Research in Arts Education（2009），17，131-132。

The Relationship between Learning Background and the Preference to Simplified Graphics

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Summary

The scope of graphic simplification design application, including trademarks, public signage, computer-related interfaces, and illustration designs, is boundary less. Some graphics can be easily distinguished and are clearly preferred, while others are neither desired nor comprehended by the general public. What are the reasons behind such results? Relevant investigations in great detail can been found in the gestalt theory, design discipline, ergonomics, and object recognition theory. The purposes of this study are centered on understanding designers' and non-designers' preferences and the relationship between these preferences and the level of graphic simplification.

The study used factors experiment design to investigate the effect of the three independent variables-simplification level, object category, and participant background-on the dependent variable-graphic preference. A total of 46 people were selected to take part in the research project. Half of the participants majored in visual design, while half majored in other fields. The materials used in this experiment included 108 graphic samples, all of which were developed by the researchers.

The operation of graphic samples in this study can be illustrated from two perspectives. First, from the perspective of overall form, the Attneave graphic quantification theory (1954) can be applied to compute the number of nodes. Second, from the perspective of the partial elements, the geons presented by the RBC theory (1987) can be used for calculating the partial element quantity.

Quantitative analysis of the experiment data was conducted by using the SPSS System

Paper accepted April 1, 2009

through the following statistical methods. Descriptive statistics were computed to summarize the participants' responses to their graphics preferences. Analysis of variance (ANOVA) was conducted to examine whether the three independent variables - simplification level, participants' backgrounds, and object categories - had any effects on or interactions with their graphics preferences.

A repeated measures ANOVA was performed and the results indicated a significant main effect for 'simplification level' (F = 177.111, p = 0.000, effect size = 0.393, power value = 1.000), and a significant 'participant background' by 'simplification level' interaction effect（F = 18.294, p = 0.000, effect size = 0.063, power value = 1.000). No significant 'object category' main effect was found (F = 0.070, p = 0.791, effect size = 0.000, power value = 0.013), and no significant 'participant background' main effect was found (F = 0.008, p = 0.930, effect size = 0.000, power value = 0.010).

The principal findings revealed: (1) The object category has no influence on preference. That is to say, preferences of the participants were not decided by the types of objects, for instance, natural objects or artificial objects. (2) However, the level of simplification does have impact on preference. It was found that participants did not like the graphics that were not easily recognized as original objects. Designers should avoid drawing graphics with too much simplification. (3) Designers and non-designers exhibit several significant differences in preferences. It seems that participants without design backgrounds prefer realistic graphics that show more detail. On the other hand, participants who did have design backgrounds exhibited varied and inconsistent graphic preferences. Designers must exercise due attention to this variation.

Designers frequently process graphics based on sensuality and intuition. The intension of this study is to compensate possible insufficiencies in designers' intuition, as well as to enable beginning designers by presenting them with useful information and some effective rules to follow. Furthermore, the study hopes to establish some fundamentals for quantitative descriptions of computer-aided graphic applications and various graphic design methods in the future.

Keywords: graphic design, law of simplicity, gestalt theory, object recognition theory, preference