Effect of Colored Interior on Children's Spatial Behavior

Yeun Sook Lee / Professor, Yonsei Univ.
Mi Hye Hong / Instructor, Kangnam Univ.

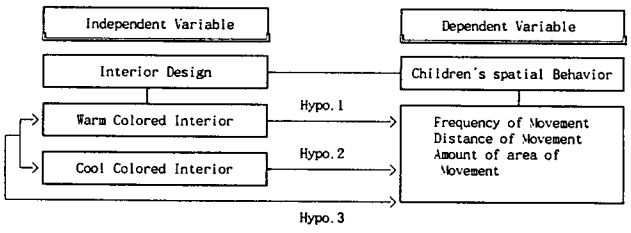
I. Introduction

Interior environment, which consists of various design elements, affects humanbeing's perception, emotion, and behavior. Among the design elements, color is the most important and critical. It especially affects powerfully to children, who are susceptive, growing and developing rapidly. Therefore, as we focus on the main element of the interior environment, namely, color, introduce the concept of pleasantness, we should find an empirical evidence of the relationship between the interior environment and human behavior. The reaserch, for that reason, should be conjuncted with related subjects as to achieve the maximum result.

1. Purpose of this research

The purpose of this research is to determine the relationship between colored interior and children's spatial behavior.

2. Hypothesis



〈Fig.1〉 Hypothesis of this research

II. Methodology

This research is a field experiment on the relationship between colored interior and children's spatial behavior.

An unobtrusive method was used to observe children's spatial behavior in the real setting. The main experiment was carried out after a pilot experiment.

1. Laboratory and Subjects

Two rooms at an orphanage were used as laboratories, 16 elementary school girls living in the residence were used as subjects.

2. Pilot Experiment

The pilot experiment was conducted to determine the observation time period, the analysis unit of time interval and the way used in the analysis. Two of each instrument (e.g., video-cameras, monitors, video tape recorders and a microphones) were installed for the observation.

A period from 4 to 5 p.m. was considered the best as the observation time period as it is the representative time when most children stay in the room on a day to day basis with the least invasion of their privacy. The analysis unit of time interval was defined as one minute. To trace the children's spatial behavior, a reduced floor plan was used. It had grids on the floor plan to easily indicate the relative positions of children's movement. Beneath the floor plan, plastic pad was placed as a cushion for pins and thread, which were markers for children's movements.

3. Main Experiment

1) Period and Design of the Main Experiment

Period: 13th Oct., 1986-18th Dec., 1986

In the main experiment, as shown in Fig.2, there was a pre-measurement, treatment, a post-measurement I, which was one week after the treatment as an indicator of short-term effects, and post-measurements II, which were 4 weeks (Lab A) and 7 weeks (Lab B) after the treatment as an indicator of long-term effects.

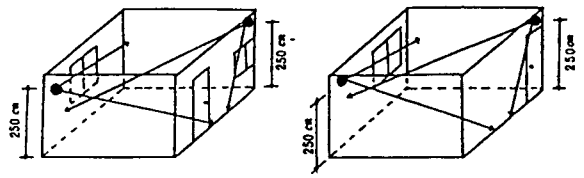
The overall design of the main experiment includes three specific designs: pre-test and post-test control group design, pre-test and post-test extended design, and pre-test and post-test comparison group design.

