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# The survey on the color collocation ability in college fine arts based on divergent thinking

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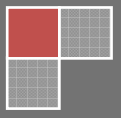
## ABSTRACT

The divergent thinking plays a significant role in training the ability of color collocation in fine arts for University students. This paper sets out to enable the teachers to have a glimpse of the students' divergent thinking in their training process which is based on divergent thinking-oriented training method. The paper conducted a further research on training the students' ability of color collocation from the perspective of coordination and unity of color and discussed specifically the factors affecting the effect of color collocation. Moreover, the paper illustrated the categories and characteristics of colors to provide the students a better insight into the categories that colors can be put into and pinpoint the three attributes of color as well as the different collocation models. In this way, the divergent thinking would lay a solid theoretical foundation in the training process of color collocation in fine arts for college students. Finally, the paper discusses the psychological effect of colors in order to gradually improve the students' divergent thinking in the process of color collocation so as to make greater contributions to color collocation. What mentioned above are the main ideas of this paper, in which the aims of study can be clearly seen and would make this paper have a strong significance of practice and more scientific.

## KEYWORDS

Divergent thinking; The college fine arts; Color collocation; Ability development.





## INTRODUCTION

From the perspective of awareness cultivation, the key of ability training of color collocation lies in the formation of divergent thinking, which would stimulate the students' subconsciousness for color collocation and spark innovation in color collocation. The paper is mainly focused on several parts, including the training of divergent thinking, coordination and unity of color, classification and characteristics of colors, psychological effect of color with a view to making this paper theoretically significant and substantially practical.

## TRAINING OF DIVERGENT THINKING

The main role of divergent thinking in color collocation in fine arts is to open the university students' mind gradually. In the courses of fine arts in university, specific methods could be adopted for cultivating the university students' ability in color collocation. For instance. Letting the students point out the different uses of a subject and the famous American psychologist J.P. Guilford' s (1897-1987) psychological test of bricks all could have a positive effect on the cultivation of color collocation ability of the university students.

Many people think that all the methods mentioned above are not difficult, however, given the comparisons of different students' answers to the questions, it could be seen that the thinking of some students were flexible, innovative, and imaginative while that of other students were rigid, conservative and lack of imagination. Students devoid of divergent thinking could hardly give several uses of a subject, but students equipped with divergent thinking came up with several hundreds of uses of one subject. For example. In the test of divergent thinking, the students devoid of divergent thinking focused on the use of bricks on architecture, but students with divergent thinking thought out side of the box and put forward new uses of bricks. For example, they said that bricks could be not only used as hammers, but also be used to prevent some gadgets from slipping or moving. So it could be seen that the conclusions about the uses of bricks by students lacking divergent thinking were severely limited to one aspect rather than diverse aspects. Above all, though identifying the different uses of bricks in this test, it could develop the divergent thinking of students about the different characteristics of one subject and had a positive effect on the cultivation of the students' ability in color collocation. The students would conduct further analysis based on the different attributes of colors to innovate and exert a positive influence on the field of color collocation.

## COORDINATION AND UNITY OF COLORS

The beauty of collocation of different colors mainly lies in the rationality of the collocation of different colors. On the basis of proper collocation of different colors, different collocations could have different effects: higher rationality would produce higher level of beauty and lower rationality would only generate lower level of beauty. For the effect of colors, the main factor is the interaction between different colors and the relations between different colors. Taking this factor in consideration would make colors produce totally different effects in different contexts. It could be seen that by coordinating the relations between different colors, the desired beauty could be generated. Through Figure 1, the rationality of color coloration of visible light could be illustrated and the sequence of lights in the spectrum is based on their wave lengths which make the color collocation better. It could be seen from this that effective adjustment could be made to the relations between different colors to get a perfect aesthetic effect of colors. For example, The collocation between the color green and the color pale blue as well as the coordinating relation between the color orange and the color green and son on can well seen through Figure 1.However, if the choices of color collocation is overly relative and comparatively contradictory, the resulted effect of color collocation would be more robust, for which the main colors are resided between 120º and 180º on the top of the color ring. And if complementary colors are added in the process of color collocation in order to reduce the purity of the contrasting colors, the resulted effect of color collocation would give people a new feeling of space. This feeling usually indicates the characteristics and functions of colors, which is the key of further studying and exploring artistic effect. Therefore, in the process of studying the different attributes of colors, the importance of color collocation should be highlighted.

