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Designers, Emotions, And Ideas: How Graphic Designers Understand Their Emotional Experiences Around Ideation

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**DESIGNERS, EMOTIONS, AND IDEAS:
HOW GRAPHIC DESIGNERS UNDERSTAND THEIR
EMOTIONAL EXPERIENCES AROUND IDEATION**

by

ALISA HUTCHINSON

DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

2018

MAJOR: LEARNING DESIGN AND
TECHNOLOGY

Approved By:

Advisor

Date

DEDICATION

For my mother.

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CHAPTER 1 INTRODUCTION

Although historically a process-driven field, instructional design has been increasingly recognized as belonging to the larger design community by authors both inside and outside of the field (Boling, 2008; Nelson & Stolterman, 2003; Tracey & Boling, 2013). As such, it is important that research in instructional design also begin to incorporate ideas, methods, and findings that have emerged from design research discourse. Writing in *Design Studies*, considered one of the most influential journals in design research (Gemser, de Boont, & Hekkert, 2012), Dorst (2008) called for broadening the scope of the field by addressing a significant gap in the literature: our understanding of the designer in the design space. While Dorst (2008) recommends expertise as one important lens on this topic, his call to action opens up a wide range of possible research avenues for understanding designers and how they influence and are influenced by their professional practices. Aligned with this, research exploring professional identity in design is an emerging line of inquiry in the field, including investigations of how designers define design and how design students reflect on beliefs, experiences, and self-conceptions relating to being a designer (Adams et al, 2011; Daly, 2008; Hutchinson & Tracey, 2015; Tovey, Bull, & Osmund, 2010; Tracey, Hutchinson, & Grzebyk, 2014; Tracey & Hutchinson, 2015a).

Although designers' personal experiences of being a designer have not yet been widely studied, traces of them frequently appear in the background of design research. As an example, in their investigation of creativity in design, Dorst & Cross (2001) described the emergence of ideas or insights during an experimental design assignment as "a highly emotional step, and none of the designers could ignore the impact" (pg. 436). As the study was concerned with exploring how creative ideation serves as a bridge between the design problem and solution spaces, no further attention beyond this statement was paid to the emotional experiences of participants – all of whom

were experienced industrial designers. Although serving a primarily descriptive function in the authors' narrative, the comment hints at an intriguing implication: that the subjective emotional experiences of designers are intimately connected to their professional responsibilities and practices, particularly as they relate to ideation and creativity.

However, current studies that address emotion in design focus almost exclusively on users' feelings in relation to design outcomes with scant attention paid to the personal emotional experiences of designers during their professional practice (Ho & Siu, 2012; Sas & Zhang, 2010). Designer cognition and design thinking, on the other hand, are established themes in design research, with the work of Cross (2011) as one influential and well-known example. Typical cognitive tasks include moving between complex material details and abstract principles; attending to and analyzing nuanced and subtle aspects of the design problem; generating and evaluating original ideas; materializing, communicating, and refining design ideas through prototypes; engaging in periods of intense work alternating with time away from the design problem; and taking personal responsibility for design decisions and outcomes (Cross, 2011; Nelson & Stolterman, 2003).

Given that emotions exert a substantial influence on higher-level cognitive functions important to designers including as creativity, judgment, decision making, reasoning, and interpretation of stimuli (Blanchette & Richards, 2010; Davis, 2009; De Dreu, Baas, & Nijstad, 2008; Yang & Hung, 2014), the dearth of research on designers' emotions begins to reveal a conspicuous need. While studies that specifically explore emotions in relation to designers small in number, they do suggest that (1) designers describe emotional experiences during every phase of design and (2) that ideation in particular may be connected to emotion via emotional memories, emotional language, and/or affective judgments or evaluations (Alexiou et al, 2009; Dong,

Kleinsmann, & Valkenburg, 2009; Kim, Bouchard, & Ryu, 2012; Sas & Zhang, 2011; Solovyova, 2003).

Within the psychological research literature, creativity is typically broadly defined to include three linked tasks – problem identification, ideation, and evaluation – and thus may represent a close though imperfect analogue to the concept of ideation in design, which positions ideation as a bridge between the design problem space and solution space that allows for greater understanding of both (Davis, 2009; Dorst & Cross, 2001). When investigating the link between creativity and emotion, most psychological research has focused on demonstrating a connection between singular emotional states and creativity, with many studies showing a link between creativity and positive emotions such as happiness while others demonstrate a relationship with negative emotions such as anger or fear (Davis, 2009). Others have focused on the relationships between emotional arousal level – or the ability of an emotion to incite action – and creativity, at least in terms of ideation tasks, with highly arousing emotions found to be associated with better idea generation regardless of whether the emotion was positive or negative (De Dreu et al, 2008).

There has been a small but provocative body of recent work investigating the role of ambivalent emotions in creativity (Fong, 2006; Moss & Wilson, 2014), with these authors arguing that the conflicted findings on the role of emotional valence in creativity may be due to the focus on singular emotional states rather than exploring the simultaneous experience of ambivalent or conflicting emotions as a precursor to creativity. Research on emotions and designers may also lend preliminary support to the role of ambivalent feelings in fostering or influencing creative work. In one study, Sas and Zhang (2010) found that designers frequently reported feeling conflicting or ambivalent emotions simultaneously during their design work; as an example, several participants described feeling both excitement and fear while generating design ideas. This

suggests that affective experiences during creative work may be more complex, nuanced, and individualized than has previously been explored, particularly in applied professional contexts.

Problem statement

The academic positioning of design as a constructive discipline that relies on the intuition and expertise of the designer emerged in the mid-1970s in response to earlier models of design as a process-governed activity that could or should be immune to individual differences in designers (Cross, 2001). Despite this shift in emphasis toward the design and away from abstract process models, there is still much to learn about designers in the design space and about how designers form and maintain professional identities (Dorst, 2008; Tracey, Hutchinson, & Grzebyk, 2014). Designer cognition has been positioned as the engine that drives design (Cross, 2011), and emotion is known to be an important influence on higher-order cognitive processes associated with design (Blanchette & Richards, 2010; Davis, 2009; De Dreu et al, 2008; Yang & Hung, 2014) as well as professional identity formation (Luehmann, 2007; Zembylas, 2003), yet there is very little understanding of designers' emotional experiences and their relationship to professional practice and identity. Psychological research supports the idea that emotions influence creative ideation but there is no clear answer as to the specific direction and nature of this relationship as extant research findings often conflict. Furthermore, most creative research is carried out in experimental settings using participants from the general population and inducing emotions through artificial means not linked to the creative task or setting (Blanchette & Richardson, 2010; Davis, 2009). This limits its applicability to authentic creative contexts and creative professionals, who may experience the creative act itself as a process that generates emotional experiences (Dorst & Cross, 2001; Sas & Zhang, 2011; Tracey & Hutchinson, 2015c). Though only a handful of studies currently exist, their results provide initial support for continued investigation into emotions as

important influences on designers' thoughts and actions in their professional practice, particularly as they relate to idea generation. However, much more research is needed to better understand how designers' emotions come into play during creative ideation in their professional practice. Within this, a potentially fruitful avenue of inquiry will be explorations of how designers perceive and understand their emotional experiences in their professional practice and how these experiences influence professional identity development and maintenance.

Research purpose and question

Building on these themes, this research effort will explore how graphic designers describe and conceptualize their emotional experiences during ideation for a completed design project. The primary research question driving this work is:

1. What distinctly different ways of understanding emotional experiences during ideation do graphic designers describe when reflecting on this phenomenon?

Because this research is concerned with how designers understand their emotional experiences and is also exploratory in nature, phenomenography will be the framework for data collection and analysis. Phenomenography is well-suited for preliminary studies where little is known about the topic and where it is meaningful to identify and categorize a divergence of viewpoints rather than focus on identifying one convergent perspective or response (Marton, 1981). As such, the purpose of the research will be to understand the variety of ways that designers experience emotions in the design space as potential avenues for future research and pedagogical approaches. Likewise, this research is also intended to shed new perspective on our understanding of the link between emotions and creative thought by exploring the experiences of creative professionals in authentic contexts. This subjective approach is in contrast to the objective, positivist aims of most psychological research on creativity, but should not be seen as being in

conflict with it. While experimental research with the general population is appropriate for the study of the abstract mental ability that is labelled as creativity, contextualized qualitative research is well-suited to investigating how that mental ability is embodied by those who choose to engage in such work as a profession.

Conceptual Framework

Design is a practice that is synonymous with the cognitive activities of the designer, which include responsibilities for generating and evaluating ideas in response to the design problem and/or context (Cross, 2011, Nelson & Stolterman, 2003; Visser, 2009). These responsibilities are closely aligned with creativity as it is defined in the psychological literature (Davis, 2009). Emotions have been shown to influence a range of cognitive tasks, particularly creativity; however, the nature of this relationship remains unclear. There is evidence that positive emotions may be associated with improved idea generation, while negative emotions may be associated with improved performance on evaluative aspects of creative problem-solving (Davis, 2009). Others contend that the co-occurrence of both positive and negative emotions are necessary for optimal creativity (Fong, 2006; Moss & Wilson, 2015).

