

# The Application of Color as ‘The Concept of Visual Stimulus’ in the Student’s Learning Space of Grade 1 – 3 in North Bali

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## Abstract

The background of this research is an effort to create a ‘concept of visual stimulus’ in the involvement of colors in the student’s learning space of grade 1 – 3 in North Bali. Researchers understand that color interactivity in the learning space is able to stimulate motivation and increase student’s interest of learning. But until now there has not been found any justification regarding the color that has a ‘value’ in that role. Qualitative analysis with this procedural method is started by collecting the data on students who are given treatment in the form of a simulation of classroom color changes through 360° video (virtual reality). The object requirements used as the research sample are schools that apply the majority of one dominant color in their students' classrooms. The results of the study stated that students in grades 1 – 3 as the subject of the study, had a tendency to choose the same color before and after getting treatment. The colors chosen by students in grades 1 – 3 have a tendency to have ‘cool’ nuance. It is suspected because of the influence of students daily interactivity on the color nuance that are dominated by green in their school environment. Few students are interested in choosing colors that tend to be ‘warm’. Cultivating self-creativity to strengthen the character or students self concept, a learning space that involves more varied colors as an element of visual stimulus is needed because the more they interact with color, the more visual image references they will get. The effects of color on learning space must be able to provide value interaction which is able to balance children’s mental and emotion. Colors are also expected to shape a children's personality according to their personal identity and be able to reduce their boredom in enjoying the learning process in the classroom.

**Keywords:** Visual Stimulus, Colors, Childrens, Elementary School, Bali.

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## 1. Introduction

The phenomenon of the absence of an interaction concept of students’ classroom in elementary schools grade 1 - 3 in the involvement of colors as visual stimulus, becomes an interesting basis of problems to be examined in depth. Based on the results of interviews, it is known that school policies in applying colors and elements of classroom arrangement tend to have never tried to understand the characteristics of students who occupy the classroom in their daily lives. Determination of the color applied to the classroom is based on an agreement between the parents and the school. This phenomenon is the reason why this research was conducted, because students as subjects involved in the process of space interaction in color involvement as one of the visual stimulus element, are not involved or involved in determining the color characters they tend to like or need. Understanding this phenomenon, the case studies of several schools in North Bali that have applied class colors as their school identities, are very interesting to be investigated more deeply because it is very important to understand the colors that characterize elementary school students in grades 1-3. This means that the color that children tend to like in each class must also be correlated with their behavior in their daily lives.

This research is motivated by the effort to create a 'visual stimulus concept' in the involvement of colors as a visual stimulus element in the classroom of elementary school students grade 1-3 - in North Bali. Researchers understand that color interactivity in the classroom is able to stimulate motivation and increase student interest in learning. But until now there has not been found justification related to colors that have a 'value' in that role. The application of one type of color that is permanent and based on the theory of color psychology, is not necessarily an ideal reference for children of elementary school of grade 1-3 in Bali. Moreover, as described above, that the current school tendency to determine color is not based on the stages of analyzing according to the synergy between favorite colors and the characteristics of children who use the classroom in their daily lives. This certainly will provide an unfavorable impact in the process of visual interaction that is expected to stimulate motivation and increase student interest in learning.

The researcher understands that Elementary School grades 1, 2 and 3 are the initial stages of students starting to get to know the world of basic education. The transition process from the principle of playing to formal education, is a very important stage to understand in an effort to determine the colors of the visual stimulus element in their classroom. Color characteristics are strongly influenced by students' paradigms of thinking, from the world of kindergarten to the learning phase of the basic education curriculum. The transition period should ideally become the rationale in determining the colors that will be applied to student classroom.

Color must be able to provide a good psychological impact on students of basic education in grade 1 - 3. Understanding of the transition process is strongly related to children's cognitive development in an effort to form the character of each student, so the results of the analysis will be useful in determining the right color to be used as visual stimulus in their classrooms.

Regarding the transition process, it means that there must be a process or pattern that is able to provide a comfortable learning atmosphere for elementary school students in the early stages, namely elementary school age grade 1-3. The formation of classroom atmosphere into a 'visual interaction concept', is an effort to stimulate student creativity. Creativity is expected to emerge from the psychological impact of colors that are applied to their classroom. This certainly will synergize the efforts to balance the functions of the right and left brain of each student. The atmosphere of the classroom that has a 'concept of visual interaction' with students in their learning activities, is expected to be able to stimulate motivation and increase student interest in learning in their daily lives at school.