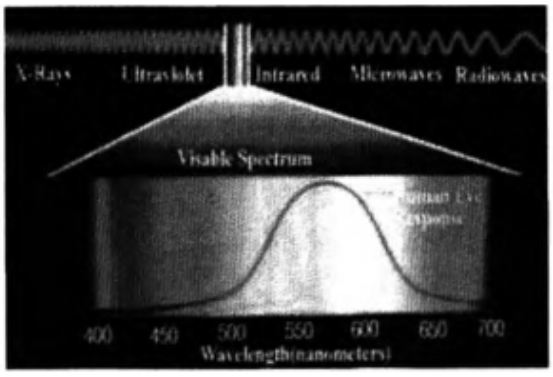



**Figure 1 : The rationality of color coloration of visible light**

## CLASSIFICATION AND CHARACTERISTICS OF COLORS

### Classification of colors

In the spectrum of colors, because of their uncertainty of change pattern colors could be mainly divided into two categories, chromatic colors and achromatic colors. Chromatic colors are those basic colors that can be seen in the light spectrum, namely red, orange, yellow, green, blue green, blue, purple. Because of the fact that the purity and brightness of different colors are different, so the colors should be classified into the two color systems. (refer to Figure 2).

The achromatic colors mainly consists of the color white and the color black, and a range of colors with different proportions of black and white. But in this category, the two characteristics of hue and purity are not included and the main differences lie in brightness which can been found out through Figure 3.

**Figure 2 : The chromatic colors**

**Figure 3 : The achromatic colors**

### Three attributes of color

Dating back to 1866, German scientists had already come up with the theory of the main component attributes of color, namely, hue, purity and brightness which are also the specific standard of evaluating color.

However, the so called hue is the external looks of colors which are one of the standards of differentiating colors. On this basis, due to the fact that there are no red or purple color systems in the spectrum, a color collocation of ring is produced, usually called color ring.

The so called brightness refers to the phenomenon of brightness and shade in the colors. Because objects reflect light, which results in the different brightness and shade in colors. All these differences can be illustrated from two aspects. The first one is that the brightness of different hues is different. For example, the brightness of the color yellow is the highest while the brightness of purple is the lowest and those of the other colors are in between. In addition, according to the differences in brightness of the same hue, the colors can be further divided into more categories, for example, the color red can be divided into deep red, dark red and light red.

The co called brightness is the whole outer looking of the color's degree of saturation and the degree of brightness, which mainly means the purity in colors. The larger the proportion of one color is, the higher the purity of the color is and vise versa. But adding the color white and the color black into the existent color would affect the purity of the existent color.

### Model of colors

The model of colors is about using numbers to represent colors, which is also a main method of calculating colors. In the common color models, there are mainly four kinds:RGB, CMYK, HSB, and LAB, and the TABLE 1 fully illustrates the specific differences of these three color models.

**TABLE 1 : The difference of the three color models**

| Model | RGB | CMYK | HSB |
|---|---|---|---|
| Application | screen/pixel | printing/spraying | vision |
| Basic Colors | red, green, blue | blue-green, purple,yellow, black | 360kinds, white, black |
| Synthetic Colors | black, white, gray, yellow, purple, blue-green | red, green, blue | gray |
| Index | 256×256×256 | 101×101×101×101 | 360×101×101 |
| Connotation | | | bright, shade, vibrant; complementary color |

The first model is RGB, which is a color model based on the original three component colors of one color. This model has a wide range of applications, and a high frequency of uses,

The second model is CMYK, which is embodied in the fours colors of the ink in the printing process, namely, blue-green, purple, yellow, and black. But this model has no substantial difference from the former model, the only difference lies in the basic principle of the formation of colors.

The final model is HSB, which is mainly about the process of categorizing colors, and the three categories are hue, saturation, and brightness. The changes of quantity in these three aspects would affect the final colors that are formed. But this model would usually give people some insight into the formation process of colors and make people become accustomed to colors gradually.

## PSYCHOLOGICAL EFFECT OF COLORS

### The images of colors

Different colors invoke different feelings in people. For example, if people see the color green in life, they would describe the color with adjectives, such as life or hope, and etc.and if they see the color orange, they would use the word "warmth" to describe it. From this, it can be demonstrated that different colors would invoke different psychological feelings in people and push people to describe their feelings which is referred to by people as the images of colors.

