The New Relationship between Emotion and the Design Process for Designers

Amic G. Ho

1 Community College of City University | City University of Hong Kong

Abstract Design is a professional activity practiced by designers in various design fields, such as industrial design, graphic design, and interior design. Because the focus of the design discipline is changing from technological breakthroughs to satisfying users’ needs, many design processes have been introduced and adopted to achieve various design objectives. These design processes involve numerous subprocesses and components that interact to form a comprehensive system. Several factors affect the process, causing design outcomes to vary. Design processes no longer conform to the conventional prototype, but conform to a divergent and interactive model that incorporates new ideas and types of creativity to elicit breakthroughs and innovations. This study was conducted to understand the relationship between designers’ emotions and every step of the decision-making process, and how these relationships affect the overall design process. Designers can understand the relationships between emotions and design processes. Hence, they would be able to develop methods and techniques, for example, they would understand and manage their emotions, in order to manipulate their design processes to be tailored to the required outcomes.

Keywords Emotion, Designer, Design process, Decision making


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1. Introduction

Design is a professional activity currently practiced by designers in various design fields, such as industrial design, graphic design, and interior design. Therefore, designers are expected to be creative professionals who create artifacts to respond to various design requirements in an integrative and holistic way. The design process is the working flow that designers practice everyday. It has developed and become a crucial topic in design research. Previous studies have developed and shaped numerous frameworks of the design process. These frameworks provide designers with new insight into methods for manipulating the design process to satisfy the required outcomes, thus enabling designers to manage their design process effectively as well as to improve the quality of their creative ideas and innovative design outcomes. However, as research developed, it became clear that designers today seek to developa personal design process suited to their working habits or to achieving required results (Best, 2006). Developing a design processes based on the designer’s perspectives, such as their own design knowledges, working habit, emotions, may directly contribute design outcomes; design and emotion studies would be one of the aspects.

Most of the research on design and emotion has extensively investigated the emotional responses of users in their interaction with design outcomes. These studies were conducted to improvedesigners’ ability to design better. Other aspects such as “emotional functions” and “design of experience” have been researched. However, few studies have investigated the relationship between designer’s emotion and the design process. According to recent studies on design and emotion, emotion is considered to be a pattern of reactions that occur in response to external and internal stimuli, in conjunction with the process of engendering cognitive activities and subjective feelings. How does emotion affect the design process, and at what level does emotion affect the design process? From whom, in which context, and through what medium is emotion initiated?

This paper describes the functions of emotion in the design process and how emotion can elicit affection in decision-making process as well as in the final design outcome. A new conceptual model is proposed to illustrate the close relationships between all of the essential elements involved in the design process.

2. Studies on the roles of Designers in Design Processes and Design Outcomes
On the basis of previous research on user- and consumer-driven design, design and emotion scholars have focused on designer-driven design (i.e., the relationship between designers and design outcomes). Vosburg (1998) asserted that the emotional changes experienced by designers can drive them to think in new directions and, therefore, enhance the quality of their ideas. Emotional changes can also help designers to differentiate between diverse types of information, thereby enhancing designers’ capacity to choose the most effective strategies for solving problems (i.e., the decision-making process). Scholars have suggested that the role of designers should be emphasized in design and emotion studies. Tan (1999) stated that the role of the designer involves storytelling (communicating ideas through design) rather than simply pleasing users. From this perspective, the goal of design is to create products that elicit consumers’ emotional responses and, thus, satisfy consumers’ needs. Sanders (1999) studied the influence of the emotional responses and experiences of users and consumers on the design process, stating that the feelings and aspirations of users or consumers can inspire successful designs. Through feedback, users often contribute useful information for the generation of ideas and advanced testing in design development. Chhibber, Porter, Porter, and Healey (2004) adopted the Jordan’s “four-pleasure” framework (i.e., physiopleasure, sociopleasure, psychopleasure and ideopleasure) (Jordan, 2000) and investigated whether designers apply their own knowledge in the design process rather than focus only on the user’s point of view. They suggested that designers adopt intuitive methods in the design process. Forlizzi, Disalvo, and Hannington (2003) identified emotion as one of the key elements that influence designers. They argued that changes in the external environment, such as social changes and new interactions between people and objects, influence designers’ goal setting and reflective emotional responses to design (i.e., emotional experience). Similarly to Forlizzi, Disalvo, and Hannington (2003), Ben-Peshat (2004) asserted that designers’ emotional changes can increase their sensitivity towards social and cultural change (i.e., the external environment). This, in turn, encourages designers to use their professional skills as well as to adopt more emotional and intuitive methods in the design process. In this case, designers focus on their personal knowledge rather than the needs and feedback of users. Hence, in addition to enriching users’ experiences, a design process that focuses on designers’ personal interests and perspectives (mostly involving designers’ emotions) enables close relationships between designers and the public (i.e., users and audiences) to be established. This process focused on designers’ personal interests and perspectives, is as effective as a design process focused on users’ feedback. It also can influence the relationship between designers and their design outcomes.