However, most research on creativity involves experimentally-evoked emotions that are incidental to the cognitive task of creative work. Design, on the other hand, unfolds in a space that is uncertain in nature (Cross, 2011; Tracey & Hutchinson, 2015a) and thus emotionally evocative on its own, as human beings tend to experience uncertainty as an aversive emotional state that they seek to resolve rather than prolong (Bar-Anan, Wilson, & Gilbert, 2009). For designers, ideation is an avenue for reducing uncertainty, as it is a bridge between the design problem and potential solutions and generates co-evolving insights about both spaces (Dorst & Cross, 2001). Other potential avenues for designer emotion to enter the ideation process include motivation, the

influence of emotional memories, and intuition.

In terms of theoretical or conceptual approaches to understanding the potential relationship between designer emotions and ideation in professional practice, this project will draw on two: the emotion-as-feedback model proposed by Baumeister et al (2007) and the theory of emotional regulation as it relates to emotional labor (Grandey, 2000). Emotion-as-feedback positions emotion as a source of evaluative information, or feedback, that influences subsequent cognition, emotion, or behavior (Baumeister et al, 2007). When applied to designers, this could suggest that emotions, either incidental or integral to the design situation, provide them with feedback necessary to make design decisions and thus may influence design outcomes. Aligned with this, emotions may influence creative cognition by providing signals that allow the brain to access novel or unusual associations (Davis, 2009; Fong, 2006). Emotional labor refers to the regulation of emotional expressions and experiences in response to occupational goals or expectations (Grandey, 2000). While originating in research on occupations such as 911 operators or emergency room staff, who must maintain calm demeanors in emotionally-charged or chaotic workplaces, the idea has been extended to a broader set of occupational and professional settings (Grandey, 2000). Since designers can be seen as working in space that is defined by uncertainty (Cross, 2011) and may also encounter other emotional prompts in the course of ideation work, it is reasonable to assume that they may engage in particular strategies or habits to regulate their emotional experiences in response to their work.

Professional identity represents the final concept that will influence this research. As mentioned, professional identity is concerned with how one will know, act, and be in service of their practice (Dall'Alba, 2009), all of which are states that are influenced by emotions. This implies that those occupying a professional role need to not only acquire the knowledge and skills needed

to navigate the field, but also to construct a preliminary sense of who they will be as they enact that knowledge and those skills in their role as a practitioner in a particular profession, including then a sense of how their emotional self can or does influence their work (Dall’Alba, 2009; Tovey et al, 2010). Of course, depending on an individual’s background, personality, and experience, knowledge of the professional self may be more or less developed – and more or less conscious or intentional. In any case, professional identity provides an important conceptual ground for locating designers’ conceptions of their emotional experiences during ideation, and conversely may be influenced by how designers make meaning from these experiences.

Operational definitions

Design: Design includes the activities, processes, and resources related to developing an original solution in response to an ill-structured, environmentally-situated problem; within this framework, multiple solutions are possible and the value of a given solution involves subjective judgment (Cross, 2011; Lawson & Dorst, 2009; Nelson & Stolterman, 2003; Visser, 2009). It should be noted that the word “design” can also refer to the product of the act of designing, but that meaning is secondary the definition above for the purposes of this paper.

Designer: The designer is the person whose cognitive activities and resulting behaviors drive and direct the design process (Cross, 2011; Lawson & Dorst, 2009; Nelson & Stolterman, 2003; Visser, 2009).

Professional identity: Professional identity is defined as the embodiment of professional knowledge, characteristics, values, and responsibilities filtered through the unique personality and qualities of the individual as they engage in their professional practice (Dall’Alba, 2009; Luehmann, 2007; Tovey et al, 2010). This sense of professional identity emerges (and re-emerges) from subjective narratives about experiences relating to the self-as-professional and is socially

constructed in that one's recognition of self-as-designer gains validation and ballast from being recognized by others as a particular type of designer as well (Luehmann, 2007).

Graphic design: AIGA, the primary professional association for graphic designers in the United States, defines graphic design as “art and practice of planning and projecting ideas and experiences with visual and textual content” in both physical and digital contexts (AIGA, 2016).

Creativity: Creativity is defined as the inter-related processes of identifying the ill-structured problem, generating ideas or insights around potential solutions, and evaluation of ideas in terms of usefulness (Davis, 2009).

Ideation: Also called idea generation or generative thinking, ideation involves the development of ideas or insights that may lead to the solution or partial solution of a problem. It is generally considered in terms of fluency, or the number of ideas generated, as well as originality, or novelty of the generated ideas (Davis, 2009). Given the close relationship between problem and solution as outlined by Dorst & Cross (2001), problem understanding is often subsumed under the construct of generative thinking and/or ideation, and that is the case for this research as well.

Emotion: Episodic mental states that incorporate cognitive, physiological, and behavioral components that emerge in response to a trigger (either external or internal) and generate affective appraisals of the trigger or resulting thoughts and actions (Baumeister, Vohs, DeWall, & Zhang, 2007; Mulligan and Scherer, 2012; Sas & Zhang, 2010). Emotions may or may not be consciously experienced by the subject (Mulligan & Scherer, 2012), but this paper will be focused on emotions that participants are aware of and able to articulate.

Valence: A characteristic of emotion that indicates whether the emotion is experienced as pleasurable and positive or unpleasant and negative (Davis, 2009, De Dreu et al, 2008; Mulligan and Scherer, 2012; Sas & Zhang, 2010; Yang & Hung, 2014). Joy would be an example of a

positive valence emotion, and sadness an example of a negative valence emotion.

Intensity: A characteristic of emotion that indicates the potential for the emotion to incite or suppress action on the part of the subject regardless of valence (Davis, 2009, De Dreu et al, 2008; Mulligan and Scherer, 2012; Sas & Zhang, 2010; Yang & Hung, 2014). Enthusiasm would be an example of a positive, high-arousal emotion, while relaxation would be an example of a positive, low-arousal emotion. Conversely, anger would be a negative, high-arousal emotion and depression a negative, low-arousal emotion.

Summary

This study identified and explored seven distinct ways of understanding that graphic designers construct from their experiences with emotion during ideation during their professional work. Discourse about designer cognition as well as psychological research on creativity and emotion were important influences, within a broader conceptual framework that positions emotions as a feedback system for thought and behavior. Professional identity provided a additional context for locating and understanding the relevance of participants' narrative statements regarding their experiences with emotion and ideation. Phenomenography was employed as the research method as it is well-suited for investigating the range of meanings that individuals construct around a given phenomenon, such as emotional experiences during creative work.

CHAPTER 2 LITERATURE REVIEW

The following literature review was previously published in the *Journal of Design Research* under the title “Designers’ own emotions and the practice of designing: A literature review and preliminary research agenda” (Hutchinson & Tracey, 2017). The article is included in its entirety below as the literature review for this dissertation.

In his call for a revolution in design research, Dorst (2008) asserted that the field has neglected issues related to the designer, whom he calls “the missing person in design research” (p. 8). Among the discourse that has focused on designers as opposed design processes and models, the work of Cross is notable for its rich investigation of how designers think, or what he has also termed “designerly ways of knowing” (Cross, 2001; Cross, 2007; Cross, 2011). Dorst (2008), in addressing his own challenge, proposes the study of designer expertise as another fruitful avenue for understanding how designers influence the design process. These related lines of inquiry – designer cognition and designer expertise – have been highly influential in framing and advancing design research, and we believe that the field could now be further enhanced by exploring the emotional experiences of designers as an element of professional practice. This subject is largely unexplored at this juncture but holds tremendous potential to generate meaningful insights into design and designers.

There has been significant research attention paid to the role of user emotions in relation to design processes and outcomes; Norman’s (2004) work on users’ emotions is one prominent example. However, the role of designers’ own personal emotions as they engage in their professional practice has received little attention to date (Sas & Zhang, 2010). The psychological research literature has established that emotions exert a significant influence on higher order cognitive activities including creative thinking (Davis, 2009; De Dreu, Baas, & Nijstad, 2008;

Yang & Hung, 2014), which suggests it will be meaningful to examine the role that designers' own emotions have on their work. While scant in number and often lacking in methodological rigor, initial empirical investigations on emotion and designers also support the idea that designer affect may help shape design processes, decisions, and outcomes. This article will (1) briefly review relevant findings from the psychological literature regarding emotion and creativity to establish a general context; (2) describe existing empirical research that focuses on designers' personal emotions relative to their work; and (3) suggest future directions for research in this area.

