of colour on learning. Every colour in a learning environment, whether on the walls, floors, furniture, or learning materials, has the potential to affect students' behaviour and moods (Counts, 2018).

When we go into a room, colour can have a significant impact on how we feel. Warmth and comfort can be generated by certain colours, as well as a joyous mood or a relaxing atmosphere. It all boils down to colour theory, which tries to explain how

people perceive colour and how different hues interact. (Bennet, 2021). According to Spencer & Harrel (n.d.), people almost universally choose specific colours to elicit specific feelings like red for energy, blue for tranquility, yellow for joy, blue hues boost productivity, whereas orange boosts mental production. Red and yellow are linked to better problem-solving abilities, whereas green promotes attention. Colour's "mood-altering effect" may only be temporary in many cases, according to research. A blue space area may induce feelings of calm at first, but this effect fades after a short time (Stecker, 2021).

Colours influence not only students' moods, feelings, and behaviors, but also the ambiance of a space, such as how big or tiny, chilly or warm it is seen. Children must be educated in areas that encourage their curiosity and creativity. Classrooms are a major priority among the things that require our concentration since they are the most essential methods for achieving this objective. (Dave, 2019)

The effects of painting the teaching wall a darker or brighter hue than the side walls are important for two reasons: It draws attention to the front of the classroom, but when the focus is transferred to the side walls, the eyes get a visual break. A feature wall gives greater visibility to the teacher and educational materials, relieves eye strain when students shift from coursework to instructor, and lowers glare, in addition to breaking up the monotony of the wall colour (Oliveira, 2022). Light blues and purples have been demonstrated to have a relaxing effect on students and are an excellent choice in classrooms where tension is usually present. If you work with pupils who have emotional and behavioral issues, light blue classroom walls will provide a calm environment in which they can study.

However, bold colours can be very distracting, especially for younger students. Red, for example, has been demonstrated to raise heart rate and rapidly draw attention. Learning can be slowed down by painting classroom walls the colour of a stop sign. In young toddlers, black and brown are associated with fear and anxiety, and can cause an anxiety undertone. According to Caudill (2018), "Using the perfect colour, as well as the correct selection and location, can severely alter feelings, attention, and behaviour when learning,"

Colours Effects on Behavior in Term of Attraction

Colour psychology and colour meaning can have a significant impact on people's behaviour and decision-making. Colour influences behaviour, cognitive capacities, performance, and intentions. (Coway, Kumi, Goyal & Limayem 2013) . Within seconds or minutes, people make subconscious judgments on a person, surroundings, or product. This first impression is influenced by colour.



Figure 1 : Highlight Katherine Johnson

Image shown, Katherine Johnson. The NASA mathematician responsible for the calculations resulting in Apollo 11's safe return to earth published in the article, "The effects of colours on behavior", our eyes will focus on the thing emphasised. As image shown, our attention is most likely pulled to the woman who has been highlighted. That's why people are using a marker in the first place. The crucial elements stand out. Here is one of the effects of colours on behaviour is that they draw attention to themselves (Vetter, 2019).

The Use of Colour in Secondary School

When youngsters reach adolescence, their preferences shift from warm to cold colours. While orange may remain in their lives, individuals are more likely to prefer blue and green.



Figure 3 : Warm Colour

The hues blue and green are associated with maturity and tranquillity. Soft hues are appropriate in high school courses. Instead of being active in the classroom, children in this age group are supposed to be more focused and concentrated on their learning. Colours that can be utilised in this age group's schools include beige, pale green, and green-blue. On high schools, beige and green shades might be employed in the corridors. These two hues can be utilised together on the walls if possible (Etkisi, 2019).