Departing from previous studies, Aken (2005) focused on the management of the design process. He indicated that designers who have more experience and a strong emotional investment in their practice are more able to
manage the design process. This enables them to avoid engaging in unmanaged process design, which can lead to problems in coordination and time management. Desmet (2008) focused on the effect of emotional changes on design practice and observed that pleasant emotions can facilitate the design process. He interviewed numerous designers about their experiences in design to explore how the variegated emotions experienced by designers influence their design processes. By conducting the interviews, Desmet determined that different design processes generate various design outcomes, which, in turn, elicit variegated emotional responses from users. In addition, Desmet observed that positive emotions contribute to designers’ creativity. Most designers tend to maintain pleasant emotions during the design process because this helps to generate positive outcomes. Based on a study of the “three levels of design” concept suggested by Norman (2005), Lacey (2009) explored how feedback from users or consumers influences the practical design process. Lacey proposed the “favourite mug” approach and observed that users’ feedback is mainly associated with their physical and emotional responses, which can be attributed to the personal taste of designers and users or consumers. Lacey demonstrated that information on both designers’ and users’ individual favourites and their emotional attachment (i.e., emotional changes) to products inspire ideas in the design process. Lacey proposed that the reflective level in Norman’s three levels of design involves a level of engagement that can encourage meaningful interaction between users and designers.

3. Studies on Designers’ Decision Making in the Design Process

Early design and emotion studies did not clearly identify the effects of designers’ emotions. Recent studies have focused on the role of designers’ decision making in the design process. Levin (1984) introduced the concept of design as a decision making process. According to Levin, after understanding a problem, designers set goals that they consider during the design process. Designers may develop a range of plans and then exercise discretion in choosing from sets of parameters. When making these decisions, designers process certain information that can be grouped into three main categories: practical considerations; related knowledge, such as personal experience with users’ requirements and previous designs; and conjecture. Designers process information by deriving solutions and engaging in consistency testing, comparison, and selection. Herrmann and Schmitt (1999) observed that, to produce satisfactory design outcomes, designers must manage the process of transforming customers’ information into the design concept under time and budget constraints. Designers acquire the information, make a decision, and transform the decision into new information used in subsequent development. Therefore, the ability to process information is a key factor in determining the effectiveness of a design process. In addition, manage-
ment skills have been addressed in studies on the decision-making process (Longueville, Le Cardinal, Bocquet, & Daneau, 2003). Various management skills, including time and risk management, are widely used to prescribe and optimise the decision-making process and the quality of the results. Designers choose the most suitable management skills to develop systematic decision-making processes. Almendra and Christiaans (2009) emphasised that, to enhance information processing and management skills, decision making in the design process must be recognised as a customer-centric strategy that is sustained by the accurate and updated understanding of the target users or consumers. Hence, designers should choose the most effective method for accessing and managing knowledge, and use a strategy or plan to solve problems. Scaletsky and Marques (2009) proposed a concept similar to that of Almendra and Christiaans on the importance of strengthening designers’ management skills. They suggested that designers learn the skills of allocating and choosing materials, because these skills are decisive factors in the design process. In addition, the use and aesthetics of products are topics that require extensive consideration. Aken (2005) stated that, in addition to acquiring information from objects, designers gain knowledge, experience, and skills from people. Because a considerable amount of human interaction (e.g., interactions between the client and the designer and between the designer and his or her design teammates) is involved in design activities, the pattern of communication adopted by a designer affects decision making. According to Enayati (2002), designers who have stronger communication skills tend to make more effective decisions. In summary, designers can control various factors that affect their decision making. This section reviews various studies that have explored the factors that drive designers to make detailed decisions during the design process, such as information processing, the use of strategies, and the allocation of materials.


