A person's perception of his physical surroundings is of importance for his adjustment to the environment. In studying this fact, one has to measure both the physical environment as well as the person's perception and adjustment to it. These relationships have been studied for a long time, but as yet there have been no results which can be of use to architects. In general, architects have not been interested in this type of research because of the artistic tradition of the profession. They have emphasized individual creativity and are not used to giving systematic reports of their thinking and working procedure.

There does not seem to be any system of variables of an interobjective nature applicable to the perception of the environment. In this first part of our research work, we are trying to find methods for studying the perception of the physical environment of man.

Problem and Method

Hypothesis: A person's total perception of his environment can be divided into different aspects (factors). These aspects can be universally applicable. In our study, people have been asked to judge colour slides of rooms containing a number of subjectively chosen variables. The results have been factor-analyzed. The factors received are regarded as different dimensions of the perception of rooms. As we think the visual aspect of perception is the most interesting one in architecture, we have decided to begin with it. It is not, however, isolated from other aspects of perception. Factor-analysis has shown to be a good method to determine the intercorrelations of variables. It also makes possible the use of a large number of variables, which in turn simplifies the first selection of words. The use of colour slides made it possible to undertake the study with larger groups of persons, and with a greater number of rooms. The restriction of the environment to room size was for practical purposes. It must therefore be noted that the generality of the factors obtained are as yet very limited.

The choice of variables

First of all words that could be considered to describe environment were selected from a dictionary and noted on cards. From a total of 1,000 such words, 78 were chosen. These were representative for all the words, easily understandable, commonly used, relevant and applicable to interior. The 78 variables were divided into three groups and each group was judged during the first third of the sitting by 14 persons, during the second third by 14 persons and during the last third by 14 persons. The order of the words was randomized.

The pictures

From the archive of a weekly we found about 15 pictures which fulfilled the demands stated. The major part of a living room was visible on the picture, daylight and normal colors, no human beings, no food etc. From these pictures we took 15 slides which were randomly divided into three groups and introduced to the experimental subjects in a rotated order.

The estimation scales

In the reply record there was one variable at the top of every page and 10 estimation scales, one for every room. The scales were seven-point, one-dimensional, with "least" to the left and "most" to the right.

The experiment persons

As experimental subjects 42 college students were used, divided into three groups.

The procedure

The pictures were projected on a screen where they were 200 x 150 cm. in size. After instruction and the running of a training-variable the experiment started. The 15 interiors were exposed at intervals of 8 seconds. The estimations were made during the exposure of the pictures. After the estimations of the 15 interiors in one variable, the pictures were shown again, once for every variable. The experiment lasted four hours (with two pauses).

The results

The estimations were dealt with in an electronic computer. (Uppsala: CDC 3600 HMDC-program. Factor analysis, Principal Component solution, Orthogonal rotation.) From 15 rotations we obtained 10 factors with high loadings, possible to interpret.

The ten factors with the values of the variables.
Factor I

.08 boring  .08 stimulating
.07 repulsive  .08 homely
.05 ugly  .07 good
.05 nerve-racking  .06 exciting
.03 depressing  .05 harmonious
.02 formal  .02 interesting
.02 monotonous  .02 dynamic
.02 hard  .02 personal
.79 humble  .88 soothing
.78 cold  .87 tasteful
.86 safe
.86 healthy
.86 rhythmic
.83 comfortable
.81 replete with feeling
.81 warm
.80 secure
.79 imaginative
.78 soft
.78 fragrant
.77 beautiful
.75 masculine
.74 cheerful

This factor is related to a feeling of comfort and to the individual's sense of security and well being in relation to the indoors.

Factor II

.74 poor  .73 pretentious
.73 simple  .73 pretentious
.72 expensive  .72 splendid
.71 fine
.70 well-kept
.70 middle-class
.72 solid
.72 elegant
.69 impression

This factor contains an estimation of the social status of the indoors.

Factor III

.96 closed  .97 airy
.79 dark  .97 open
.74 encumbered  .79 sunny
.71 heavy  .78 light
.71 spacious  .74 cool
.68 blue

This factor gives an idea of the physical appearance of the rooms.

Factor IV

.82 ordinary  .78 curious
.73 timeless

This factor is a measure of the degree of originality in the interiors.

Factor V

.82 medley  .84 discreet
.68 unify
.56 quiet

This factor reflects the intensity or the liveliness of the rooms.

Factor VI

.85 picturesque
.85 rural

This factor reflects a romantic feeling for old and rural things.

Factor VII

.78 of pure style
.42 bad thought-out

This factor relates to unity and homogeneity, but as yet not very much can be said about it.

Factor VIII

.50 masculine
.55 feminine

This is the factor of masculinity - femininity.

Factor IX

.89 yellow

Factor X

.86 red

Discussion

This is but the initial part of our research work, and as yet one can not generalize. There remain still a large number of questions:

1. Does the estimation method used measure a person's experience?

2. Does one obtain the same experience from a picture as from a real room?

3. Does one have the same experience while observing an interior for 8 seconds as compared to staying in a room for a longer time?

4. How much can one generalize from the experience of viewing picture of a living room with respect to other parts of the environment?

5. Is there a difference between the experience of college students and the experience of other persons?

The results show, however, that it is possible to divide the experience of an environment into different factors, which can be interpreted.

Further research should show whether or not the factors are appropriate for the environment in general, or that some of them may have to be replaced.
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