The influence of emotion on creativity

First, it is important to consider what the term "emotion" means from a scholarly perspective apart from whatever personal connotations and denotations the word might have. Most academic definitions generally agree that emotions are conscious, singular states of feeling that have strong accompanying thoughts and typically arise from cognitions about a precipitating event (Baumeister, Vohs, DeWall, & Zhang, 2007; Sas & Zhang, 2010) and this is the definition used in this review. There is some conceptual disagreement related to the duration of an emotion, with some classifying emotions as short-lived and concentrated, in contrast to moods which are thought to be more diffuse and last longer (Davis, 2009; Sas & Zhang, 2010). Others define emotions as developing and decaying more slowly than other feeling states such as automatic affective responses (Baumeister et al, 2007) and still others use mood and emotion interchangeably without clearly defining either (De Dreu et al, 2008). For the purposes of this review, duration of the emotional state will not be a primary factor in defining emotion since, as Davis (2009) points out, a prolonged emotion can color rapid affective states and vice versa, making it difficult to distinguish between categories of affective experience based on length. Reflecting the lack of consensus in the literature, the words emotion, feeling, affective state, mood, etc. will be used

interchangeably to represent that experience.

Although duration is a problematic aspect when it comes to defining emotions, there are two other characteristics that are important and less controversial: (1) valence, which refers to direction, such as negative or positive and (2) intensity, which may also be called arousal level or hedonic tone and refers to the power of the emotion to induce action (Davis, 2009, De Dreu et al, 2008; Sas & Zhang, 2010; Yang & Hung, 2014). Valence and intensity interact to contribute to the texture of specific affective experiences; for example, elation would be an example of a positive, high-intensity emotion, while serenity would be an example of a positive but low-intensity state. Likewise, sadness would be a negative, low-arousal state while anger would be a negative, high-arousal state.

While emotion also influences many specific aspects of higher-order cognition that are important to designing (such as decision-making, interpretation of stimuli, judgment, etc.), it would be beyond the scope of this article to comprehensively cover all of these relationships. Instead, we believe it is more productive to concentrate on the parallel cognitive construct of creativity, which shares many commonalities with designing and designer cognition as outlined by Cross (2007; 2011) and others. As with the term emotion, creativity is not standardized in the research literature so this review has adopted Plucker & Makel's (2010) definition which describes creativity as the production of a novel and useful artifact within a particular social context. The mental activities that support creativity are have been identified as problem identification, idea generation, and evaluation (Davis, 2009) or more broadly as generative and exploratory processes that intertwine as ideas emerge and are refined through prototyping and evaluation (Kozbelt et al, 2010; Ward & Kolomyts, 2010). Designing involves the ability to engage in similar activities in pursuit of the design goal, which is the imagining and realization of a new artifact in a particular

problem/solution context (Cross, 2007; Cross, 2011; Visser, 2009). These mental tasks and actions include engaging with the uncertainty and constraints inherent in ill-structured problems; generating and evaluating ideas as potential solutions that illuminate the nature of the design problem; and honing perceptions of the design problem and potential solutions via external representations or prototypes (Cross, 2007; Cross, 2011; Dorst & Cross, 2001; Nelson & Stolterman, 2003). Thus, the generation and evaluation of ideas that lead to innovative outcomes are central to both creativity and design.

Overall, psychological research findings regarding emotion and creativity are mixed; many studies show a link between creativity and positive emotion, while many others associate creativity with negative emotion (Davis, 2009; Yang & Hung, 2014). A meta-analysis of 72 studies (62 experimental and 10 non-experimental) demonstrated that positive mood tends to be associated with improved creativity as a broad construction and with ideation activities specifically (Davis, 2009). Furthermore, when mood states were experimentally induced rather than organic to the participant, the effects of positive mood were even stronger. However, in all cases, the strength of the effect was dependent on the referent mood state. For example, the effects of positive mood on creative performance were stronger when compared a neutral mood than when compared to a negative mood (Davis, 2009). This may suggest that experiencing some level of emotional arousal – regardless of valence – improves creativity as compared to a neutral emotional position. On the other hand, mood did not seem to have an impact on creative problem-solving (in other words, when the task included an evaluative component in addition to idea generation), suggesting that (1) the role of emotion may be task-specific and centered more on ideation processes and (2) that the impact of positive and negative moods on performance may offset each other in creative problem-solving tasks that include generation and evaluation of ideas (Davis, 2009).

De Dreu et al (2008) specifically focused on the role of emotional arousal level rather than just valence (or direction) as was seen in the previous meta-analysis. In this context, creativity was aligned with ideation only and was defined in terms of fluency (the number of distinct ideas or insights generated about the problem) as well as originality (or novelty of the ideas or insights), but did not include an evaluative component (De Dreu et al, 2008). Ideation was seen as supported by cognitive flexibility, which is necessary in order to make novel associations between concepts, as well as cognitive perseverance, as persistence is needed to achieve fluency, or a high number of ideas or insights (De Dreu et al, 2008). Results indicated that high-intensity or activating moods – such as happiness, fear, excitement, and elation – enhanced fluency and originality versus low-intensity or deactivating moods such as calmness or happiness. Positive high-arousal moods were thought to influence fluency and originality via support for cognitive flexibility, while negative high-arousal moods were thought to be associated with greater cognitive persistence (De Dreu et al, 2008). This lens on emotions in creativity adds an additional layer to the findings of the previous meta-analysis by demonstrating that emotional arousal levels may be an important metric to consider in concert with valence, at least in relation to ideation processes.

A third perspective on this is seen in the work of Yang and Hung (2014), who investigated how positive and negative emotions commonly found in team environments (for example, hostility and companionate love or friendly affection) may influence individual creativity performance. This relationship was tested in an experimental setting that involved an induced emotion and an ideation task, as well as via a qualitative study of creativity in the workplace that included idea generation, evaluation, and implementation. Results demonstrated that negative emotions associated with team interactions (such as hostility or anger) supported creativity during idea generation and evaluation, while positive emotions hindered creativity in these tasks. On the other

hand, companionate love was found to be beneficial for the implementation of ideas, or realization of creativity, while hostility and anger were not found to be supportive during idea implementation (Yang & Hung, 2014). This work is important to potentially understanding emotion and designers, as it is more closely approximates their professional context than most experimental research and offers insight into the influence of group social processes on individual emotional states and creative performance. It also appears to align with the findings of De Dreu et al (2008), specifically that high-arousal emotions supported ideation in a collaborative setting while low-arousal emotions did not, even when the feelings were positive. This also is consistent with the implications of Davis (2009) that emotions may differentially affect different phases of creativity, as low-arousal emotions supported idea implementation processes.

As with the studies just discussed, most research on emotion focuses on single-mood states and thus may be masking ambivalent affective combinations that include mixtures of positive, negative, arousing, and/or deactivating emotions. Although research into ambivalent emotions and creativity is in its infancy, the work of Fong (2006) is a preliminary inquiry with findings that lend support to the potential role of ambivalent emotions in fostering creativity. In two experimental contexts, participants in induced states of emotional ambivalence performed better at recognizing unusual relationships, which is thought to be an important component of creativity. One potential explanation advanced by Fong (2006) is the idea that ambivalent emotional states are perceived as being an unusual state, which may allow participants greater sensitivity to unusual cognitive connections or associations. A recent theoretical piece by Moss and Wilson (2014) asserts that ambivalent emotional states may be the primary underlying mechanism for fostering or promoting creative thinking. They argue that a wide and seemingly disparate range of antecedents that have been associated with improved creative performance in the research

literature may share a core component of eliciting emotional ambivalence. They further propose that the effects of ambivalent emotions on creativity may rely on both the degree to which these emotional states are perceived as unusual as well as the character of the ambivalent emotions that are elicited prior to the creative insight. While the authors did not test these propositions themselves, they make a persuasive case for additional research on the relationship between emotional ambivalence and creativity.

While psychological research on creativity is an important foundation for understanding the relationship between designers' emotions and their design practice, it is important to address the limitations of this research in relation to design and designers. Many are experimental studies which involves laboratory settings and artificial problems, rather than meaningful, real-world design problems situated in authentic environments. While experiment research is crucial for investigating aspects of emotions and cognition that exist outside of biased human perception, it can be limited in its potential for generalization to real-world situations. As one crucial example, motivation to perform a creative task is likely to be much different in the workplace than in the lab. Furthermore, participants are generally not professional designers with specialized knowledge and experience as well as motivation for engaging in design, but instead are drawn from the general public. Finally, emotions in experimental research is usually induced by artificial means (for example, viewing film clips of writing about emotional experiences), while the emotions that designers experience are often organic responses to their design practice and its demands. While these differences limit the ability to generalize findings to design situations, they provide a reference point for exploring designers' emotions in their work.