However, given the fact that different colors would invoke different feelings and images in people, the process of choosing colors should take the images into account in order to obtain the desired psychological effects.(refer to TABLE 2)

**TABLE 2 : The psychological effects of colors**

| Colors | Images of colors |
|---|---|
| red | excitement, vitality, glory, progress, revolution, etc. |
| yellow | warmth, gender, fun,harvest, richness, nobility, luxury, depression, trick, etc. |
| orange | gentleness, passion, enjoyment, loveliness, sweetness, brightness, excitement, luxury, restlessness |
| Blue-green | composure, calmness, ease, serenity, peace, kindness, cruelness, gloom, sadness, etc. |
| green | vitality, youth, life, resurrection, joy, thinking, hope, freshness, friendliness, elegance, peace, etc. |
| purple | nobility, luxury, decency, mystery, gloom, wickedness, sadness, etc. |
| white | modesty, purity, innocence, loyalty, light, austerity, sadness,old age, death, etc. |
| black | seriousness, majesty, stability, solemnity, nobility, darkness, horror, sadness, desperation, death, etc. |
| gray | austerity, simplicity, composure, gender, tranquility, depression, sadness, melancholy, devoid, etc. |

### Color preferences

The related research on color preference can be traced back to several hundred years ago. The American scientists divided the main factors influencing people's preference into three aspects, namely the power of desire, taking in by oneself, and prestige identity. Among the three factors, the power of desire is merely the individual's likes and dislikes, which are derived from one's distinct and signify the indulgence and satisfaction of one's desire. The taking in by oneself is focused on the expression process of self-esteem and self respect; while the last factor, prestige identity, is the process of of continuously pursuing popular elements.

For different people, different colors would invoke corresponding feelings of likes and dislikes, while the formation of these feelings has inherent connection with one's own basic preference, which is represented by character, aesthetic ideology, living environment and living habits, etc. However, research results on this aspect among the university students suggested that most of the students did not like the color yellow, but to some extent, a lot of students pointed out that the collocation process of yellow was the most beautiful.

As one's age increases, the character and emotions would be affected, which would alter one's preferences for colors. For example, Young people like colors that represent vitality or those bright colors; while the elderly chiefly like the colors that are relatively modest bright colors that shows maturity and decency.

## METHOD OF COLOR COLLOCATION

The color collocation is mainly about grouping colors based on their own significance, while different groupings of different extent are required to meet different needs. For example. In the process of product design, the color of the product should be in line with the meaning that it wants to express. Therefore, the color combination should be adjusted in order to produce a proper proportion of different colors, thus generating a ideal effect. In the process of cultivating the ability of color collocation in fine arts for university students, the divergent thinking should be employed to innovate the method of color collocation so as to make the process of color collocation undergo stronger theoretical teaching and learning and stronger practical significance.

**Color collocation based on hues**

In the teaching process of color collocation in fine arts for university students, the color ring can be employed as a teaching aid to better the teaching process. The Figure 4 is a color ring of 12 hues, which includes several standards of color collocation, including the collocation of neighboring colors and the collocation of similar colors and etc.


**Figure 4 : The 12-hue color ring**

The similar colors refer to the color collocation of a single hue, which is mainly about the changes of brightness and shade.

**The color collocation of purity**

The color collocation of purity refers to the contrast collocation based on the brightness and opacity of colors. When the purity is high, the color would be bright; but when the purity is low, the color would seem gloom and pale. The purity itself does not have as much impact on the whole effect of color as brightness. Therefore, the changes of purity should be coupled with the changes of brightness and hue in order to produce a effect of vitality.

The grouping of colors with the same purity would highlight the differences of hue. Because the hues of different colors are the same, so the whole effect for people is harmony and warmth.

## CONCLUSION

What mentioned above are the process of survey on the color coordination ability in college fine arts in which the mistaken ideas in the cultivating of the color collocation ability in college fine arts were employed to develop arguments. This paper has highlighted the classification and characteristics of colors, which will enhance the university students' ability in color collocation, cultivate their divergent thinking and offer some push for the continuous innovation in color collocation in the end.

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