어린이의 감성 추출

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Psychology Extraction of Children

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In this paper, identification is made on color harmony by utilizing information of single and mixed colors in the color image space. Moreover, system for extraction of color psychology from the drawings of children is developed.

키워드: color harmony, color psychology, color image space

I. Introduction

Generally, people have tendency of selecting the colors they like unconsciously rather than making choices by pondering over the characteristics, advantages and disadvantages that each of the colors has. Such tendency is particularly more prominent in children with lack of knowledge or experiences on the characteristics of colors. This is influenced compositely by the psychological state at the time, individual propensity and environmental characteristics, etc.[1].

II. Establishment of Sensibilities DB

Methods of 12-color wheel and color-mixing method of Itten for establishment of sensibilities DB are illustrated in the Fig. 1 below.
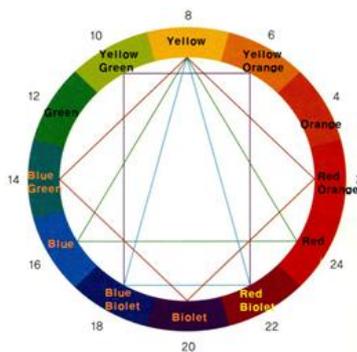

Fig. 1. 12-color wheel of Itten

Table 1. Meanings contained in colors

Colors	Meanings contained in colors
Grey	Anxiety, expectations, wariness and feeling of inferiority
Black	Invisible, emptiness (fear), potential and possibilities, suppression of emotion
White	Transparency of spirit, thoroughly cleaned, purification of thoughts or actions, new beginning
Orange	Promotion of activities, strong appetite, promotion of socialization
Red	Elevate passion, vitality, blood pressure, breathing, heartbeat and pulse rates. Enhancement of action and confidence, provide sense of protection against fear, concerns and worries
Orange	Induces vitality, and elevates blood pressure, breathing and heartbeat. Enhancement of action and confidence, focuses on imagination rather than action
Reddish brown	Material greed, appetite and degeneration
Yellow	Promote mental growth and nerves, improve memory, desire for affection, degeneration
Green	Pacification and alleviation of tension, alleviation of depression and concerns, ability to recover, lack of self-control, harmony, fatigue and submission
Blue	Calmness and pacification, coldness, intuition, high expectation of parents, suppress and obedient
Purple	Hope and spirituality, calms the mind and nerves, promote creativity and poor interpersonal relationship

Colors are essential elements in the world of graphic design and advertisement. They not only illustrate depth and emphasis

but also deliver the feeling and emotion of design. Graphic design creates beautiful layout and fantastic designs. In fact, it can be seen as a part of psychology. Colors are one of the tools used to connect with people as illustrated above. Colors provide arrangement of emotional and visual signals. Display of emotions that people experience about colors is illustrated in the Table 1.

III. Color Psychology of Children

1) K-means clustering

K-Means clustering algorithm is one of the simplest and fastest cluster algorithms. Fundamental method is to repetitively find the center of cluster (centroid) μk and the cluster to which each data will be affiliated with until the target function value is minimized as illustrated below. This value is referred at as inertia.

$$J = \sum_{k=1}^{K} \sum_{i \in C_k} d(x_i, \mu_k)$$

In this equation, d is the dissimilarity of distance between the 2 data and is defined as follows:

$$d(x_i, \mu_k) = \|x_i - \mu_k\|^2$$

2) Labeling
3) Extraction of Psychology of Children

III. Experiments

Figure 2 illustrates the image of extraction of color psychology from the drawing by the child. As it can be seen in the Figure, it is drawing before the child drew desk in the middle and the color of the wall is substantially darker.
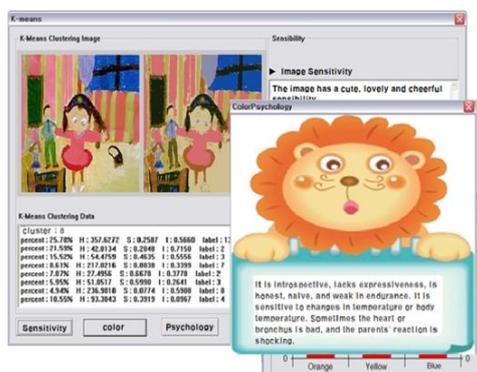

Fig. 2. Extraction 2 of color psychology from the drawing of the child

IV. Conclusions

In this thesis, color harmony was identified by using the color mixing information in the color image space. For color harmony, colors that achieve harmony with each other in the 12-color wheel of Itten were extracted. System for extraction of the color psychology from the pictures drawn by child was developed.

REFERENCES

[1] D. S. HAN. Color test card for children's propensity analysis. KR101197025B1(Korea Patents). 2009.