Designers' Emotions during Professional Practice

As a brief background for this review, our interest in this topic was spurred by findings

from our research on reflective writing as a component of graduate education in instructional design (Tracey & Hutchinson, 2016). One consistent pattern that emerged from students' responses was actually an absence: it was common for students to either omit or pay only shallow attention to the emotional aspects of their written reflections, even when the relevant prompt specifically invited them to consider their own feelings. In an attempt to better understand the implications of this finding, we conducted a preliminary scoping review of literature that investigated designers' own emotions as they relate to their design work and its outcomes. The results of this initial review indicated that studies in this area was scarce but their findings suggested the possibility of an intriguing and fruitful new avenue for design research.

The next step was to conduct a systematic literature review with the goal of identifying and analyzing existing scholastic work that specifically investigates designers' personal emotions within the context of their professional practice. Because design research is interdisciplinary in nature—encompassing work that addresses the general design community and work that addresses particular fields of practice—we followed the approach to systematic reviews in interdisciplinary fields outlined in Borrego, Foster, & Froyd (2014). In line with other approaches, their process includes developing a rationale, identifying research question(s), identifying inclusion criteria, identifying source databases, and appraising the selected studies (Borrego et al, 2014).

As mentioned, our preliminary search indicated that this topic would benefit from a review both to synthesize extant findings and to provide direction for future research (Borrego et al, 2014). From this rationale, we sought to answer the following question: what influence, if any, do designers' personal emotions have on their design practice? Precise inclusion criteria were essential in extracting research that addressed designers' personal emotions amid the sea of studies that focus on users' emotions relative to design processes and artifacts. With this goal in mind, we

established the following criteria:

- The study conducted primary research on the emotions that designers themselves experience in relation to some aspect of their design practice.
- Participants must be professionals engaged in any practice that self-identifies as a design field; studies that focused on design students were not included in this review as we were primarily interested in emotional experiences during design work versus emotional experiences during learning processes.
- Design practice must refer to processes undertaken by designers in their work (such as ideation or decision-making) and/or the artifacts that result from these processes (such as products or user experiences).
- The study must be an article published in English in a peer-reviewed academic journal or conference proceeding.

Disciplines that may self-identify as being engaged in design are diverse, bridging the arts, sciences, and social sciences, and so it was particularly important to choose source databases that did the same. Web of Science (WOS) met this need quite well as it included the following indexes:

- Science Citation Index Expanded (SCI-EXPANDED), 1900-present
- Social Sciences Citation Index (SSCI), 1900-present
- Arts & Humanities Citation Index (A&HCI), 1975-present
- Conference Proceedings Citation Index- Science (CPCI-S), 1990-present
- Conference Proceedings Citation Index- Social Science & Humanities (CPCI-SSH), 1990-present
- Book Citation Index– Science (BKCI-S), 2005-present
- Book Citation Index– Social Sciences & Humanities (BKCI-SSH), 2005-present

- Emerging Sources Citation Index (ESCI), 2015-present

Translating the inclusion criteria into an effective word or phrase that would reliably preference studies about designers' emotions (over those focused on users' emotions) was challenging. Our target studies would necessarily discuss designers and emotions or some version of those words, but so would many others that did not fit our criteria. In order to err on the side of caution and not miss any qualifying work, we used the following search string within the topic and title fields: (designer* AND emotion*). No date ranges were specified, but results were limited to articles, books, book chapters, and conference papers. Thus, any relevant work included in the selected WOS indexes that used a form of the word "designer" (i.e., designer, designer's, designers, designers') and a form of the word "emotion" — in either the topic or the title — would be identified as a potentially relevant study. We considered including synonyms for the word emotion, but found that trial searches pulled too many irrelevant results. From a purely pragmatic standpoint, it would be difficult to write a meaningful paper about designers' emotions and never use this word as it is the broadest and most recognizable term for the phenomenon, thus we did not include synonyms such as feeling, mood, etc.

The initial results included a total of 572 studies including articles, book chapters and conference papers. Of these, a total of six studies were identified as meeting the criteria for inclusion, representing less than 2% of the search results. Almost all were excluded because of a focus on users' emotions rather than designers' emotions. A small number were also excluded because they investigated design students' emotional experiences; we believe that the learning context is qualitatively different than the context of professional practice and thus decided not to include design students in this review.

This WOS search was supplemented by an additional search in Google Scholar. Repeating

the same search string used in WOS yielded over 78,000 results in Google Scholar; this necessitated a more precise phrase as it was not possible to review that volume of articles. Instead, we searched using four related exact phrases (“designer emotions”, “designer emotion”, “designers’ emotion”, and “designers’ emotions”) which yielded three additional relevant studies that were added to our pool of articles. It should be noted that some works were included in both the WOS and Google Scholar results, so this figure represents only new studies that were added to the review. As a final tool, we used snowballing techniques to review references from and citations of included articles, and three further studies were identified using this approach. Thus, our final set of literature sources included 12 studies, comprising seven journal articles and five conference papers. Please see Table 2.1 for a listing of these studies including key findings of each.

Table 2.1: Articles included in literature review

Authors	Year	Title	Aspect of designing	Participants	Findings
Alexiou, K., Zamenopoulos, T., Johnson, J. H., & Gilbert, S. J.	2009	Exploring the neurological basis of design cognition using brain imaging: some preliminary results.	Neurological basis of design cognition during experimental tasks	Designers	An area of the brain associated with the integration of emotion and cognition showed greater activity during design tasks than objective problem-solving tasks
Bonnardel, N., & Moscardini, L.	2012	Toward a situated cognition approach to design: Effect of emotional context on designers’ ideas	Ideation and inspiration sourcing	Designers	Participants' searches for sources of inspiration could be manipulated by external affective cues, with positive cues leading to a greater number of inspiration sources.
Dong, A., Kleinsmann, M., & Valkenburg, R.	2009	Affect-in-cognition through the language of appraisals.	Affective communication during generative and integrative design activities in a team design context	Architects and engineers	Positive appraisals supported knowledge generation and momentum; negative evaluations during integration focused on technical details vs. general professional experience.
Hellström, C; Hellström T.	2003	The present is less than the future - Mental experimentation and temporal exploration in design work	Ideation and idea refinement	Product designers	Emotions were reported as being important for communicating their ideas to peers and for appealing to future users of their envisioned design

Authors	Year	Title	Aspect of designing	Participants	Findings
Hill, C., Hegde, A. L., & Matthews, C.	2014	Throwing in the Towel: Burnout among Practicing Interior Designers	Design career as a whole	Interior designers	Participants reported a moderate level of stress relative to other careers, although they scored high on cynicism and exhaustion. Burnout stress was reported more frequently by early-career designers than experienced peers.
Hsieh, H. Y.	2014	The Influence of the Designer's Expertise on Emotional Responses	General cognitive skills relevant to design	Novice, intermediate, and expert designers	Responses to visual stimuli varied based on level of design expertise. Experienced designers were more likely to rate stimuli as unpleasant, arousing, and submissive than other participants
Kim, J., Bouchard, C., Ryu, H., Omhover, J. F., & Aoussat, A.	2012	Emotion finds a way to users from designers: assessing product images to convey designer's emotion.	Evaluation of early prototype sketches	Product designers	Participants tended to have more positive emotional reactions to "good" sketches, but some did not include emotion in their evaluations
Ramírez, E. R. R.	2014	Industrial design strategies for eliciting surprise	Initiation of design process	Industrial designers	Among other strategies, participants reflected on their own emotional experiences as a source of motivation to engage in design.
Sas, C., & Zhang, C.	2010	Investigating emotions in creative design	Five phases of creative problem-solving	Designers	A wide range of emotions were reported; all design phases involved emotions, often in ambivalent pairings; emotional regulation is part of design work
Solovyova, I. (2003).	2003	Conjecture and emotion: An investigation of the relationship between design thinking and emotional content.	Ideation in an experimental design context	Architects	Emotional memories were a significant source of inspiration for participants
Strickfaden, M., Stafiniak, L., & Terzin, T.	2015	Inspired and Inspiring Textile Designers: Understanding Creativity Through Influence and Inspiration	Ideation during an experimental design project	Textile designers	Emotions were an important influence during ideation through participants' emotional responses to potential inspiration sources (including rejection and attachment).
Westerman, S. J., Kaur, S., Dukes, C., & Blomfield, J.	2007	Creative industrial design and computer-based image retrieval: The role of aesthetics and affect	Sources of inspiration for ideation	Industrial designers	Emotional inspiration is valued by designers and they will seek out and value imagery with affective elements.

