CHROMATIC PERCEPTION OF OFFICE WORK ENVIRONMENTS

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1. Context

The research presented here addresses perceived color quality in office work environments, and starts from the assumption that the choice of color for these places generally ignores the empirical evaluations of its frequent users, who spend long periods of time in these spaces in order to meet the demands of production and organization.

Based on the vision of Figueiredo and Mont'Alvão (2006) in considering the influence of color, color can be used to help frequent users of office work environments to feel physically and psychologically comfortable, and can act positively or negatively on their performance and behavior. In this way, human interactions with color in the environment can influence behavior, and directly affect improvements of productivity and, mainly, in the health of the users.

The evaluation of perceived color quality in office work environments, therefore, can reveal the basis for planning the color of these spaces, in addition to, more broadly, contributing to the improvement of human-environment interactions.

To structure the theoretical level of this research, we started from the theory defended by Kaplan and Kaplan (1982), that there is a human predisposition for environments that offer involvement and can make sense. To be preferred, from this point of view, the environment would need to produce involvement to attract people's attention and make sense in order to be readable and understood by them. The authors add that "involvement" would be related to the complexity of the scene; while "making sense", with its coherence, legibility, and comprehension.

Based on the Kaplans´ theory, the two predictive characteristics of human preference for environments, coherence and complexity, were taken for study in this research, which had as its main objective the evaluation of perceived chromatic quality in office work environments, to be used as guidelines for planning the color of these locations.

By definition, complexity causes engagement. Little complexity is monotonous; a lot is chaotic and stressful. Therefore, the medium level seems to be the most pleasant, or ideal; in relation to coherence, the theory suggests that it can contribute to making the environment comprehensible (Berlyne, 1972; Wohlwill, 1976; Nasar, 2008). In this research, contrast will be used as a covariate for the assessment of coherence, given that, by reducing a scene´s contrast, coherence is raised, and vice versa.

For the proposed evaluation, the possibility that specialists in environmental projects might evaluate these spaces differently from non-specialists in the subject was taken into consideration. In relation to this distinction, Nasar (2008) found that these professionals see different meanings in the same environmental characteristics. The same author also warns that these differences are reflected in the planning of spaces, and can result in unattractive solutions in the eyes of the public.

2. Method

Facet Theory was used to design the empirical investigation (Shye, Elizur & Hoffman, 1994; Bilsky, 2003), and considered a structuring sentence for the evaluation of the perceived color quality in office work environments. This sentence summarizes the relationship of the research variables, which were tested through an empirical situation which simulated scenes of this type of environment.

The empirical investigation of this research is classified as hypothetical-deductive in its method of approach, and as exploratory field research with regards to the method of procedure. The sampling was of the non-probabilistic type, that is, without a prior definition of the number of participants or the percentage of reliability credited to the collected data (Marconi & Lakatos, 2002).

For data collection, the Multiple Sorting Procedure adapted by Canter, Brown and Groat (1985) was used, which consists of asking participants to sort the same elements several times, using criteria defined by them (free sorting) or by the researcher (directed sorting), to gather their opinions about the studied objects (Costa Filho, 2014).

In this research, a set of nine scenes, taken from Google Images, were used, according to the mapping sentence for the evaluation of the perceived chromatic quality in office work environments, and were presented as elements of visual stimulus to the participants. These scenes were submitted to a body of 10 judges in order to reach a consensus on the levels of contrast and complexity indicated.

Participants approached in the research were asked to assess to what extent each of the scenes favored being and staying in the office work environments. Participants´ opinions were indicated on 5 different points, ranging from “nothing” (minimum preference) to “too much” (maximum preference) in favor to being or remaining in the presented environments.

The data obtained from the directed classifications were interpreted using the multidimensional procedure of the SSA (Similarity Structure Analysis). SSA, according to Roazzi, Monteiro and Rullo (2009), is a technique for analyzing data by similarity, which provides a metric representation of non-metric information based on the relative distances within a set of points.

3. Results

Concluding the data collection, a total of 98 subjects had participated in the research – 49 specialists in environmental projects (30 architects, 17 designers, 2 with both backgrounds) and 49 non-specialists –, mostly women aged between 28 and 37 years old who had completed higher education.

It was found that both Facet A (contrast) and Facet B (complexity) formed regions of contiguity, meaning the two environmental characteristics, or facets, are adherent or determinant in the assessment of perceived color quality in office work environments.

The results showed that office work environments with medium contrast (medium coherence) and moderate complexity have more perceived color quality. The theory, however, would indicate an environment with low contrast (high coherence) and moderate complexity. Therefore, the findings of this research for contrast (coherence) diverge from what has been suggested in the theory, but corroborate them for complexity.

The evaluations undertaken in this research also sought to analyze whether there was a consensus in the results between the two selected groups. In the SSA diagrams, each group was included in the SSA projections for the Contrast and Complexity Facets as External Variables. It was demonstrated that the experts prefer an office work environment with medium contrast (medium coherence) and moderate complexity; non-specialists in environmental design, preferred a scene with medium contrast (medium coherence) and minimal complexity. These results demonstrate consensus between the two groups for contrast (coherence), but diverge in regards to complexity.

4. Conclusion

In seeking to identify whether the characteristics of coherence (achieved through reductions in contrast with the surroundings) and complexity of office work environments supported the intended assessment, it was found that both proved to be decisive as they formed regions of contiguity in their internal elements.

When examining the effects of the two characteristics taken for study, it was found that an environment with medium contrast (medium coherence) and moderate complexity has more perceived chromatic quality.

Using this finding in support of design guidelines which help chromatic design, an office work environment with medium chromatic contrast, associated with an equally moderate and diversified amount of elements, can favor the perceived chromatic quality.

5. References

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