COLOR YELLOW AFFECTS THE EMOTIONAL STATE OF KINDERGATERS

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Abstract

Color association causes children to develop emotional and even physiological responses to viewing certain colors. These responses occur due to the triggered “happiness” chemical, serotonin being released in larger amounts. This allows children to perform better academically and enjoy healthier mental wellness. Literature was reviewed through online databases that provided these findings by setting up tests with kindergarteners. Physical and psychological changes were tracked. Previous research has shown that the color yellow greatly affects the mood of children, specifically kindergarteners as it is a beginning stage of the child’s development stage. By knowing this, we hypothesize that **the color yellow positively affects the expression of emotion in kindergarteners (5-6 years old) by increasing the amount of serotonin released in the central nervous system (CNS).**

Introduction

Associations are made everyday between people, words, emotions, and colors. The earliest developments of these connections begin during the first years of our lives (2). Color psychology is an area of study that focuses on the emotional assumptions certain people have about colors. Growing up, biased associations are made between feelings and color. Yellow is an attention grabbing color that raises alertness, brain processing, and motivation (1). Serotonin is released in the central nervous system (CNS), specifically the raphe nuclei, when the color yellow is viewed. This hormone increases their happiness as well as the speed of a child’s metabolism, allowing them to work more efficiently in school. Studies have conclusively proven that the color yellow has an unequivocally positive effect on the emotional well-being of children in this age group. Specifically, pale yellow has been shown to promote happiness, cheerfulness, and relaxation (1). The body’s CNS releases serotonin, which *wakes up* the brain and many bodily functions.

Materials & Methods

This literature review explores the impact of the color yellow on children's emotional state and brain chemistry through researched articles. Many studies have been conducted within the past ten years about color psychology and specifically the color yellow. By using Google Scholars, EbscoHost, and other resources that the La Sierra Library has provided, our research group used the key terms “color psychology,” “color perspective,” and “emotions” of students who have experienced this phenomenon within the years of 2013-2023. Studies found in articles contained multiple testing components, most of which provided data on color associations and the emotional responses participants expressed.

Results

Children's psychology research shows that 3-year-old preschool children can't distinguish different colors well, 4-year-old children's ability to distinguish different colors gradually improves, 5-year-old children have been able to notice color saturation, and 6-7-year-old children are more capable of distinguishing subtle differences in color saturation (6).

Subjects in one experiment were given two colored crayons, brown and yellow, and were told a happy or sad story. The children were then given a drawing to color and the results of the experiment being in Table 1 (3). In another study where children’s emotional associations with colors were investigated, all groups of children expressed a higher percentage of positive responses for bright colors (pink, red, yellow, and green) than for dark colors (black, brown, and gray) (Table 2). When asked to associate colors with certain words, yellow was most frequently associated with adjectives including playful, exciting, and cheerful (5).

TABLE 1
DISTRIBUTION OF THE COLOR CHOICES OF “SAD” AND “HAPPY” GROUPS

	Color chosen		
Group	Yellow	Brown	Total
Happy	14	8	22
Sad	8	18	26
Total	22	26	48

Table 1

Table displaying how many children viewed a story as being yellow or brown, and whether these colors were “happy” or “sad.

TABLE 2
Children's Color-Emotion Associations by Age and Sex

	Bright		Dark	
Group	Positive	Negative	Positive	Negative
Girls				
5-year-olds				
n	100	40	27	42
%	71	29	39	61
6½-year-olds				
n	100	16	25	32
%	86	14	44	56
Boys				
5-year-olds				
n	118	51	56	31
%	70	30	64	36
6½-year-olds				
n	107	27	37	20
%	80	20	65	35

Note. Percentage totals are for each row within a color (bright, dark). Hence, row totals equal 100% for each group within bright and within dark colors.

Table 2

This table shows the postive or negative association girls and boys (5-6 1/2 year-olds) have between bright and dark colors.

Another study where students were placed in different colored rooms, showed that colors, like yellow, improved reading scores. This study compared the benefits of the colors yellow, blue, and red. The more vivid yellow brought in the highest scores and second highest heart rate seen in Figure 1(1). This color has a great impact on human physiology as it is noted to be very stimulating and arousing. These affected areas include heart rate (Figure 2), blood pressure, vision, and body temperature. (1).

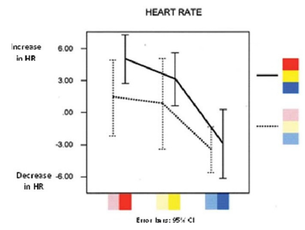

Figure 1

Graph depicting how the vivid, and less vivid blues, yellows, and reds affected the student’s heart rate.

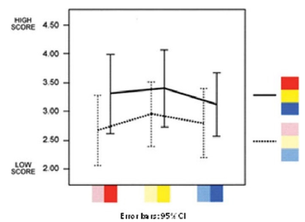

Figure 2

Graph depicting how the vivid, and less vivid blues, yellows, and reds affected the student’s reading scores.

Discussion & Conclusion

Results from these studies and experiments show the benefits of exposure to the color yellow. Emotional wellness can be seen growing in biological changes of the past participants. It has been determined to be a happy color by most age ranges with children expressing positive emotions for yellow. It is very influential in children because of the defining characteristics associated with the color. Positive words such as “honesty” and “happiness,” have been assigned as yellow words (Karp & Karp, 2010). Yellow produces a heightened mental state within this age group, allowing them to raise test scores and improve physicality. Increased serotonin levels are the cause for these outcomes. Based on the data obtained, the color yellow has shown to have a positive influence on emotions in children between the ages of 5-6, concluding that this color should be used more frequently in children's spatial environment. Yellow hue shows higher activation and results than other colors, enhancing children’s learning capabilities. In future experiments, implications of these findings could lead to improving children’s performance by using yellow in their environment to increase their wellbeing and cognitive ability. The brain uses visual and spatial processing for short-term and long-term memorization. Using the color yellow could be tested to enhance memorization and improve their earning efficiency through visualization (5).

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