In terms of overall themes, this set of articles suggests that designers experience emotions

during every phase of design practice; that they experience a wide range of emotions including ambivalent pairings; and that designers' emotions may be important influences on ideation, evaluation, and motivation to engage in designing. Although it involved a small pool of participants, the work of Sas & Zhang (2010) provides the most comprehensive look at the role of designer moods across the design cycle. Using Wallas' creative problem-solving framework to delineate five phases of design (preparation, impasse, incubation, intimation, illumination, and verification), results indicated that emotions are in play at all stages of design, although their frequency, intensity, valence, and character varied depending on phase. Taking a broader view of stress as a component of an overall design practice not limited to creative aspects, Hill, Hedge, & Matthews (2014) examined perceptions of burnout among interior designers and found they were moderate relative to other careers but that interior designers were the highest in terms of cynicism and second highest in exhaustion. While this does not tell us much about the specific influence or function of designers' emotions in their work, it does suggest that overall patterns of satisfaction and stress may also be an important avenue to consider.

Sas & Zhang (2010) is also a good starting point to consider the types of emotions designers may experience in their work. In their study, high-arousal emotions that were either positive (such as excitement, happiness, or enthusiasm) or negative (such as fear or frustration) dominated all design phases except incubation, which was associated with low-arousal states such as calmness or relaxation (often intentionally evoked by designers as a strategy for idea generation). In addition, the specific character of emotions tended to vary based on the design phase. As an example, during the preparation phase, when designers are initially defining and analyzing the design problem, enthusiasm was the most frequently mentioned and was followed by fear. When design progress had stalled during the impasse stage, which occurs in anticipation of an incubation period, fear and

frustration dominated the emotional experiences of the participants. Emotions were often found to emerge coupled in ambiguous pairs or sets, such as excitement and moderate fear (preparation phase) or frustration, fear, and relaxation (incubation phase), indicating that designers may likely experience conflicting emotional states at certain points in the design cycle.

As discussed earlier, both Yang & Hung (2014) and De Dreu et al (2008) found that high-intensity emotions supported ideation but they disagreed on the role of valence, with the former finding that high-intensity negative emotions were associated with ideation and the latter, high-intensity positive emotions. The difference in results may be due to differences in task context, which was strictly experimental in De Dreu et al (2008), while Yang & Hung (2014) situated creativity within a professional context. This conflict may suggest that real-world contexts for creativity are more responsive to negative, high-arousal emotions during ideation. In support of this, many participants in Sas & Zhang (2010) noted the need to regulate high-arousal positive emotions via negative emotions at certain points to forward the design – for example, moderating excitement with mild anxiety during ideation to remain engaged with the task or delaying feelings of enthusiasm near the close of a design to ensure the resulting intensity wouldn't interfere with completion. This is consistent with the work of Fong (2006) and Moss & Wilson (2014) on the potential importance of ambivalent emotions in creative cognition. Furthermore, several participants in Sas & Zhang (2010) acknowledged the need for emotional regulation and/or had strategies in place to accomplish this self-management in support of their design work. So emotions serve not only as a source of feedback but also as a potential source of regulatory control in response to the feedback they provide.

Other research on emotion and designers suggests that emotional states and experiences may play a specific role in ideation and other generative processes, often as a source of inspiration

for ideas. In one qualitative study, architects were presented with a haiku poem and asked to design a porch inspired by the poem while using a talk-aloud protocol to describe their processes; after the exercise, unstructured interviews were conducted with the goal of learning about their backgrounds and what they consider important about themselves (Solovyova, 2003). While specific details about findings were not well described in the study, the author offered several examples illustrating the importance of the architects' emotional memories (personal as well as professional) as a source of ideas and as an influence on decision-making in this task (Solovyova, 2003). Further investigation is necessary to explore this relationship, particularly in regard to the valence and arousal levels of emotions cited in memory-based design precedents. Several other studies identify emotion as an important source of or influence on ideation processes including research on inspiration sources (Bonnardel & Moscardini, 2012; Strickfadden, Stafiniak, & Terzin, 2015; Westerman, Kaur, Dukes, & Blomfield, 2007). Hsieh (2014) found that designers' emotional responses to visual stimuli, a typical source of inspiration, varied based on design expertise; experienced designers were more likely to rate stimuli as unpleasant, arousing, and submissive than less-experienced peers. Finally, in Hellström & Hellström (2003), participants described their emotions as being a crucial feature of emerging ideas, as well as being important in terms of communicating these ideas to peers and to shaping these ideas as visions of the future imbued with emotions that are appealing to users. Because design precedents are important fuel for the reflective conversation between the designer and the design problem (Cross, 2011; Tracey, Hutchinson, & Tracey, M.W., Hutchinson, A. & Quinn-Grzebyk, 2014), these findings underscore the importance of investigating how emotion shapes the sources and types of inspiration that designers incorporate in their ideation practices, and in turn how the emotional tone of designers' precedents influence design actions as well as design outcomes.

Continuing with the theme of emotion as an influence on ideation, a linguistic analysis of four design meeting transcripts identified that emotionally positive evaluative statements seemed to support knowledge generation (the development of problem understanding as represented by ideas or insights), while negative appraisals inhibited knowledge generation (Dong, Kleinsmann, & Valkenburg, 2008). Positive evaluative language was particularly associated with maintaining momentum during knowledge generation, which seems to align with Sas & Zhang's (2010) emphasis on the role of excitement (a positive-valence emotion) in maintaining motivation and engagement in the design space, a term used to describe the different activities (i.e., discover, define, ideate, prototype, test) conducted during design. During knowledge integration – or the synthesis of information that emerges from the knowledge generation stage, similar to exploratory aspects of creativity – negative appraisals were associated with technical details related to the specific design problem while positive evaluations usually referred to general knowledge and professional experiences in forming appraisals (Dong et al, 2008). In contrast to other studies, this analysis focuses more on how emotions are symbolically represented in team design situations via language in a social/professional context, rather than on designers' perceived experiences with emotions in these contexts. In this situation, the emotions of others may be acting as an affective feedback source, rather than (or in addition to) individual emotional states. It seems an important avenue to consider, given that most design activity involves team-based collaboration.

In their work on emotion in idea evaluation (akin to exploratory processes in creativity or knowledge integration as described above) Kim, Bouchard, Ryu, Omhover, & Aoussat (2012) conducted an experimental study designed to gauge professional designers' emotional reactions to a set of low-fidelity product design sketches for a vacuum cleaner. Participants rated the sketches based on a list of emotional and semantic descriptors while galvanic skin responses were collected

at the same time. Thus, both subjective emotional perceptions and physiological arousal data were collected and collated. Results indicated that the sketches that were highly rated in terms of design value (by a separate panel of design experts) elicited more positive emotions and higher arousal states in designer participants than those that were rated lower by design experts. This suggests that designers' emotional reactions to early prototypes may provide important intuitive information regarding the value of the prototype. However, some participants did not emotionally engage with any of the early sketches, instead preferring to choose semantic descriptors; this suggests that not all designers are primed to respond to affective cues in low-fidelity prototypes (Kim et al, 2012).

Finally, emotion as a source of motivation to engage in design also emerged as a theme in two studies. Sas & Zhang (2010) looked at the functional purpose that moods may play in design. Their results suggested that positive-valence feelings such as enthusiasm and excitement provided motivational momentum for participants, particularly during the preparation phase. On the other hand, negative-valence emotions, such as mild anxiety, appeared to be beneficial to participants. This was particularly true when coupled with positive, high-arousal states such as excitement – a combination that was supportive of idea generation activities for this group of participants. One possible explanation is that mild negative emotions serve to help regulate or contain high-intensity positive emotions (Sas & Zhang, 2010). In Ramirez (2014), industrial designers reported that reflecting on their own emotional experiences was an important source of inspiration for initiating design projects although the character of the involved emotions was not specified.

Finally, a study examining the neurological correlates of design activity provides tentative support for the idea that emotional experiences may be invoked during design-based tasks as a source of feedback for idea evaluation (Alexiou, Zamenopoulos, Johnson, & Gilbert, 2009). Functional magnetic resonance imaging (fMRI) was used to record brain activity of participants

(who were either formally trained in design and/or had experience working in a design discipline) while performing separate tasks related to design and problem solving. While this study was focused on neurological patterns of cognitive activities, one interesting finding emerged in relation to emotion. Regional activity during design tasks (which asked participants to meet subjective functional requirements) was compared to activity during problem-solving tasks (which asked participants to meet certain objective standards with no reference to function). Results indicated that the anterior cingulate cortex (ACC), thought to be involved with cognition (including executive functioning, attention, and response selection) as well as affective functioning, was engaged during design tasks at a much higher ratio than during simple problem-solving tasks.

Alexiou et al (2009) speculate that that the ACC may become involved because the design problem introduces uncertainty about what will be considered an acceptable solution. It was concerned with the functional arrangement of furniture to provide a comfortable atmosphere, while the problem-solving task involved arranging furniture to fit specific, objective conditions (such as placing the couch on the west wall). They both could have generated multiple solutions that would be considered correct or appropriate, but the design task required evaluation based on a subjective metric that includes an emotional element (the feeling of comfort). This may have triggered the activation the ACC in order to manage the emotional component of the situation, which was not present in the problem-solving task. However, it is important to recognize that results of the study are only one preliminary example of the phenomenon and that the proposed explanation is only one possible account for the underlying mechanism.