Numerous studies have explored the relationship between designers’ emotions and the design process. Some studies have investigated whether designers draw on their own emotional responses when developing designs rather than focusing only on the user’s point of view. Drawing on the existing theories on emotion and experience, Forlizzi, Disalvo, and Hannington (2003) described how emotion is a key element that influences designers and argued that changes in the external environment, such as social changes and new interactions between people and objects, influence designers’ goal setting and reflective emotional responses to design (i.e., emotional experience). Designers’ reflective emotional responses are likely to influence their decision making during the design process. However, few studies have investigated the
relationship between emotion and designers’ decision making within design processes.

Based on the foregoing research, the criteria and conditions related to the relationship between designers and design outcomes can be generalised as follows:

- Changes to the external environment influence designers’ emotions;
- Designers’ emotional changes influence the design process and the structures and functions of design outcomes;
- Introducing more personal experience and emotion into the design process can improve the management of the design process;
- Incorporating emotions into design outcomes (including material and visual expressions) can strengthen the relationships between designers and users; and
- Designers currently tend to use more emotional and intuitive methods in the design process than they did in the past.

5. A New Model (the E-wheel Model) for Explaining the Functions of Emotion in the Design Process

5.1. The functions of emotion in relation to external and internal factors

According to the foregoing review of the “design and emotion” theories, early studies failed to provide substantial evidence on the ways in which emotion affects the design process. Therefore, the function of emotion in the design process must be explored in greater detail. The design process comprises various stages, and internal factors (Cupchik, 2004), such as information processing and the allocation of materials, involve different types of decision making. Designers make decisions (influenced by their emotions) that affect internal factors in the design process (Vosburg, 1998; Aken, 2005). According to the theoretical studies of Ho and Siu (2009) on the concepts of “design” and “emotion,” the phrase “internal factors in the design process” refers to factors that the designer controls. These factors motivate designers to make detailed considerations in the design process, such as considerations related to information processing, the use of strategies, and the allocation of materials.

In addition, a designer’s emotions can affect these internal factors and, thereby, elicit various design outcomes (Sanders, 1999; Chhibber, Porter, Porter, & Healey, 2004). Moreover, numerous external factors can directly affect designers’ decision making without involving designers’ emotions (Almendra & Christiaans, 2009; Aken, 2005). Ho and Siu (2009) classified external factors in the design process, such as social, cultural, and
technological developments, that designers do not directly control. These factors can affect designers’ emotions and decisions, which affect the internal factors in the design process and, thus, affect the design outcome.

This is consistent with the view of Forlizzi, Disalvo, and Hannington (2003) that changes in the external environment can affect designers’ reflective emotional responses (i.e., emotional experience). The effect that external factors exert on designers’ emotions depends mainly on a designer’s awareness of and reflections on the external environment (i.e., the external factors of the design process). The decision-making ability of designers may be enhanced when they incorporate their emotions into the design process. In addition, the emotional changes, which is the result of designers incorporating their emotions into the design process, motivate designers to think in different directions and, therefore enhance the quality of their ideas (Vosburg, 1998). These emotional changes would enhance designers’ decision-making ability. After enhancing the quality of their ideas, designers may consider their design problems from various perspectives. When designers incorporate their emotions into the design processes, their decision-making abilities are improved. Because emotional changes can help designers differentiate among diverse types of information, incorporating emotions into the design processes can enable designers to choose the most effective problem-solving strategies (i.e., decision-making processes).

Because changes in the external factors of the design process affect designers’ emotions, designers’ emotional responses affect how they make decisions. The degree to which external factors affect designers’ emotions depends mainly on designers’ awareness and reflections on the external environment. Moreover, a changed decision affects the internal factors (i.e., the factors that the designers control) during the design process, thereby changing the decisions made in the following stages of the design process. According to Kaufmann (2003), some designers believe that positive emotions are helpful in processing information because they increase designers’ ability to analyse received information, thereby enhancing designers’ decision-making abilities. Because information processing is an internal factor in the design process, incorporating emotions into stages of the process enhances the overall design process. Hence, an ideal design process optimises design outcomes. Best (2006) stated that a design process that involves emotion ensures the quality of design outcomes.

