Poster paper PA03

COMPARISONS OF COLOR PREFERENCE BETWEEN MOTHER AND CHILD ― IS COLOR PREFERENCE INHERITABLE FROM MOTHER AND CHILD? ―

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ABSTRACT

In the present study, the effects of rearing environment on color preference were investigated by comparing color preference between mother and child. A psychological survey was carried out with 53 pairs of mothers and children, inquiring color preference/color avoidance against various samples (e.g., single color patch, bi-color combination, scenic picture). There is no systematic relationship between mother and child concerning color preference/avoidance against simple and abstract targets (single color patch or bi-color combination). On the other hand, in the case of color preference against a more complicated and specific visual object (e.g. picture), patterns of preferred color can be significantly inherited from mother to child.

INTRODUCTION

Color preference, e.g., psychological characteristic in which each individual person prefers (or avoid) particular color, has been of course one of the major interests in the color research for long years, and many researchers have been dedicated their efforts in order to understand various fundamental attributes concerning it. These include, mass inspection measuring variation of color preference in particular group across ages, comparisons between various cultures which attempt to consider socio-cultural background for color preference, analyses of visual stimulus attributes which can determine observer's evaluation for color preference, and so on.

It can be assumed that one of the biggest questions in assessing color preference would be "why does individual person become to prefer/avoid particular color?" The question is of course very hard to answer, because individual color preference would be accomplished based on a personal life history, and it would be impossible to describe every event happed upon one's life. Thus, in this study, comparisons of color preference between mother and child were carried out. In their early childhood, children would mainly wear clothes and use everyday items bought by their parents, and also spend most of their time under environment designed by their parents (Furthermore, it is said that contribution of mother would be much important as compared with father, in arranging child-rearing environment in Japan). If children's color references are affected by their growing environment, there would be some relationship between color preferences between children and their mother, because mothers owe responsibilities in arranging environment caring their children. In other words, we can investigate the effects of growing environment in establishing individual color preference, by simultaneously measuring mothers' and children's preferred/avoided colors.

METHODS

Mother and her child were asked to select their most favorite/unfavorite colors from color samples printed as a catalog on a white printing paper. Inquiries for mother and child were executed separately under natural daylight in an autumn afternoon (environmental luminance was enough to evaluate color samples). 53 pairs of mother and child were participated in the investigation. Ages of the mothers were ranged between 27 and 46, and children were between 4 and 10 years old. Participated children were 20 boys and 33 girls. After answering a set of fundamental personal questions (e.g, age, sex, location and so on), the participants were asked to examine catalogs of the color samples and select three favorite colors and three unfavarite colors from each catalog. There were three different color catalogs: 1) *single color patch,* 2) *bi-color combination* and 3) *scenic picture.*

In the catalog of the single color patches, 21 different color patches (rectangle, 3cm in height and 3cm in width each), which were randomly selected from PCCS (Practical Color Co-ordinate System) chart book (Japan color research institute), were arranged on a white paper (3 rows and 7 columns). Favorite/unfavarite items selected by the mothers and children were categorized by the following procedure. The colors of the patches were classified in accordance with their hue into one of the three categories; *warm* (e.g., red, orange), *cool* (e.g., blue, bluish green) or neutral color (e.g., yellow, purple). The patches were also categorized by "color tone", and classified into light (lt; high brightness and middle saturation), dark (dk; low brightness and middle saturation) or vivid (v; high brightness and high saturation). In the bi-color combinations, two color patches (rectangle, 3cm in height and 3cm in width for each), which were also selected from PCCS chart, were located side-by-side on a white paper. There were 36 different bi-color combinations, displayed in 3 rows, 4 columns and 3 pages. Participant's selections were classified into three categories, i.e., *hue contrast*, *tone contrast* and *hue and tone contrast* combinations. In the scenic pictures, 18 photos of amusement park (6cm in height and width), which were characterized by their usage of color, were displayed in 2 rows and 3 columns and 3 pages. The photos were classified according to their dominant tone (vivid or light) and color usage (number of colors appeared in the photo; colorful or conservative). The classifications of the photos were executed four students who had specialized knowledge about color science and naïve for the purpose of the investigation.

