

Abstract of Main Thesis

June 11, 2010

Title of Thesis COLOR PREFERENCE MODEL BASED ON PERCEIVED COLOR ATTRIBUTES FOR DIFERENT COLOR APPEARANCE MODES

たんきつといわっと うらびす
TANGKIJVIWAT URAVIS

Abstract on the Content of the Applicant's Thesis

Color preference, although, has been investigated since the early times, it remains a source of debate among the public in many fields such as sciences, designs, advertising, marketing, and so on. Many researchers have attempted to deal with color preference and their variations as a function of age, gender, geographical region, culture, and circumstances. In our daily life, colors are perceived not only as an object color mode, but also as other mode such as an unnatural object color mode and a light source color mode. The major aim of this work is to develop color preference model on the basic of the perceived color attributes for different color appearance mode.

Hence, the Experiment I addresses the effect of the color appearance mode on color preference. The result expresses that color preference varies according to the color appearance mode. It changes a lot in the object color mode and a little in the unnatural object and light source color modes. Since a change in a color appearance mode causes a change in amounts of perceived color attributes, it is possible to describe color preference with the perceived color attributes. In the supplementary experiment of experiment I, the relationship between color preference and the perceived color attributes was investigated. The perceived color attributes were collected from the elementary color naming (Natural Colour System: NCS). According to results, color preference relates to the perceived blackness in the object color mode, whereas it relates to the perceived whiteness in the unnatural object color mode and light source color mode.

The Experiment II was carried out to derive the color preference models. The results of the color preference score, color appearance mode, and perceived color attributes were obtained from twenty-four color chips presented under six conditions. In this experiment, three color preference models on the basic of the perceived color attributes were proposed. In the first model served for color preference in the object color mode, color preference could be predicted from the perceived blackness, chromaticness, and hue. The second and third models are designed for colors in the unnatural object color mode and light source color mode, respectively. In both models, the perceived whiteness, chromaticness, and hue are used to estimate color preference. The prediction performances in three models are to the extent 85.1%, 85.0% and 89.6%, respectively. These models are a new possible method for predicting color preferences in three color appearance modes without using colorimetric measuring instruments and provide a reliable platform for the future studies of color preference.