It is understood that effective classroom management tends to determine the achievements of learning outcomes in school. The realization of a conducive learning condition that is fun for students, will stimulate their motivation to learn, so that learning objectives can be achieved in accordance with the elementary school curriculum reference. Winataputra (2003, p. 16), stated that an appropriate arrangement of the learning environment will affect the level of student involvement and participation in their learning process. In principle, it is stated that a good classroom physical environment is a classroom that looks interesting, effective and able to support the interaction of students and teachers in their learning process. In this regard, the principles that need to be considered by a teacher in managing the physical environment of the class are: visibility, accessibility, flexibility, comfort and beauty.

Qualitative analysis with procedural methods in this research aims to determine the interactivity of students toward the color as visual stimulus in their classroom, so that the next stage can be understood the ideal color to be applied to students' classroom. The concept of spatial interaction is expected to stimulate motivation and increase student interest in learning in accordance with content of the subjects. The initial stage of this research was started by collecting data on students who were given treatment in the form of a simulation of classroom color changes through 360° video (virtual reality). The object requirements used as the research sample are schools that apply the majority of one dominant color in their students' classrooms. Before elementary school students grade 1-3 are given a space simulation, they are first separated into several color groups according to the similarity of their color choices.

## 2. Color and Character of Children

Children are individuals who are in a period of developmental change starting from the age of five until they grow up to be teenagers. During school age children experience the process of physical development and social behavior, so that it will shape the self concept of each individual. The modification of the school's physical environment with child-friendly nuances is certainly expected to increase cheerfulness, feeling safe and comfortable for the child's environment, so that they can develop and feel comfortable in their study room environment (Hidayat, 2005).

Characteristics of children when they are at the elementary school age can be divided into two parts, namely low grade and high grade. According to Supandi (1992, p. 44), low grade consist of children who are in elementary school level from grade one to grade three. While the high grade consists of children who are in elementary school level from grade four to grade six. The period of entering a low grade is the stage of transition of children from playing condition to formal learning conditions. There are several factors that can influence the learning process of students in elementary schools in the phase of heading formal education, they are internal factors and external factors.

Internal factors or the learning ability of each individual are factors that influence their own learning conditions. While external factors include the children environment such as their playmate, family, weather and the learning environment. Although there are two different factors, both of them influence each other and are sustainable. Internal factors are the ability of the child itself, while external factors are the influence of the child's learning environment, but the external factor is one of the most important indicators that most influences the child's learning process. External factors are able to cause human error in each student.

As a result of the occurrence of human error in children, causing a decrease in the quality of children in absorbing or understanding the knowledge in a process of teaching and learning activities. Children really need an environment that can support and provide comfort for them to be able to learn and concentrate. The manifestation of the support of the surrounding learning environment or external factors such as getting enough light, temperature that is not hot but not too cold, good fresh air circulation, the application of color as one of the right visual stimulus elements and the application of appropriate room decoration elements. The color that dominates the classroom in the process of student interactivity, is one factor in building mood and is able to stimulate student motivation to increase their interest in learning.

Understanding children's visual interactions, it is also necessary to understand the concept of character education. According to Kurtus (Gilang, Sihombing, & Sari, 2017), it is understood that character is a behaviour of a child so that from this behavior other children can know him. Character will determine a student's ability to achieve his goals or learning goals more easily and effectively, the ability to behave honestly and be honest with others and the ability to obey the rules and regulations or existing norms. Character education can be created if someone is able to understand character education as a foundation of character education, which involves aspects of knowledge (cognitive), feelings, and action. Children's character education will not be effective without the synergy of these three aspects (Lickona, 2007, p. 118).

### 3. Interactivity and Color Characteristics of Children

William, Rice and Rogers (Severin & Tankard, 2009, p. 448) defined interactivity as the level of participants in the communication process and the participants have control and can exchange roles in mutual discourse. One level of the concept of mutual discourse, exchange, control and participants is the interactivity obtained in the information system that does not allow the intervention of users to change a content. This is in accordance with the purpose of the research in creating an atmosphere of learning space that is able to influence student learning motivation, due to the involvement of color as one of the visual stimulus in arranging the classroom for elementary school students grades 1 - 3 Cognitive interactions involve psychological, emotional and intellectual participation between humans and the learning system..

A research on the effects of visual stimulus on children's learning spaces and their relation to increased interest and stimulate student learning motivation, was conducted by a researcher from Carnegie Mellon University in 2014. The results of the study stated that children are more easily distracted by the striking visual environment around them. The distraction causes noise, so it requires more time to complete the task. As a result, students will show less optimal learning outcomes when the walls are full of decorations and striking colors, than when the decorations are removed or simplified (Fisher, Godwin, & Seltman, 21 May 2014, p. 1362). The results of this research form the rationale for researchers that the learning process is strongly influenced by the level of interactivity of students with their learning space in the involvement of color as one of the visual stimulus element in a study room condition.