While the body of available research literature is small, initial results do suggest some interesting themes regarding designers' emotions as an important element of design practice, specifically the influence they may exert on ideation, evaluation, and motivation. Most importantly,

they highlight that emotions may wield a differential influence in professional design contexts than they do in the experimental literature of psychology, and thus deserve separate research attention. The studies presented here represent a small but interesting foundation, with a variety of methods and approaches (experiments, interviews, and linguistic analysis) that will be influential in the development of future research on designers and emotions; however, most subject pools were quite small and methods were often not adequately described, thus limiting the potency of the findings.

Directions for future research

Drawing from both psychology and design research, the studies presented here lend support for the idea that designers' emotions are present in and important to the practice of design and likely serve functional roles as sources of inspiration, feedback, and motivation. Obviously, much more research is needed to confirm or revise the initial themes that emerged from this research: that emotions are present in all phases of design (although they vary in frequency and character); that emotions are particularly influential during ideation; that emotions may serve as a source of feedback for designers; that emotions may serve a regulatory function for designers; and that they may serve as a source of motivation for designers. In particular, more work is needed to understand general patterns of emotional experiences and their expression (or external representations) during different phases of design as well as in different disciplines and differing levels of designer expertise.

Our understanding of designer emotions is in its infancy, so exploratory research is still needed to develop a preliminary foundation of knowledge. Elemental questions to be explored include: What emotions do designers feel? When do they feel them? This will give us an essential footing for more complex questions about emotional patterns and situational cues that elicit or influence designers' affective experiences. Sas and Zhang (2010) found preliminary patterns

linking particular emotions to particular design activities (for example, excitement and idea generation) as well as pairings of ambivalent emotion (i.e., excitement and anxiety); further research will allow us to confirm, refine, or revise this initial charting. Because the design space is defined by uncertainty, and because humans experience uncertainty as an emotional state (Tracey & Hutchinson, 2015), it will be particularly important to understand how designers respond to and are influenced by the emotional implications of uncertainty as a feature of the design space that may swell or recede (but is always present to some degree) as designers cycle through design iterations.

While subjective accounts of emotional states in the design space are extremely valuable (as only the individual can articulate their experiences of an emotion), they should be augmented with analysis of artifacts (such as meeting transcripts) and experimental research with practicing designers. Neurological methods, a novel avenue for design research, are another valuable source of objective information on the emotional processing that may underlie design activities. Two studies have investigated somatic tools for measuring designers' emotion via skin responses (Giannoulis & Sas, 2013) and body posture analysis (Behoora & Tucker, 2015) which may prove useful in future research as well as practice. Since they did not investigate designers' experiences of emotions but rather the measurement of emotion, they were excluded from the review but merit mentioning as potential tools for data collection.

Baumeister et al's (2007) model of emotion, thought, and behavior positions emotion as a feedback source for cognition and behavior, and preliminary research described here supports feedback as a potential function of emotion in design. In other words, designers may use their emotions to guide and shape the way they think about and respond to the design problem via idea generation and evaluation as well as how they engage with peers during collaborative design work.

There are also suggestions that affective experiences can serve as regulatory function, both in terms of motivation (sustaining cognitive and behavioral momentum) as well as in terms of limiting or permitting emotional expression in service of professional design goals (Sas & Zhang, 2010). Finally, intuition may also be an important lens for understanding emotion – particularly automatic affective responses or gut feelings – as intuition is thought to integrate affective, somatic, and cognitive influences outside of the awareness of the conscious mind (Hodgkinson, Langan-Fox, & Sadler-Smith, 2008) and is also frequently mentioned by designers as being important to their practice (Cross, 2007; Cross, 2011). Much more research in this area would be needed to understand under what conditions emotional responses reflect or contribute to designer intuition. Whether emotions contribute to feedback to conscious or unconscious thought, in both cases there is a need for further exploration of the function(s) that designers' feelings might play in the design space, enhancing or constricting design cognition and action. The question that naturally arises from this is what impact might emotions have on design outcomes via their functional role in the design space?

While it will also be important to continue to develop our understanding of how emotional states in and of themselves influence designers and their actions, it will also be necessary to address how designers manage their emotional states in service of design goals. Designer emotional regulation emerged as a theme in the work of Sas & Zhang (2010), and the theory of emotional labor as outlined by Grandey (2000) may provide a useful approach for understanding how emotions and their expression are managed (and likewise, what their functional purpose might be) in the design space. This theory positions emotional labor as the regulation of both feelings and their expression in pursuit of professional goals or organizational expectations. While the idea of emotional labor has traditionally been a framework for considering emotional action in customer

service professions, which involve overt and significant expectations regarding emotional regulation and performance, the work of Grandey (2000) allows for the extension of this to professional contexts in which emotional states are more covert but still meaningful to performance and outcomes. In particular, this approach highlights the need to consider the expression of emotion as a construct that is dependent on but conceptually distinct from the experience of emotion, as was alluded to in the linguistic analysis research performed by Dong et al (2009).

Likewise, given that design work often occurs in team settings and/or requires collaboration, it will be important to extend research to capture how socially-generated emotions in team contexts influence designers and design outcomes. Since preliminary results in a general professional context suggest that emotions driven by group interactions influence creative activities (Yang & Hung, 2014), it will be important to broaden the scope of research on emotion and design to include the affective influence of social interactions and collaboration on individual and group design activities and outcomes as a contrast to investigations of designers' emotions in socially-isolated work.

Finally, it will be important to circle back to the perspective of individual designers: How aware are they of their emotions in the design space? What narratives do they tell themselves or others about their affective experiences as they intersect with their professional activities? What role do emotions play in professional identity for designers – what does it feel like to be a designer and how do emotions shape the way designers experience their professional selves? And for design educators who are charged with helping students develop professional identity, what types of experiences help emerging designers reflect on emotions and integrate emotional insights into their work and their identity? We have found in our own work that graduate design students have

struggled to integrate emotional aspects in reflective writing on professional identity topics, and these findings have spurred curriculum changes to better support students in exploring affective concerns as a part of professional identity development. However, much more research is needed to understand the intersection of emotions, designer identity formation, and ongoing identity refinement and maintenance.

As a final note, we believe that the importance of users' emotions to the design process and to the success of design outcomes necessitates greater knowledge of designers' emotions in their practice. Empathy, the ability of the designer to understand the cognitive and emotional states of the user, has been the subject of a growing body of work that addresses how designer empathy improve design outcomes (Koupric & Visser, 2009). While empathy is best considered an affective and cognitive skill or capacity rather than an emotional state on its own, an understanding of one's own emotional self is a crucial underpinning of empathy and thus designers may be better able to engage in empathetic design when they are aware of and appreciate their own emotions relative to their design practice. We believe that broad and deep inquiry into the affective experiences of designers holds the potential to fortify and advance design research discourse, and we hope that we have outlined a compelling rationale and thought-provoking agenda for future research on this topic.

CHAPTER 3 RESEARCH METHODS

Introduction

This study was a phenomenographic investigation of graphic designers and their conceptions of emotional experiences as they relate to design ideation in their professional practice. Based on data gathered from interviews with fifteen graphic designers, the goal of this project was to identify distinct categories representing qualitatively different ways that participants conceptualize emotions associated with ideation processes and outcomes via reflective narration. This section will describe phenomenography as a research method, then provide detail about the study's participants, data collection, data analysis, researcher identity, and reliability and validity.

Phenomenography

Phenomenography is concerned with participants' subjective perceptions and interpretations of aspects of reality (Marton, 1981; Marton, 1986; Marton & Booth, 1997). This approach was appropriate to the goal of the study, which was to identify and explore how designers perceive and understand their emotions in relation to their professional practice. Phenomenography is intended to uncover the variety of meanings that individuals construct in relation to the phenomena that they experience (Marton, 1981). Thus, meaning to a phenomenographer arises from the interaction between a person and their experience rather than residing in one or the other (Marton, 1986). The outcome space of phenomenographic research is a set of categories that are exclusive of each other and represent distinct ways of understanding a phenomenon (or aspects of a phenomenon). Furthermore, these categories are independent of individual participants; in other words, a particular participant may move between different categories of understanding over time (Marton, 1986). Finally, phenomenography does not provide causal explanations but rather maps the territory of potential ways of understanding that a

particular group of people might assign to a particular phenomenon (Marton, 1986).