Figure 4 : Cool Colour

RESEARCH METHODOLOGY

This research was carried out using both method of quantitative and qualitative. The subject of this study consisted of three (3) different classes with three (3) different colour of class wall. The observation was done consisting of the spaces in the classrooms and the colour of each wall in each class which are blue, white and orange. Both genders participated in the study. The ages of sample ranged from 13-15. The total of 71 students involved and given questionnaires. These variables will be analyzed to provide illustrative data in the form of drawings and images that will form the conclusion of the study. Because all of the colours on the colour wheel were not used in the classroom, (only three colours) the full effect and consequences of all of the colours towards the students' mood and behavior were not fully explored. Also, the psychophysiological effects of colour combinations in classrooms are not considered here. This research and its conclusions are limited to the only school where it is conducted.

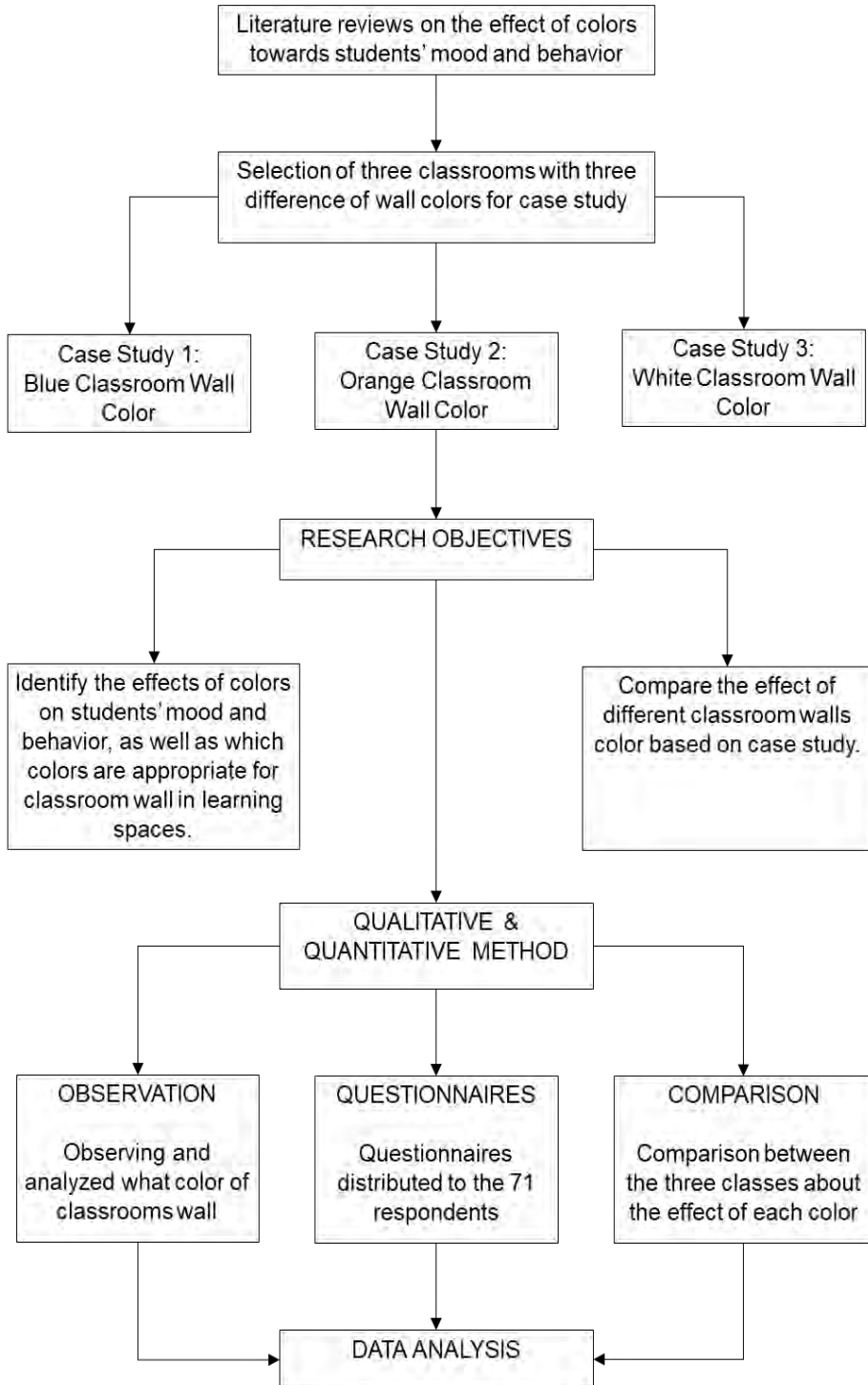


Figure 5 : Research Methodology Conceptual Summary Flow Chart

FINDINGS

Data has been gathered through observation and questionnaires from students of SMK Tendong. From questionnaires, the data obtained were analyzed. The questionnaires distributed to three (3) different classrooms of three different classroom wall colours. The findings of the research are presented below within two main headings based on the research objectives.



Figure 6 : Interior classroom with blue wall (Source: Author)



Figure 7 : Interior classroom with orange wall (Source: Author)



Figure 8 : Interior classroom with white wall (Source: Author)

To Identify the Effects of Colours on Students' Mood and Behavior

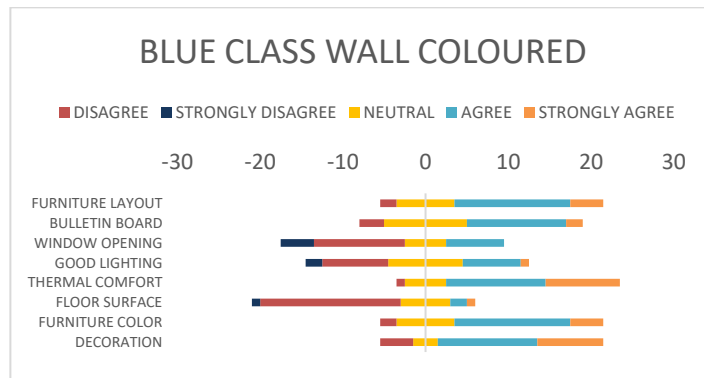


