

INTUITIVE THINKING AND METHODOLOGICAL CREATION IN DESIGN

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Abstract

Does a good design work come from a well-thought-out plan or from a spark of inspiration? This study begins by addressing these two viewpoints and goes on to discuss the differences between works created through intuitive thinking and through methodological creation. Novice design students serve as the subjects of this study. In the study, subjects have to complete a design task; they are provided with sensory stimulation and asked to convert these stimuli into visual images. The designs are then created using textual representations. After completing the design task, participants' attitudes toward the two creative methods are surveyed using questionnaires.

This study presents two results. First, intuitive thinking can be used to quickly establish the contours of a work, but methodological creation can refine the depth of a work. We suggest that different strategies be adopted for different stages of work for a given design. In the initial stage of creation, intuitive thinking can establish an overall framework for a design, while the introduction of methodological creation toward the middle and latter stages of a design can increase the depth of the work. Second, intuitive thinking can imbue emotional elements into a design, while methodological creation makes one more adept at conceptual interpretation. Therefore, different modes of creation may be selected based on the differences in design objectives. For purely creative interpretations of personal emotions, we suggest use of intuitive thinking, whereas for works whose objectives are persuasive in nature, methodological creation can be adopted.

Key words: intuitive thinking; methodological creation

Introduction

Intuition and logic are two drastically different approaches to handling problems. Intuitive thinking is highly creative, whereas logical thinking is highly practical. Which should designers rely on? Design inspiration arises from two methods. In sensual methods such as inspiration, a work is created through perception and empathy. In rational methods, concepts are gradually developed through systematic design. Finding inspiration is a constant challenge for creators. Regrettably,

inspiration does not appear at will; rather, it is uncertain and unpredictable. Experts are more likely to experience it, but even they cannot entirely control it (Chiang & Wang, 2005). Sudden inspiration might enable experts to quickly find answers to their questions, but novices often require long-term training and the accumulation of experience to be able to precisely and efficiently develop solutions (Simon, 1975; Akin, 1990; Weisberg, 1999; Anderson, 2000). If novice designers are overly reliant on sudden inspiration, they will put their design process at risk. The duration of the latent period of a creative process varies according to the nature of the problems and cannot be predicted precisely (Csikszentmihalyi, 1996). Experts are not dependent on design methodologies, because through the accumulation of long-term knowledge and experience, they have developed their own modes of creation. For novices, however, design methodologies provide support that reduces the chaos in the initial learning state. Since relying on intuition is risky and relying on methods is limiting, this paper studied novice designers to discuss the differences in works produced through intuitive thinking and methodological creation and to further understand novices' views on these two creation methods.

Literature Review

Design inspiration can be acquired in two ways, by intuitive thinking and by methodological creation. Intuitive thinking refers to a creative thought activity in which people make associations with their past experiences. Thoughts of this kind are a form of inspiration, appearing suddenly and surpassing the usual level of thinking. Methodological creation, by contrast, involves interpreting design methods to gain inspiration. The outcomes are derived from systematic thinking and possess the characteristics of methodological design. The following section discusses these two techniques in greater detail.

1. Intuitive thinking in design

The existence of intuition has long been perceived, but scientific exploration on intuition began only recently. In studies of the characteristics of creative thinking, cognitive psychology has focused on understanding intuition, employing not knowledge reasoning (Koesler, 1964) but critical insight to describe the phenomena involved in inspiration (Gleitman,

1996). These research results can be summarized as follows: the thinker is fully devoted to exploring the question and attempts to do so in various possible directions; no clear progress has been made in a long time; the solution suddenly emerges when the problem has been temporarily put aside and when the thinker is tending to unrelated matters; insight appears at unexpected times and places; and this insight can be considered a type of creative thinking that includes concept reconstruction. One branch of scientific research on this topic is breakthrough thinking. Perkins (2000) discussed examples from the history of inventions and organized the characteristics of breakthrough thinking as follows: long-term exploration, no clear progress, sudden incident, inspiration, and transformation. In the realm of design, Archer (1965) revealed that breakthrough thinking also exists in the design thinking process. He coined the term “creative leap” to reflect that this leap contains unique thinking that seems to form the core of creative design. Cross (1997) explained that a creative leap serves as a bridge between the problem space and the solution space.