### 4. Color as a Visual Stimulus Concept

Color is one of the elements that plays an important role in stimulating the psychological development of children. Color is very closely related to one's psychological condition and the color choice can affect the condition of the body, mind, emotions and the balance of those three in humans. According to Pile (1998, p. 174), the use of color in classrooms for children will be more beneficial if bright colors are applied and tend to be in a warm tone. However, this statement cannot yet be known for its effectiveness on Elementary School students of grade 1 - 3 in North Bali who have been applying one color to their students' classrooms. Color can provide a great psychological effect in encouraging the development of cognitive aspects of children. The intensity of the color must be given in the right portion, because if the portion of a color is excessive, it will give a negative impact to each child. As an example, a boy is not recommended to absorb too much pink because that color has a feminine psychological character, so the future impact is that the boy will tend to be more feminine.

Color is the most important aspect that can affect visual appearance and gives a psychological impression to the characteristic appearance of a space. According to Pile (2003, p. 295), the condition of the room is more influenced by the color tone than the intensity. The red and green colors are believed to have strong and striking features, so they can cause a stimulus to the eye. Color with low intensity like pastel colors is believed to provide a calming effect for the audience. Based on the understanding of color, it can be said that the success of a space in creating an impression is determined, among others, by how to incorporate color elements, so that it can create a strong impression and give a pleasant effect. Color cannot be applied haphazardly in a classroom, but must consider other aspects, such as students as users of the room itself.



Figure 1. Application of One Color (Green) in The Classroom  
(Source: Researcher Documentation, 2019)

The color of classrooms in some schools in North Bali tends to use green and blue color as one of the elements of classroom management. Based on the results of field observations by asking directly to elementary school students in grades 1-3, it is understood that they tend to be very bored with the colors presented. Understanding their color knowledge, the researchers began the research by conducting a simple test to each Elementary School student in grades 1 - 3. The color knowledge test stage became the data validity stage that the researchers did. It is known that children in grade 1-3 tend to have a good understanding of the types of colors, because in the thematic subjects in grade one they have also learned about colors. As a result of the students' knowledge of colors, there is a high level of interest and curiosity about the images that arise from colors other than those applied to their classrooms. The colors used as research instruments are red, orange, yellow, green, blue, indigo and purple. All of those selected colors, applied to classroom simulation (virtual reality) in the form of 360° video enjoyed through a head mounted display (HMD). The technique was chosen based on time and cost efficiency considerations, but did not reduce the value of interactivity with colors that seemed to have been applied to their respective classrooms.



Figure 2. Application of One Color (Blue) to Interior Elements of Classrooms  
(Source: Researcher Documentation, 2019)

Based on the treatment of virtual reality in the form of 360° video enjoyed through HMD to the research subjects, namely the stimulation of learning space in the involvement of different colors as the main element in the interactivity of elementary school students grade 1-3, then can be understood several things which later become the findings in this research. The researchers understand that based on the results of the stimulus in the form of the application of several types of colors in the classroom (space simulation), students whose classrooms are dominated by green walls and blue interior elements, have a tendency towards color selection that is different from the colors that have been applied. The difference in color characteristics that tend to be liked by these children, is suspected because in the selection of colors they are influenced by the boredom and interaction of the same color in their daily lives. It means that children at the elementary school grade 1-3, still have characteristic tendencies like kindergarten children in which the level of playing is still very high. It is also understood that children of kindergarten tend to be active and energetic, they like to do activities as if they do not feel tired, bored, and even seem to never want to stop to do activities except when they are asleep. This finding is in line with the active and energetic attitude of children in grades 1-3 who tend to choose different color characteristics according to their mood in certain situations and conditions.

The application of one color in a students' classroom in their daily life for a long period of time, psychologically the color gives the 'empty' impression, so it tends to look boring quickly. The application of the dominant color in the classroom gives the plain impression or flat so it tends to cause a quick boredom effect for children, especially for those who are in the early stages of learning, because visual stimulus are still a big interest for their cognitive development. Moreover, if several colors are harmoniously combined and applied to three elements forming space, namely on the floor, walls and ceiling, so the combination will provide a 'value' in the process of visual interaction.

Researchers understand that the application of ideal colors for children must provide an impressive value of interaction, able to reduce student boredom and the existence of 'thematic' tendencies, which is in line with changes in the content and context of the subjects provided in their daily lives. School is a place where children spend half of the day, especially full day schools where children are usually at school from morning to evening. Researchers understand that the full day program can provide interesting challenges to schools in determining the concept of learning. Schools must have an impressive learning environment for children and be able to stimulate student learning motivation. Let them 'play' with color in their daily lives at school, will have a positive impact in stimulating student learning motivation. Scientifically, this opinion certainly must be tested in the next research phase.