Although often viewed as an offshoot of phenomenology, phenomenography seeks to ask and answer quite different questions and shouldn't be considered a subordinate research approach. Phenomenology is concerned with identifying and describing the essence of a phenomenon, while phenomenography seeks variation in the way people experience a phenomenon through identifying structurally different conceptualizations of meaning that emerge from discourse or other data, with interviews typically serving as the primary data collection method (Larsson & Holmström, 2007; Marton, 1981; Marton, 1986). Larsson & Holmström (2007) demonstrated this when applying phenomenographic and phenomenological analysis techniques to the same set of anesthesiologists' narratives about their work. The researchers found that the resulting findings were much different, with the phenomenographic approach resulting in four distinct ways of understanding the professional role, while the phenomenological approach resulted in a set of essential tasks required of all anesthesiologists regardless of how they conceptualized their work (Larsson & Holmström, 2007).

Phenomenography originated in research on education and student learning in the late 1970s (Marton, 1981) and has since become an established research approach in the qualitative tradition that continues to evolve in its theoretical and methodological tenets (Åkerlind, 2012; Marton & Booth, 1997; Pang, 2003). In addition to its use in educational research on learning, it has also been applied to human understanding of phenomena in occupational settings and daily life (Adams et al, 2011; Ashworth & Lucas, 2000; Daly, 2008; Marton & Booth, 1997; Pang, 2003). In terms of its use in design research, two phenomenographical studies that were influential on this research project include an exploration of how designers in different disciplines define design (Daly, 2008) and an investigation of design students' emotions in studio courses (Austerlitz, 2007).

As mentioned previously, the outcome space of a phenomenographic analysis is a set of categories that represent fundamentally different ways participants conceptualize an aspect of reality (Åkerlind, 2012; Larsson & Holmström, 2007; Marton, 1986; Marton & Booth, 1997). Åkerlind (2012) and Marton & Booth (1997) delineate three criteria that should be used to evaluate the quality of this outcome space:

- (1) Each category is distinct from the others with clear boundaries for inclusion and exclusion; no examples should be able to fit in more than one category.
- (2) The categories are logically related and arranged in some way. This often takes the shape of a linear hierarchy moving from less comprehensive to more comprehensive but this is not the only structural relation that is possible. For example, branching arrangements are often found and are perfectly acceptable for describing the relationship among categories (Åkerlind, 2012).
- (3) As few categories as necessary to represent all variation are included; parsimony is an important characteristic and indicates that analysis has been rigorous and thorough.

Like many qualitative approaches, phenomenography takes an iterative approach to data analysis, with the goal of continually refining interpretations and categories until the above criteria are satisfied; as noted in Åkerlind (2012), this process can involve anywhere from a few rounds to over a dozen, depending on the nature of the transcripts and other data. It is also important to note that the interpretive focus is on the collective rather than the individual; in other words, it is intended to identify and classify the range of meaning in the group rather than the range of meaning in each participant's interview.

In this project, phenomenography was used to uncover themes emerging from graphic designers' perceptions of their emotional experiences as they relate to idea generation in their

professional practice, with a focus on identifying differences in the way designers perceive, understand, and assign meaning to their emotions in relation to design ideation, the phenomenon in question. The research process was carried out by me as a solitary researcher, as it is both possible and common to engage in high-quality phenomenography as a researcher working independently (Åkerlind, 2012). The remainder of this section discusses participants, context, data collection, data analysis (including preparation and interpretation activities), research outcomes, researcher identity, and reliability and validity.

Participants

This study focused on design professionals engaged in graphic design, a field concerned with solving design problems that involve visual communication (AIGA, 2016; Frascara, 2006). Graphic design was selected as a field of interest because (1) it self-identifies as a creative design profession (AIGA, 2016; Frascara, 2006) and (2) it has historically emphasized the importance of individual visual style or artistic intuition in the design process (Frascara, 2006). Because this emphasizes the role of the designer's personal aesthetic in the success of the design solution, it suggests the potential for higher emotional involvement as the designer's self is more directly invested in the ideas and outcomes they generate.

Participants were recruited from the metropolitan area surrounding Detroit, Michigan (defined as including Macomb, Oakland, and Wayne counties), as well as the city of Chicago, Illinois; both are located in the Great Lakes region of the United States. The metropolitan Detroit area and the city of Chicago are racially, ethnically, and economically diverse, which supported the project's goal of achieving variety in participant selection. Recruitment took place via the my existing professional relationships; through online professional gathering sites such as LinkedIn and Behance; through flyers posted at local coffee shops; and through referrals from other

participants. Once a potential participant was identified, they were contacted via email (see Appendix A for the email template), with subsequent contact via email, text, or telephone according to participants' preferences.

A purposeful sample of 15 graphic designers was recruited to take part in the study, which is a number considered appropriate to achieve the necessary variety of perspectives sought by phenomenography (Marton, 1986). In terms of selection criteria, participants were required to have at least five years of experience in graphic design and be willing to discuss a recent or memorable completed graphic design project where they had primary and solitary responsibility for ideation. The reasoning for this is to exclude those whose ideation tasks primarily take place in group settings, as the emotions surrounding ideation in collaborative group settings likely represent a different phenomenon that is more directly or differentially influenced by social interactions than the affective experiences associated with ideation in more solitary settings. While it will certainly be valuable to study these emotions in group ideation in future research, it was outside of the scope of this study to do so. All participants included in the study met the initial criteria for work experience and willingness to share a specific project where they had primary and solitary ideation responsibility.

In order to cultivate the necessary variety of perspectives in the data that is appropriate to phenomenography, participant selection was guided by diversity in gender; years of experience in the field; racial or ethnic background; and professional specialty. As to the last point, it is not uncommon for graphic designers to specialize in a particular area (i.e., print design, environmental graphics, or identity graphics), while others may have a more generalist orientation (AIGA, 2016). Thus, a range of professional contexts and design specialties were sought among potential participants.

Fourteen participants were located in Detroit or surrounding cities (including Hamtramck, Troy, Ferndale, Huntington Woods, and Southfield), while one was located in Chicago. Table 2 outlines the key characteristics of participants relative to current professional role, gender, racial/ethnic background, design education, years of design experience, and typical design projects. In terms of work contexts as indicated by current professional role: four designers worked independently; three worked for universities; four worked for media or marketing firms; one worked for a large art museum; and one for a large automotive company. Participants were fairly evenly split in terms of gender, including eight women and seven men.

Fourteen participants had formal education in visual design with either a Bachelor of Arts or Bachelor of Fine Arts in graphic design, an allied field such as industrial design, or in fine arts such as fiber and textiles. One participant did not have formal training in the graphic design but had thirty years of professional experience and reported that he was largely self-taught through on-the-job experience; he is currently pursuing a Bachelor's degree in Art History. Years of experience in the field ranged from 5-6 years (four participants) to a high of 30-33 years (two participants). Finally, in terms of typical projects, many participants concentrated on branding, websites or other digital products, print design, user experience, or some combination thereof. Three were former or current screen printers, including two designed their own lines of products for retail sale in addition to freelance web and print design work; several others mentioned art practices such as textile arts, photography, or paper crafting in addition to their design jobs.

Table 3.1: Study Participants

ID	Current Role	Gender	Education	Years in Field	Typical projects
D1	Art director at marketing company	M	BFA	22	Branding, advertising campaigns
D2	Independent graphic designer	F	BFA	6	Websites and bookmaking
D3	Graphic designer for urban research university	M	BA	7	Print-based design work (flyers, magazines, branded merchandise)

D4	User experience designer at large automotive company	F	BFA	6	Websites, user interface
D5	Graphic designer at a private media arts college	M	Self-taught	30	Online and print promotional materials, illustration
D6	Owner of a small graphic design firm	M	BFA	5	Branding and communications design
D7	Independent graphic designer	F	BFA	33	Print materials, (identity/logos, newsletters, brochures, annual reports).
D8	Graphic designer for urban research university	M	BFA	15	Branding, concepts and websites
D9	Environmental graphic designer for a major art museum	M	BFA	18	Environmental/large scale graphics for art exhibitions
D10	Graphic designer at a media company	F	BFA	5	Websites, mobile applications, powerpoints, e-learning courses, branding, various print materials (posters, annual reports, etc.)
D11	Graphic designer at a media company	M	BA	8	User experience design, user interface design, illustrations, graphic design
D12	Graphic designer at a media company	F	BFA	12	Websites, digital ads, print work (brochures, presentations, business cards and reports)
D13	Independent art director	F	BA	14	Primarily websites and branding/identity; some online ads and banners, conference flyers and banners.
D14	Independent graphic designer	F	BFA	9	Graphic design for direct mail printed marketing, and custom logo design and screen printing; screen printed home decor items for local retail sale.
D15	Independent graphic designer	F	BFA	14	Branding for small or start-up businesses, screen printed t-shirts and other retail goods.