Figure 9 : Data for blue class wall

The graph shows the results for the blue-walled class, out of 27 students, 18 students or 67% agreed that the current desk arrangement allowed them to focus while studying. The desk arrangement in this class is pair-pods. This arrangement might be especially beneficial when students will be working in groups or pairs with their peers for the majority of the class period. More broadly, this design communicates a learning community in which students are expected to collaborate.

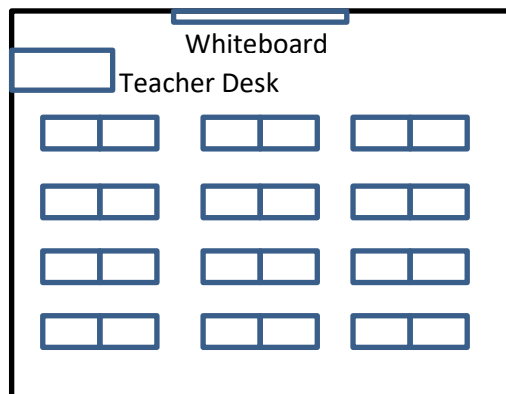


Figure 10 : Two pair type of table layout of blue-walled class

Furthermore, the information on the bulletin board is not dense and does not distract students from focusing on the white board and this was agreed by 14 students or 52%. Although since Covid19 took effect and the directive that curtains should not be used in class, only 7 students or 30% agreed saying that window openings cause glare. In addition, as many as 8 students or 30% agreed that the lights in the classroom as well as natural lighting cause the atmosphere to be brighter and glare. The majority of the students, 21 or 78%, agreed that the lights and fans functioned

well and did not hinder them from focusing comfortably in the classroom. In terms of the floor surface material as well, only 3 students or 11% only agreed that it causes glare. This means that the majority have no problem with the floor surface as it does not interfere with their learning process. The use of colour in classroom furniture such as bookshelves and doors is appropriate and enlivens the atmosphere in the classroom and is agreed upon by 18 students or 67%. Next, as many as 20 students or 27% of students agree that decorations on the walls or ceiling of the classroom such as additional wallpaper can refresh the eyes from seeing the texture and colour of the walls.