The common characteristics of studies on inspiration from different fields are as follows: The birth of inspiration is uncertain and unpredictable. Usually long-term exploration is required to gain the insight and momentum to make a creative leap, and to finally see the solution to a question. Whether the design process allows enough time to wait for inspiration to arrive is difficult to accurately predict and is dependent upon the nature of the design problem.

Logical thinking is regulated, rigorous, predictable, and repeatable. Events and items that satisfy logic can usually persuade people more easily. Intuitive thinking is free, flexible, spontaneous, and contingent. It plays an active role in creative activities, and sometimes it helps designers develop creative foresight. However, intuition is not born for no reason and from no foundation. It often results from existing knowledge and experience. Therefore, it comes more easily to people who are knowledgeable and experienced. This explains why expert designers can produce inspiration to solve design problems with comparative ease.

2. Methodological creation in design

Methodological creation was developed in the 1960s due to the urgent need to solve complex problems in space competition and military development (Rittel, 1984). It began to be valued in the design field and recognized as a research domain in 1962 in a conference on design methods held in London, the United Kingdom (Jones, 1962). Subsequently, however, methodological creation was limited to the discussion of design logic or rationality because designers were unsure of its function. Jones (1990) later realized through deep self-retrospection that over-reliance on the method’s rational aspects resulted in designers following the procedures and seeking answers from the fixed steps, leading to a lack of autonomy. Consequently, these methods oppressed thinking. Likewise, at present, many design methods are excessively reliant on rational aspects and simplify intuitive thinking. This causes design to become a rigid activity that cannot actualize the full and deep creative process that it should involve, leading to situations where creativity cannot be released. However, some scholars in the design field have argued that objective

methods that interfere with sensual creation are immature. Real scientific methods for design do not hinder the development of sense; rather, they result in deeper artistic creations. The understanding gained by analyzing aesthetic factors leads to the creation and pursuit of beauty that is more stable and humanistic. In addition, some scholars have suggested that methods temper enthusiasm (Rose, 2001), clarify thoughts and decisions (Green & Bonollo, 2004), and help create successful designs (Lauer & Pentak, 2011).

Method

This research compared works created through intuitive thinking and methodological creation and creators’ views on these two modes. Participants’ works were obtained through a design task divided into two stages, the first involving intuitive thinking and the second involving methodological creation. After the task was completed, questionnaires were employed to survey participants’ views on the aforementioned two creative modes. Finally, conclusions and suggestions were provided.

1. Design task

Before the task was conducted, an object needed to be determined as the source of creative inspiration. The scope included the five senses of sight, hearing, taste, smell, and touch. Participants used the senses that they considered the easiest for forming an image to present the work through words. The first composition was mainly created through intuitive thinking. After the written works were completed, the sensory-based creation methods (SCM) developed by this study were taught to the participants. Then, through systematic steps, using the same topic combined with information collection, the works were created again. The steps in SCM are as follows:

- (1) Describing with words: Describing what types of stimuli and feelings the object arouses.
- (2) Word association: Selecting words or sentences that express those feelings.
- (3) Design association: Assigning shapes to the words or sentences.
- (4) Color association: Selecting colors that express those feelings.
- (5) Overall presentation: Describing what types of setting or meaning the overall image delivers.

2. Questionnaire

After the task was completed, a questionnaire was employed to gain the participants’ view on the two types of creation modes. The questionnaire’s content was as follows:

- (1) Compare the differences between intuitive thinking and methodological creation and their strengths and weaknesses.
- (2) Explain the suitable timing for adopting each method.

Discussion

This section compares and analyzes works produced during the design task. Participants' views on the two types of creation modes are examined.

1. Works

The design task was divided into two stages. In the first stage, participants adopted intuitive thinking. In the second stage, they employed methodological creation. After the works from these two stages were compared, they could be easily sorted into two categories: those that adopted the same structures, and those that adopted different structures.