RESULTS

Participants selected three items respectively as favorite and unfavorite colors in each of three catalogs (single color patch, bi-color combination and scenic picture). According to their selections, mothers and children were given their attribute concerning color preference. For example, participant who mainly selected warm color as favorite color in the catalog of single color patch was classified as "warm-color liker". In a case where participant's selections were equally distributed across multiple categories, they were classified as "indeterminate" concerning such attribute. There were two attributes for the single color (hue and tone), one for the bi-color combination and two for the scenic pictures (dominant tone and color usage). Thus, in total, each participant had 10 different attributions for color preference (favorite or unfavorite colors for five different aspects).

Cross tabulation between mothers and children was executed for each attribute of color preference. Figures 1-4 indicate mother-children relationship of the color preference expressed in the single color patches (favorite hue, unfavorite hue, favorite tone and unfavorite tone, respectively). There were no significant biases of frequency distributions (Fisher's exact test: p= 0.82, 0.18, 0.61 and 0.28, respectively). This result indicates that there would be no relationship between color preferences of mothers and children obtained in the single color patch catalog; e.g.,

children of "cool-color liking" mother would be not always like cool color. In figure 5-6, color preference measured by the bi-color combination catalog was presented. There were also no significant relationship between mothers and children (p=0.36 and 0.22, for favorite and unfavorite color combinations, respectively). In the scenic picture catalog, there were also no significant relationship between mothers and children for unfavorite dominant tone and favorite and unfavorite color usages ($\chi^2(1)$=2.10, 0.82 and 0.20, *n.s.*), while favorite dominant tone exhibits significant relationship between mothers and children's color preference (figures 7-10); children of "light-tone liking" mother had a significantly greater tendency to prefer light tone photo as compared with children of "vivid-tone liking" mother ($\chi^2(1)$=10.07, p<.01, φ=.44).