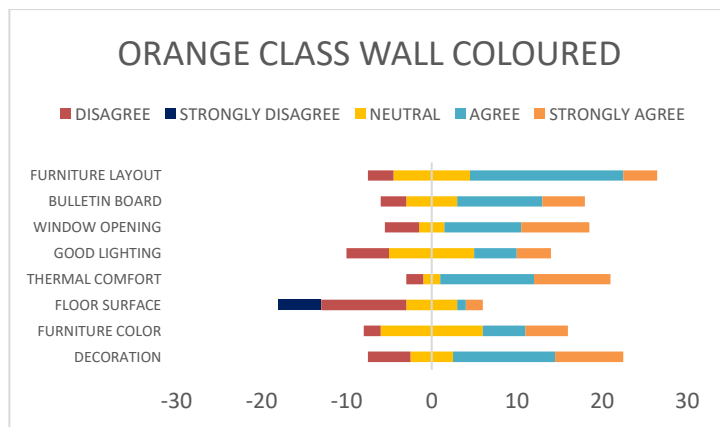


Figure 11 : Data for orange class wall

The graph shows the results for the orange-walled class, out of 24 people, as many as 12 students or 50% who agreed said the current desk arrangement allowed them to focus while studying. The desk arrangement in this class is a group of four or cluster arrangement. It is beneficial since it allows students to engage with one another and collaborate effortlessly.

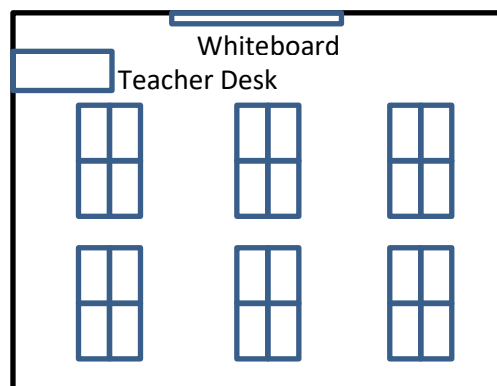


Figure 12 : Group of four type table layout, of orange-walled class

Furthermore, the information on the bulletin board is not dense and does not distract students to focus on the white board and this is agreed by 15 students or 63%. Since Covid19 came into effect and the directive for curtains not to be used in class, as many as 17 students or 71% who agreed said the window openings caused glare. In addition, as many as 9 students or 38% agreed that the lights in the classroom as well as natural lighting cause the atmosphere to be brighter and glare. The majority of the students, 20 or 83%, agreed that the lights and fans functioned well and did not hinder them from focusing comfortably in the classroom. In terms of the floor surface as well, only 3 students or 13% only agreed that it caused glare. This means that the majority have no problem with the floor surface as it does not interfere with their learning process. The use of colour in classroom furniture such as bookshelves and doors is appropriate and enlivens the atmosphere in the classroom and is agreed upon by 10 students or 42%. Next, as many as 14 students or 58% of students agree that decorations on the walls or ceiling of the classroom such as additional wallpaper can give freshness to the eyes from seeing the texture and colour of the walls.

