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A Study of Psychological Factors that Stimulate Imagination in Visual Communication Design

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Summary

Vision consists of the means of reception as well as the process of comprehending visual information; more than that, it also involves the individual mental ability to imagine and create abundant information. This study sought to (1) explore and confirm the related factors of learning psychology to stimulate imagination in different design phases and (2) investigate the variant effects of psychological factors and demographical variables in different design phases. This study defined imagination, for visual design students, as the revolutionary process of interpreting the inner images about the design assignment. Further, it divided the design processes into three phases, including problem definition and design analysis, conceptual development and prototyping, and detailed design and communication. Meanwhile, we also reveal that the different facets of educational psychology, including cognition, motivation, action, feeling, and self-efficacy, would have a profound influence on stimulating imagination with distinctive effects within different phases of the learning process.

Based on an instrument that was developed in a previous study, this research further reviewed the related works of imagination in the visual communication design field. Then, the research team executed this research program within two stages. In the initial stage, we invited 50 college students to complete a pre-test. We also confirmed that the psychological

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factor structure was indeed influential upon the stimulation imagination fit in order to further explore the visual communication design field. During the formal measurement stage, the study collected data in three phases. The first phase, which was held in September 2010, included 415 college students; the second phase, scheduled for the last two weeks of November 2010, included 410 students; and the third phase, which occurred for two weeks in the middle of January 2011, consisted of 386 participants. Each of the three phases utilized the same questionnaire. Using exploratory and confirmatory factor analyses, the research team identified six psychological factors with which to stimulate imagination, namely cognitive generation, facilitative motivation, positive emotion, stress/challenge, inspiration through action, and self-efficacy. Interestingly, when compared to the previous research results, the factors of positive emotion and stress/challenge were divided from the factor of feeling/emotion. Furthermore, the research team discussed the descriptive statistic data in three different design phases in order to analyze the significantly different effects of psychological factors on stimulating imagination between these phases. Finally, we used the analysis of variance method (ANOVA) to assess the stimulating effects of these psychological factors and demographical variables within the three phases.

A summary of the results of this study are as follows: First, the study applied exploratory and confirmatory factor analyses methods to develop a robust questionnaire tool. In the future, the tool can be used to research different samples of cross-field imagination. Second, the results reveal the six psychological factors that, to some extent, stimulate imagination. The factors include generative cognition, facilitative motivation, positive emotion, stress/challenge, inspiration through action, and self-efficacy. The characteristics of these factors are defined as: cognitive generation measured the degree to which the participants considered what cognitive approaches were important in stimulating their imagination; facilitative motivation assessed participants' perceptions regarding the influence of the initial driving force; positive emotion measured the extent to which participants reported being influenced by positive emotion; stress/challenge indicated the degree to which participants felt that their imagination was influenced by one's psychological state and the surroundings; inspiration through action examined how participants felt regarding their imagination being influenced by meta-thinking with hands-on practice; self-efficacy evaluated the extent to which the participants reported being influenced by the belief in their own competence. Furthermore, the results of this study

show that the positive emotion and stress/challenge factors have a profound influence on imagination stimulation in the initial design phase, yet it becomes less obvious in the following phases. Third, our results indicated that there were significant differences among some demographical variables in first and second design phases. For example, in comparison to women, the men preferred the facilitative motivation and positive emotion influence on the stimulation of their imaginations. In addition, participants of different academic standings showed distinct effects of cognitive generation, positive emotion, stress/ challenge, inspiration through action, and self-efficacy on imagination stimulation; it was most obvious in second design phase. Finally, we carried out a cross-field study in the area of education, psychology, and visual communication design. The results will be applied in further research in order to explore the abilities of imagination to improve design capacities.

In view of the above results, we offer several recommendations for further study of the imagination. First, the overall structure of psychological factors in stimulating imagination reached stability, and some of the items in this instrument require additional refining. Therefore, future studies should seek to apply the questionnaire that was developed in this study to an effort to collect distinct samples of cross-fields data in order to explore and compare the different pattern or effects of psychological factors that stimulate imagination in different fields. Second, this study found that the positive emotion and stress/challenge factors have a profound influence on imagination stimulation in the initial design phase. Such an outcome reminds teachers to consider the emotion statement of students in the initial design phase, which would obviously influence the students' ability to engage in imagination. In advance, teachers can appropriately adjust the learning strategy and teaching methods as they design learning processes to manipulate the students' imagination. Such efforts will enhance the teaching and learning efficacy of imagination. Third, this study also found that there are distinct effects among gender and academic standing. However, we need to further explore and validate this result according to distinct samples of cross-fields data. Finally, this study was the first effort to explore the stimulation of imagination within the psychology, education, and visual communication design fields. In the future, we will be the top priority to explore how imagination improves the design capacities. Moreover, this study attempted to open up the issues of cross-field cooperation; through follow-up, researchers would not only consistently refine the research agenda setting process, the research design construction, and the related influential variables (e. g., personality and environment) to

elaborate the researches of imagination, but also to use the statistical analysis and empirical approaches to construct the theoretical framework of psychological factors in stimulating imagination.

Keywords: imagination stimulation, learning psychology, visual communication design