Experiment Lab	Pre-Measurement I	Treatment	Post-Measurement I			Post-Measurement II
Lab A	●	Warm Colored	●			●
Lab B	●		●	Cool Colored	●	●
Lab Experiment	Pre-Measurement I		Pre-MeasurementII	Treatment	Post-Measurement I	Post-Measurement II

〈Fig.2〉 The Overall Design of the Main Experiment

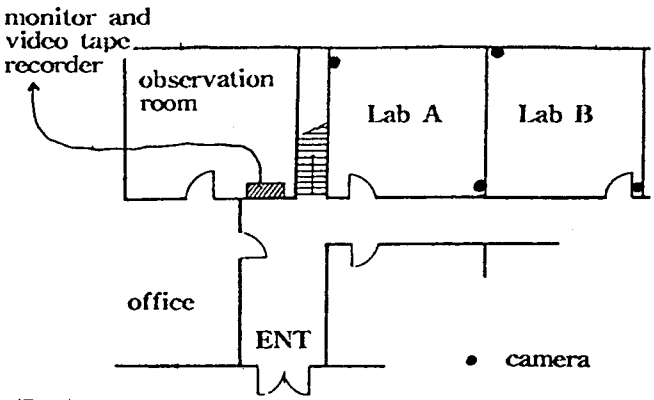
2) Instrument

Fig.3 and Fig.4 shows in the installation of measuring instruments such as video-cameras, monitors, video tape recorders and a microphones. This floor plan(Fig.4) illustrates of the relative locations of the laboratories and the observation room.



• tools for observation

〈Fig.3〉 Location of Cameras and the Illustration of the Visual Scope



〈Fig.4〉 Laboratories and the Observation room

3) Independent Variable and Dependent Variable

To create a pleasant interior, lines, forms and mainly colors were manipulated. These changes in the interior were the independent variable. Two rooms were treated differently in color:LabA with warm color and LabB with cool color. Spatial behavior, the dependent variable, was measured by frequency, distance and the amount of area of movement.

4) Analysis

Data were analyzed by using the SAS computer package. Two way ANOVA, Duncan's multiple range test and analysis of covariance were used in dealing with statistics.

III. Results of the Main Experiment

The major results are as follows.

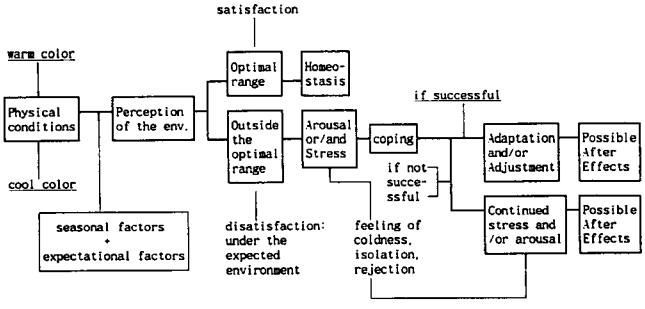
1. Under the pleasant warm colored interior, neither frequency nor the amount of area significantly changed. Distance of the movement, however, increased significantly only in the long-term measurement.
2. Under the pleasant cool colored interior, neither frequency nor the amount of area significantly changed. Distance of the movement increased significantly only in the short-term measurement.
3. In terms of distance, especially in the short-term measurement children moved more in the cool colored interior than in the warm colored interior.

IV. Conclusions

The pleasantly designed environment resulted in the increased distance of movement. The results differed depending on which color was used. Color had an effect on one's perception of the environment. Both seasonal and expectational factors also added to the evaluation of the environment. Therefore, the increased distance in the warm colored interior resulted in a positive effect of the interior. Children who seek emotional warmth were attracted to the warm colored interior than to one before. On the other hand, the increased distance in the cool colored interior resulted in a negative effect of the interior. Children were unstable due to psychological refusal caused by the gap between their expected environment and the actual one. Their refusal, however, decreased as time passed, as they became adapted to the new environment.

From the perspective of environmental psychology, this study was mainly concerned with the direct effects of color on children's spatial behavior. The results, however, showed a clearer correlation between the perception of pleasantness and children's spatial behavior. Moreover, distance of movement, rather than frequency or the amount of area, was a clearer indicator of children's spatial behavior.

Additionally, as shown in Fig.5, a theoretical model of an environment-behavior relationship was confirmed with a dynamic cycle added to it.



〈Fig.5〉 A Model where results of this research were added to an eclectic model of environmental psychology