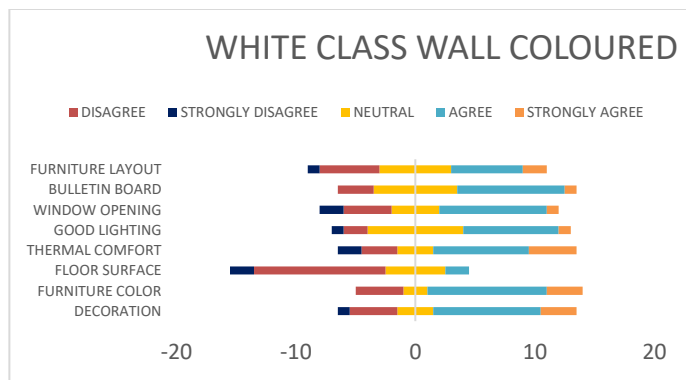


Figure 13 : Data for white class wall

The graph shows the results for the white-walled class, out of 20 people, as many as 8 students or 40% agreed that the current desk arrangement allowed them to focus while studying. The table arrangement in this class is pair of two and three. This design takes up slightly less floor area than regular rows and fosters an environment of collaboration and cooperative learning.

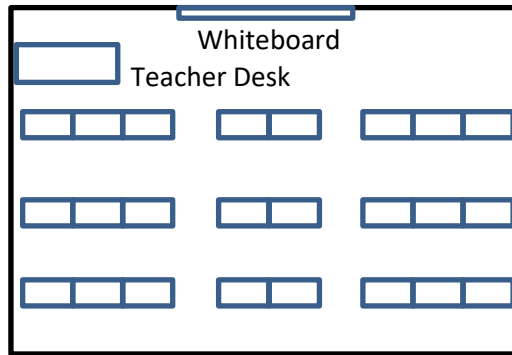


Figure 14 : Mix type of layout, pair of two and three, of white-walled class

Furthermore, half of the students or 50% agreed that the information on the bulletin board does not distract them from focusing on the white board. Since Covid19 took effect and the directive for curtains not to be used in the classroom, half of the students or 50% who agreed said the window openings caused glare. In addition, as many as 9 students or 45% agreed that the classroom lights as well as natural lighting cause the atmosphere to be brighter and glare. A total of 12 or 60% agreed that the lights and fans work well and do not become an obstacle in terms of room temperature for them to focus comfortably in class. In terms of the floor surface as well, only 2 students or 10% only agreed that it caused glare. This means that the majority have no problem with the floor surface because it does not interfere with their learning process. The use of colour in classroom furniture such as bookshelves and doors is appropriate and enlivens the atmosphere in the classroom and is agreed upon by 13 students or 65%. Next, as many as 12 students or 60% of students agree that decorations on the walls or ceiling of the classroom such as additional wallpaper can give freshness to the eyes from seeing the texture and colour of the walls.

To Compare the Effect of Different Classroom Walls Colour Based on Selected Case Study as Well as To Determine Which Colours are Appropriate for Classroom Wall in Learning Spaces

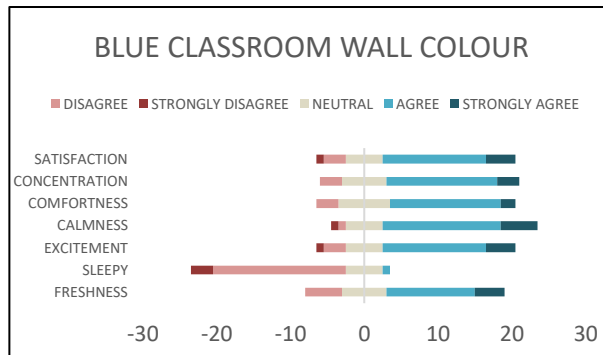


Figure 15 : Data for blue classroom wall colour

The graph shows the results for the blue -walled class, the total number of students for this class is 27 people. 20 students or 74% are satisfied with the use of blue colour on their classroom wall. A total of 18 students or 67% can provide a good focus on the learning environment and feeling excited about the use of blue classroom wall colour. 17 students or 63% agreed that the colour blue provides good comfort in class. In terms of calmness, 21 students or 78% agreed that the colour blue gives a calm feeling while in class. While only 3.7% or only 1 of the students said that the colour blue makes them feel sleepy. The colour blue also brings freshness to the eyes, and this is agreed by 59% or 16 of the students.