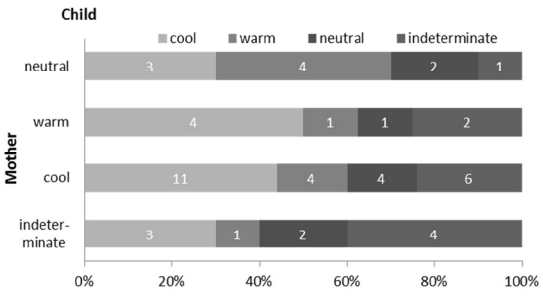

Figure 1 Hue preference

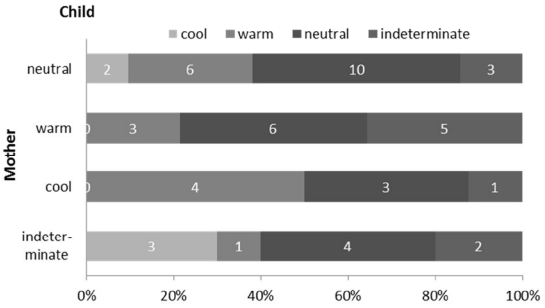

Figure 2 Hue avoidance

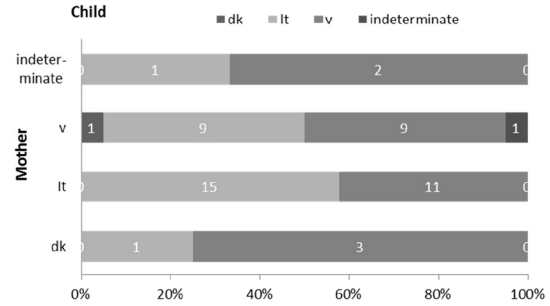

Figure 3 Tone preference

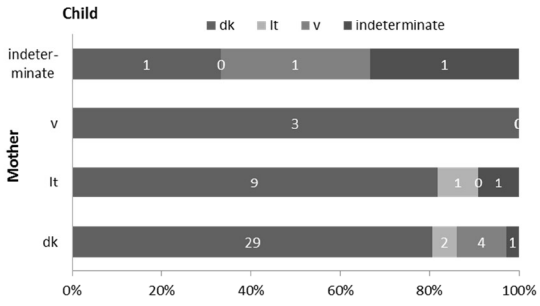

Figure 4 Tone avoidance

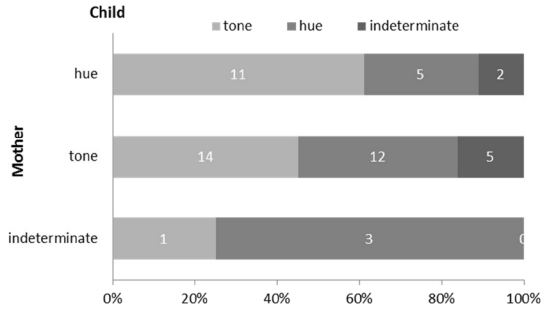

Figure 5 bi-color combination preference

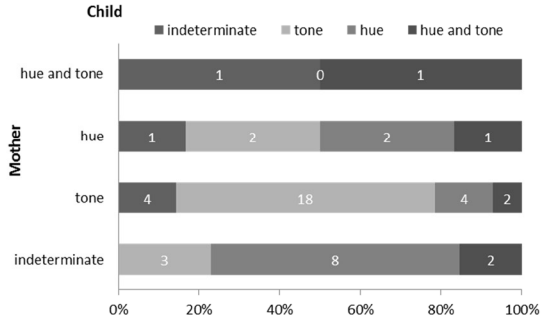

Figure 6 bi-color combination avoidance

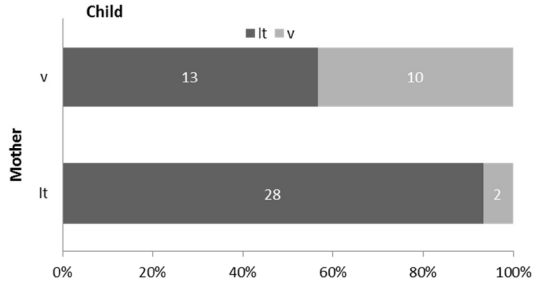

Figure 7 dominant tone preference

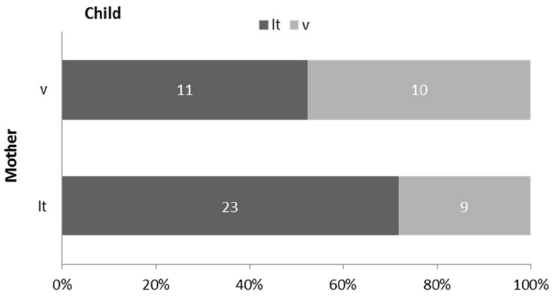

Figure 8 dominant avoidance

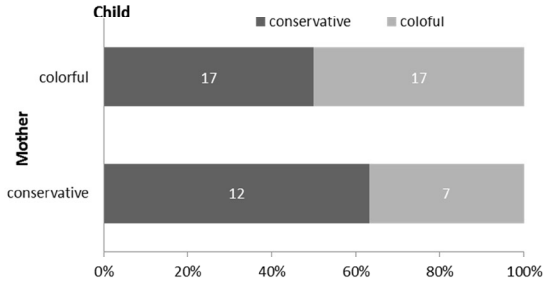

Figure 9 color usage preference

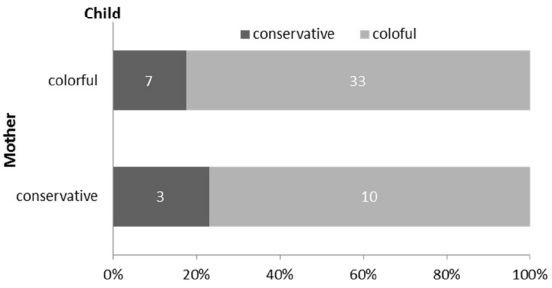

Figure 10 color usage avoidance

CONCLUSION

Psychological investigation concerning color preference participated by 53 pairs of mothers and children revealed that color preference would be inheritable from mother to child only in the case where target of evaluation is complicated and realistic (e.g., photo of a real scene), but not in the case of simple and abstract target (e.g., single color patch or bi-color combination). It can be assumed that mother's color preference affects children's cognitive tendencies of preferring/avoiding specific colors via their growing environment which would be designed by their mothers. The present research revealed that there is no significant relationship concerning abstract color preference between mothers and children. Children's abstract color preference exhibited against simple color sample may be highly dissociable from their mother's in more early developmental stage. In order to consider mothers-children's relationship more deeply, future study must be needed using larger samples of widely spreading ages.