5.2. Framework of the new model (the E-wheel model)
Drawing on design process research, Ho and Siu (2009) discussed the function of emotions and proposed the E-wheel model (“E” refers to “emotion”) (Figure 1) to explain the relationships amongst designers, emotions, internal factors (e.g., information processing, material allocation), and external factors (e.g., technological, social, cultural, and economic factors) in the design.
processes. According to Scherer (1984), an emotion expresses a pattern of reactions in response to external stimuli and engenders evaluations of the stimuli and of a person’s situation. Therefore, incorporating emotions into the decision-making process affects the decision-making abilities of designers. Ho and Siu (2009) explored how internal and external factors affect the overall design process, which involves numerous decision-making processes. External factors can affect the emotions of designers, causing them to make various decisions that affect the internal factors and, hence, change the overall design process. This process provides insight into how designers can use their emotions to develop appropriate responses that optimise their designs.

As illustrated in the E-wheel model, external factors affect designers’ emotions and decision making. Forlizzi, Disalvo, and Hannington (2003) suggested a similar concept, proposing that external factors can function as stimuli (i.e., external stimuli) that affect the emotions of designers and cause designers to make different decisions, such as material allocation, project management. The emotional responses to external stimuli involve a process of evaluating stimuli and situations. These responses are closely related to cognitive behaviours such as decision making (Scherer, 1984; Arnold & Gasson, 1954). Emotional changes enabled designers to differentiate among diverse information and, thereby, choose the most effective problem-solving strategies (i.e., decision-making processes). However, different decision-making processes involve different internal factors. When designers make decisions based on emotional concerns, the internal factors (e.g., information processing and material allocation) in the design process are affected. Kaufmann (2003) stated that some designers use their emotions effectively to make decisions based on internal factors, thus motivating designers to make detailed considerations related to information processing, strategies,
and material allocation in their design processes. This change to the internal factors alters the decisions made in the subsequent stages of the design process. Hence, the ideal design process optimises the design outcomes. Best (2006) stated that a design process that involves emotion ensures the quality of design outcomes. In other words, it is possible for designers can develop appropriate emotional responses to optimise their designs.

5.3. Examples to illustrate the E-wheel model

The E-wheel describes the relationships between the external factors that affect the emotions of designers and the emotional changes that directly affect designers’ decision making in the overall design process. The book RMX Extended Mix, which was designed in 2001 by Rinzen, a group of Australian artists, is used as an example to explain and illustrate the E-wheel concept. Adrian Clifford, a member of the group, stated that every designer in the group produced an initial piece on one of eight themes. The files were then passed between the designers, who progressively modified, augmented, and erased content in each step of the process. The files of the group members who previously contributed to a piece functioned as external stimuli (i.e., external factors) that caused emotional changes in the designer. The designers sought to express their emotional responses to the work of the other group members. In this case, the designers were able to express their own perspectives on the subjects that interested them while applying their professional skills. The designers determined which design elements (i.e., internal factors such as the material allocation, project management) to apply and, thus, were able to incorporate their own emotions, interests, and intuitive evaluations into the design process.

Another example of emotionalised design is the characters designed by Sticky Monster Lab. According to a design magazine International Design Network (2013) that interviewed different characters designers for exploring the design process of characters design, one of the interviewees, Sticky Monster Lab, stated that “a good character design should express and deliver the designer’s emotions.” The team acknowledged that expressing designers’ thoughts and intentions (including emotion) is sometimes challenging. Their statement indicates that changes in external factors cause emotional changes in designers. Designers in Sticky Monster Lab often incorporate aspects of their emotions into their projects when striving to achieve design objectives, and determine which design elements to use (i.e., internal factors). These designers can incorporate their emotions, interests, and intuitive evaluations into the design process, producing a design outcome that elicits emotional responses in users or consumers.

These examples fully support the proposed E-wheel model, which illustrates how external factors affect designers’ emotions and how their emotions then affect their decision making in relation to the internal factors.
of the design process. Accordingly, changes in the design process lead to various design outcomes. Therefore, the E-wheel model supports the proposition that designers’ emotions are the key element in the overall design process.

6. Conclusion

This paper describes the functions of emotions and how internal and external factors affect the design process, which consists of various interrelated decision-making processes. External factors affect designers’ emotions when decision making, thus affecting internal factors and causing the design process to change. This concept provides insight into how designers can realise their emotions and develop a corresponding response that optimises their design process, enabling them to achieve the required design outcome.

Reference