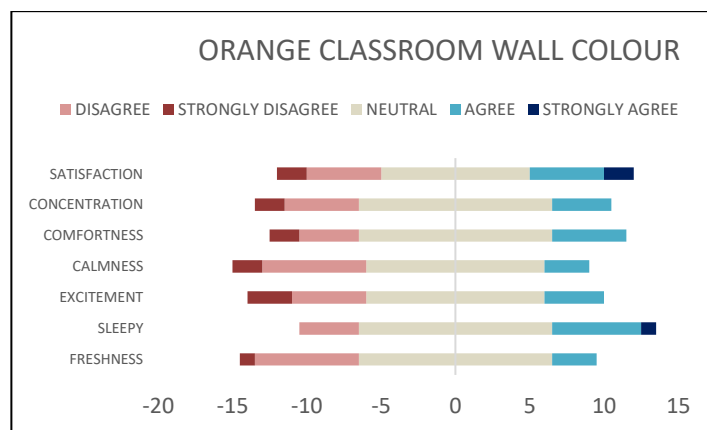


Figure 16 : Data for orange classroom wall

The graph shows the results for the orange -walled class, the total number of students for this class is 24 people. A total of 7 students or 29% agreed that the

colour orange gives satisfaction to the use of the colour in the classroom as well as gives a feeling of drowsiness in the classroom. As many as 4 students 16% of students are able to concentrate and feeling excitement in class. While as many as 21% or 5 students agreed that the orange colour on the classroom walls gave them comfort. Only 3 students or 13% agreed that the colour orange gives calmness and freshness to their class.

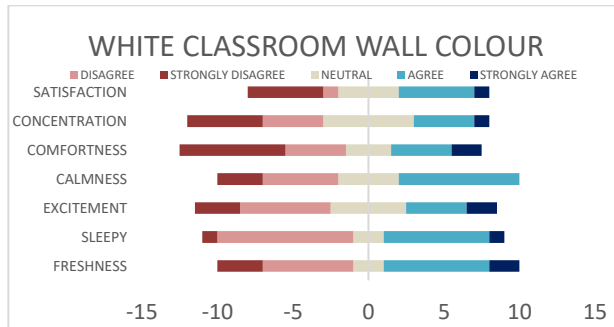


Figure 17 : Data for white classroom wall colour

The graph shows the results for the white -walled class, the total number of students for this class is 20 people. As many as 6 students or 30% agreed that the colour white on classroom walls brings satisfaction, comfort, and an excited atmosphere in the classroom. Only 5 students or 25% agreed that the colour white can make them focus in class. 40% or 8 students agree that the colour white gives a sense of calm as well as a feeling of sleepiness. And lastly, as many as 45% or 9 of the students agree the colour white gives freshness to their eyes.

Colour Preference

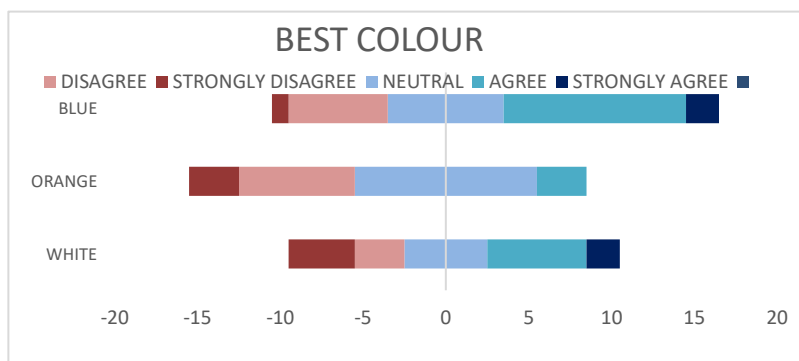


Figure 18 : Best colour selected by students' preference

Based on the result of questionnaires, the majority of the existed blue-coloured class thought that blue was the best colour to use in the class which was 48%.Next, although the original colour of the classroom walls was orange, only 13% of the

students from the class agreed that orange was the best colour for the classroom walls. While of the white -walled class, as many as 40% agreed it was the right colour to use in the classroom.