Table 1 contains examples of works from both stages that adopted the same structures. The similarity in the works of these three participants was that the intuitive thinking structure was retained when they used methodological creation. However, several details were added or altered such as color, design, or layers. For example, in the visual sample in Table 1, "Horror Film: Art of the Devil 2," more layers were added to the second work. The auditory sample "Noisy Voice" showed changes in font and local composition in the second work. In the gustatorial sample, "Yakult," the second work altered the use of colors and fonts.

Table 2 contains samples of works adopting different structures in the two stages. In the methodological creation state, these participants discarded their composition in the intuitive thinking stage and began to construct the image anew. They reconsidered the effects of the stimuli on the senses, and through collecting information, found styles and colors that could more clearly express those feelings. These works demonstrated that participants thought that the reconstructed images were closer to the objects' stimulation of the senses, and the new composition and means of expression were more convincing than the images composed by intuitive thinking. Other than the alteration in the main structure, color, design, and texture were also adjusted. For example, in the visual sample, "Rust," the overall colors and textures were altered. In the gustatorial sample example, "Stinky Tofu," the original style and colors were changed. In the somatosensory sample, "Tingling," the fonts and the presentation skills were changed.





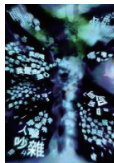

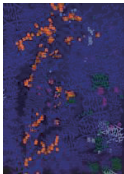





TABLE 1 ADOPTED THE SAME STRUCTURES IN TWO WORKS			
	Visual/Art of Devil 2	Auditory/Noisy Voice	Taste/Yakult
Intuitive Thinking			
Methodological Creation			
Text Material	Art of Devil	noisy, vocal, conversation	sour, sweet

TABLE 2 ADOPTED DIFFERENT STRUCTURES IN TWO WORKS			
	Visual/Rust	Taste/Stinky Tofu	Touch/Tingling
Intuitive Thinking			
Methodological Creation			
Text Material	rust, iron	stinky, tofu	stinging, sore, swelling

2. Questionnaire

According to the questionnaire results, most participants reported that employing intuition enabled them to quickly construct an image. However, the details often were not considered comprehensively, and the components and details were not clearly explained. Adopting methodological creation was more time-consuming, but after carefully considering each step and collecting information, creators used decorative details and added layers. A few participants reported that they were more used to relying on intuition to create. They found that excessive thinking limited their space for creativity. Nevertheless, through methodological creation, they experienced a creative mode different from what they were accustomed to, and they considered details they had never noticed. These changes were beneficial to their creative process.

In short, both creation modes have their strengths. Intuitive thinking allows for rapid construction of the outline of a work; however, few details can be presented. Methodological creation is time-consuming, but it can refine a work's depth, enabling a creator to have more to say when interpreting a work.

Conclusion

This study adopted two modes of creation, intuitive thinking and methodological creation, to compare the differences in works created through these methods, and, through a questionnaire, understand participants' views on those methods. Results were derived in two dimensions. First, intuition can be employed to construct a quick outline, whereas methodological creation can be used to increase a work's depth. Therefore, this study advises that different strategies be used depending on the design stage. In the early stage of creation, intuitive thinking can be adopted to develop the overall structure of the work. In later stage of creation, methodological creation can increase the work's depth. Second, employing intuition allows the creator to

express their emotions freely, whereas adopting methodological creation is more useful for interpreting concepts. Thus, according to their design goals, creators may choose different creation modes. When creating works that purely express personal feelings, the creator may rely on intuition, whereas when the goal of creation is to be persuasive, methodological creation can be relied on.

Intuition and method belong to creative and strategic thinking, respectively. They differ from each other in that creative thinking requires quantity—the more ideas the better. By contrast, strategic thinking requires quality—the more specific and accurate the ideas the better. Creative thinking requires self-reflection, whereas strategic thinking demands insight. This paper argues that these two ways of thinking are not contradictory but complementary. With only logic but no intuition, the work will be rigid, and the creative progress will lack unexpected fun. With only intuition and no logic, chaos occurs, and the creative result will be unconvincing. The integration of both may solve these difficulties.

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