The colors in each class at each level of elementary school education grades 1-3 will have interactivity values that have a good impact if they have different colors (one color). The benefit of that color differences (thematic) is to increase student interactivity. One-way schools can do is the concept of moving class, because it is not possible to change the atmosphere of student learning space every day. Color is also not appropriate if it is

used as a differentiator of level or level of education of students in school, but the color must be an object that has the value of interaction in the visual stimulus process that is useful in an effort to stimulate interest and student motivation in learning. The impact of applying those various colors is understood by researchers as an early stimulus for students to get to know and feel the psychological impression that arises from a variety of colors in the interaction process. The benefit is that children have knowledge in distinguishing various colors and are not guided by the basic colors they knew before. As they grow older they are expected to understand the characteristics of each color so that they are able to choose colors according to their respective personalities, it means that children have their identity (personal identity) early on.

The results of the research stated that students in grades 1-3 as the subjects of the research, had a tendency in choosing the same color nuances from before and after getting treatment. The colors chosen by students in grades 1-3 have a tendency to have 'cool' nuance. It is suspected because of the influence of students' daily interactivity on the nuance of color that are dominated by green and blue in the school environment. Few students are interested in choosing colors that tend to be 'warm'. Cultivating self-creativity to strengthen the character or self-concept of students, it takes a learning space that involves more varied colors as visual stimulus element because the more they interact with color, the more visual image references they will get. The effects of color on the learning space must be able to provide value interaction that can balance the mental and emotional of the children. Color is also expected to shape a child's personality according to his personal identity and be able to reduce their boredom in enjoying the learning process in the classroom. Through this research, it can be stated that the application of ideal colors for elementary school children grade 1 - 3, must provide an impressive value of interaction, able to reduce student boredom and the colors have 'thematic' tendency in accordance with the content and context of each subject in their daily lives.

## 5. Conclusion

Based on the stages of research that have been done, it is understood that the right color as a visual stimulus element is the color that is present based on changes in students' moods. Color interactivity has different roles and functions for students' daily lives. It means that students who tend to like the blue color not necessarily their favorite color in the next day is still blue. Regarding this, it can be stated that all colors can be ideal in the context of certain situations and conditions. The application of the ideal color is change according to needs, adjusting to the content and context of the subjects at or before being taught. The concept of 'moving class' is ideal in the effort to create color interactivity as an element of visual stimulation in the learning spaces of students in grades 1-3, especially in Bali. The principle was born because of the researchers' understanding that color interactivity as an element of visual stimulation in arranging the student learning space is strongly influenced by the psychological development of children. An understanding of the psychological aspects of children is that the tendency of playing during kindergarten which still influence them when they are in the elementary school level of grades 1-3.

Based on the description above, it can be concluded that the colors that have been applied to student learning spaces so far by several schools, have not been able to become a color preferred by children and do not yet have a 'value' in an effort to increase interest and stimulate student motivation in learning in their daily lives.. it is proven that students tend to choose the color is not a color that has been applied to their study space. Students tend to choose different colors but still have the same character, namely colors that give the feel of coolness. The condition for the similarity of color character selection is suspected to be due to the color interactivity in students' daily lives with the colors that have been applied to their learning space. Changes in color in everyday life according to the content and context of the subject, it is believed that it can lead to interactivity that has a valuable impact on building the mood of children. in the daily learning process, color selection for children is a 'psychological therapy' which makes their process of thinking has been able to decide or need an atmosphere of space that can provide the effect of comfort and peace of mind. The researchers conclude that the application of ideal colors for elementary school children grade 1 - 3, must provide impressive interaction values, be able to reduce student boredom and the colors have 'thematic' tendency in accordance with the content and context of each subject in their daily lives. A brand-new expression medium is needed in the classroom as a medium of interaction in the process of visual stimulation. Learning spaces that are expressive in color involvement as visual stimulus and synergize with the content and context of the subjects being or will be taught will indirectly have an impact on efforts to stimulate motivation and increase students' interest in learning at elementary school grade 1-3 in Bali. This matter certainly needed further research by applying quantitative analysis.

The results of the research stated that students in grades 1-3 as the subject of the research, had a tendency for similar color choices before and after getting treatment. The colors chosen by students in grades 1-3 have a tendency to have 'cool' nuance. The matter was allegedly due to the influence of students' daily interactivity on shades of color dominated by green and blue in their respective school environments. Few students are interested in choosing colors that tend to be 'warm'. Cultivating self-creativity to strengthen the character or self-concept of

students, it takes a learning space that involves more varied colors as an element of visual stimulus because the more they interact with color, the more visual image references they will get. The effects of colors on the learning space must be able to provide interaction values that can balance the child's mental and emotions. Color is also expected to shape a child's personality according to his personal identity and be able to reduce their boredom in enjoying the learning process in the classroom.

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