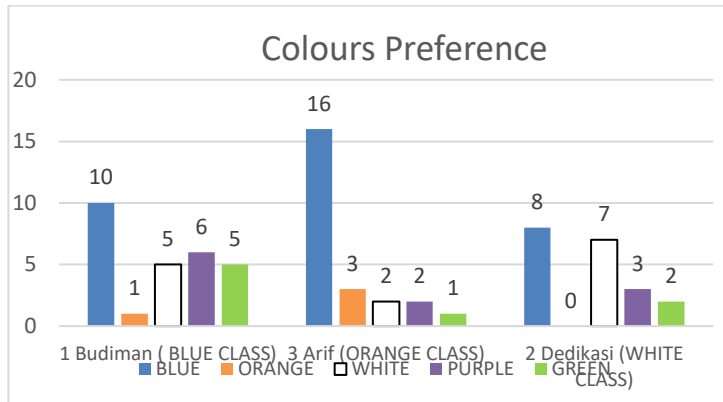


Figure 19 : Class vs Colours Preference

The majority of 1 Budiman class preferred to remain with the blue colour which is 37%. In the class 3 Arif, majority of 67% of the students preferred to change the colour from orange to blue. While from 2 Dedikasi white -walled class, as many as 40% preferred the blue -walled class. In overall, from total of 71 students, 34 students (48%) selected blue as their preference colour. The second, third and fourth significantly preferred colours were white by 14 students (20%), purple by 11 students (15%) and green by 8 students (11%) respectively. Accordingly, blue is type of cool colour design is the most preferred colour of secondary students. Conversely the majority selected warm type of colour design, Orange by 4 students (6%) as their least preferred colour.

This study emphasized the use of colour on the walls of the classroom and as it turns out, the cool colour, namely blue, has a big impact on the mood and behavior of students. Exposure to blue i.e., cool colour, has been proven to have a great impact on students in positive mood and behavior such as calm and excited in the learning atmosphere. Secondary school students are more inclined to focus, and this blue colour has also been found to help the students to stay focused on the learning process which is very important behavior in the classroom. The students are always in a fresh mood, and this can prevent them from getting sleepy due to boredom in class.

Orange is a warm colour that can inspire feelings of happiness. However, orange is not the choice of this school's students. White is a neutral shade that inspires freshness and relaxation. The study also found that students feel calm towards the use of white.

CONCLUSION AND RECOMMENDATION

Students' attention and focus play a crucial role in the learning process as it aids in information processing and significantly influences immediate response in the classroom. Learning also greatly benefits from being in a peaceful environment in the classroom. This research shows that cool colour (blue) is a colour that provide many benefits and influence positively toward students' mood and behavior in learning environments. This study also found that blue colour has the highest preference as the best colour in this context.

Although colour plays an important role in the mood and behavior of students, there are other factors that affect student mood and behavior such as table arrangement, classroom window openings, floor surface material, thermal comfort attainment, classroom décor and others. To expand on the points of commonalities and differences from this study and previous findings, it is recommended for future research should include a larger percentage of older respondents as they are more inclined to analyse the relevance of the use of colour on classroom walls. Hence, investigating on the arrangement of table in the classroom to know how much it can affect toward the student's behavior and mood is another facet worth investigating. This study will help us learn more about colours and how they affect students' feelings and conduct, allowing us to make better decisions when selecting colours for learning spaces that are appropriate for the purpose for which they were created.

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Tarikh : 20 Januari 2023

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Tuan,

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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

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Saya yang menjalankan amanah,

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27.1.2023

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