Context

Interviews took place at participants' workplaces or other neutral sites of their choosing (such as coffee shops or a university student center). Participants were encouraged to choose a site that was both comfortable and convenient for them. Situating interviews in work contexts allowed participants access to environmental cues that may have them more readily access memories and insights related their experiences with project-specific ideation. On the other hand, granting participants agency over interview sites (including the option to choose a neutral site) was intended to make them feel more comfortable discussing potentially sensitive issues relating to emotions by allowing them to choose the interview context. Seven participants elected to conduct the interview

at their workplace (including two which occurred at home offices) while seven opted for a neutral location as the interview site. Among these seven, two were independent designers that scheduled their interview at coffee shops they frequently used to perform their own work and to socialize. One participant was interviewed via Zoom video conferencing software; she was in her home office in Chicago for the interview call.

Data Collection

Primary data collection was conducted via semi-structured interviews that ranged from approximately 30-80 minutes. Prior to conducting the interview, participants were provided with an Informed Consent Sheet (see Appendix B) that describes the nature of the study as well as the potential risks and benefits to participants. Signed copies of the consent form were collected prior to the interview commencing. They also completed a brief online survey (see Appendix C) prior to their interview to gather basic information regarding their professional background and experience. The interviews were conducted by me and the audio portion of all interviews were recorded using an iPad and a digital audio recorder application (or via teleconferencing software in the one instance the interview was conducted remotely). In addition, I took notes on key content from the participants' responses as well as other communication and situational factors such as body language, response style (i.e., does the participant answer quickly or take time to reflect?), and details of the physical location of the interview. However, when the participants' non-verbal cues indicated that note-taking was distracting to them, this activity was minimized in order to preserve the flow of conversation and engagement. I also added reflections to a research journal that I kept when they emerged after the interviews were completed and while data was being reviewed.

The intent of the research interview was to ask participants to describe and explore their

perceptions of their emotions related to ideation, using a recently completed or highly memorable graphic design project as an anchor or entry point. This was meant to provide participants with a context for reconstructing actual emotional experiences and perceptions, rather than relying on potentially inaccurate generalizations or characterizations of what they think they would feel. Participants were also asked to provide design artifacts including draft or finished work product(s) related to the design problem as well as other examples of their work as they were comfortable or able to share.

As mentioned, interviews followed a semi-structured protocol as outlined in Appendix D. Interviews began by confirming consent to participate, reviewing the participant's survey responses, and briefly introducing myself and describing my prior experience as a graphic designer. This was an important consideration in the interviews as it indicated that I would have some understanding of the vocabulary and concepts particular to the field. Once the introductory conversation was completed, the interview protocol included four primary aspects: (1) description of a recent or memorable completed graphic design project; (2) discussion of initial ideation efforts for this project; (3) discussion of the key idea or insight that represented the most significant turning point in the design process; and (4) general discussion of emotion and ideation to follow up on any issues that needed further clarification. Appendix D provides a general outline of these four general aspects with lists of possible prompts relative to each.

Although the protocol was used as a general starting point for individual interviews as well as to introduce a measure of consistency across interviews, it should be emphasized that the purpose and intent of the interview was not to ensure that each point on the protocol was addressed by every participant but rather to provide an entry point to delve into their own subjective understanding of the topic in question (Ashworth & Lucas, 2000). In many cases, participants

brought up design projects or experiences other than the anchor project originally identified; in these instances, the interviewer encouraged them to go in the direction that felt most meaningful to them and asked them to contrast their experience with the anchor project when appropriate. At the end of the interview, I reviewed the protocol and returned to any major topics that were missed or merited revisiting, and also invited participants to address any other factors or experiences that hadn't been covered.

Data Analysis

Preliminary transcript preparation. Preliminary transcript preparation was the first step in data analysis. First, audio recordings of each interview were uploaded to the my computer in a secure, password-protected Dropbox folder. From there, they were converted from .mp4 audio files to .mov video files in iMovie software. This included pairing them with a neutral image along with enhancing the audio tracks as necessary to minimize background noise and to make the participants' voices as clear and intelligible as possible. Then the resulting iMovie projects were uploaded to my YouTube channel and marked as private videos that could only be viewed by me when I was securely logged into the account. The rationale was to take advantage of automatic transcription services provided by YouTube for videos uploaded to the site. While the transcripts generated by the site are not consistently accurate, they were used as the basis for developing more refined transcripts and data coding as an adjunct to repeated review of the audio recordings themselves. Using YouTube also allowed for easy review of pertinent sections of the audio which contributed to the data analysis process through improved efficiency and connection to the participants' actual words.

The YouTube-generated transcript for each interview was downloaded from the site and imported into a Word document for further refinement and review. I listened to each interview

once all the way through to gain an overall impression of it, then a second time while reviewing, notating, and editing the transcript with pauses as necessary to complete these tasks. In addition to transcribing the language of the interview, the transcript was noted to reflect emotional expressions and emphases of the participants – such as tone of voice, volume of voice, laughter – in order to achieve a more accurate representation of the responses as suggested by Ashworth & Lucas (2000). Passages in the transcripts that specifically described perceptions or experiences related to emotion were highlighted and linked to the corresponding timestamp in the YouTube file. This allowed me to easily review the corresponding audio clip to verify intonation and other pertinent clues from the spoken language itself. In addition to my notes, I included the participant's survey responses at the top of each transcript file to provide further information and context, as well as links to the participant's website, online portfolio, company, or link to the specific project they discussed when available. This facilitated centralization of all participant data in a single document for each participant and provided a basis for initial transcript interpretation.

Individual interview syntheses. The next phase of data analysis involved preparing a synthesis of every interview with the goal of identifying, integrating, and summarizing the key perceptions from each transcript that addressed emotional experiences and perceptions that were specifically linked to idea generation for the participant. As Åkerlind (2012) discusses, this is an area of variation within phenomenographic practice; some researchers only consider transcripts as a whole while others identify chunks of meaning in the transcript and focus their analysis on those utterances alone. An important argument in favor of the latter approach is that it can improve the clarity of meaning in the final categories, as understanding may change for an individual even within their own interview yet each instance of meaning-making is still valid (Åkerlind, 2012). When the transcript is considered as a whole, some meanings may be privileged while others are

discounted or lost in the final analysis. Considering utterances rather than whole transcripts can also support a focus on the collective level of data and improve manageability of the process (Åkerlind, 2012).

In light of these issues, this project took the approach of selecting and synthesizing resonant, meaningful utterances from each transcript rather than attempting to assign one meaning to the entire transcript. As mentioned previously, any passage addressing emotions was highlighted and briefly summarized in each transcript. For this phase – interview synthesis – these passages were reviewed to eliminate those that were not related to ideation. It should be noted that several participants discussed emotional experiences that were related to their work generally or to an aspect of graphic design that wasn't directly relevant to idea generation. Thus, an important outcome for this analysis phase was to focus the interview summaries on relevant passages. For a passage to be related to ideation, it needed to reference or relate actual ideation processes themselves, some sort of antecedent event that directly related to ideation, or to consequences of ideation. For example, an antecedent of ideation might be first hearing about a design project while a consequence of ideation could be seeing an idea in fully realized form.

It should also be noted that, for this group of participants, ideation is a diffuse activity as well as a discrete phase of their design work. For example, while all participants described specific ideation phases early in the project generally intended to come up with conceptual ideas, they all also described smaller and ongoing ideation tasks that were embedded in the design work required to realize a chosen concept. Both types of ideation activities (larger conceptual ideation as well as small-scale embedded ideation) were considered relevant to this study and marked for inclusion in interview syntheses.

Given the nature of phenomenography, which relies on participant perspectives to supply

themes and meaning, it is neither possible or advisable to go into the project with pre-determined categories for coding or analysis (Åkerlind, 2012; Marton, 1986; Marton & Booth, 1997). At the same time, my prior experience with and knowledge of the phenomenon suggested some possible avenues of meaning-making; for this project, these included key themes from the literature review such as emotional memories, uncertainty, motivation, or ambivalence. However, as I approached data analysis, I was careful to not rely on this knowledge and instead aimed to set aside preconceptions, to seek examples that ran contrary to my own experiences, and to avoid foreclosing too early on while sorting and categorizing responses (Åkerlind, 2012; Marton, 1986; Marton & Booth, 1997).

Once relevant passages were identified and verified in each interview transcript, they were interpreted within the individual context with reference to other statements from the interview, survey results, design artifacts or field note observations as appropriate. The final step for this phase was to synthesize and document these higher order interpretations for each participant with summary statements representing all distinct yet salient perceptions that emerging from the synthesis for each participant. Finally, each summary statement was coded with the participants' ID as listed on Table 2 and added to a master file of perceptions. They were then printed and shuffled for preliminary sorting.

Statements were then manually sorted into the initial set of structural categories that would, through an iterative process, become the final structural categories required by the phenomenography outcome space. The decision to manually sort the categories was in part inspired by the participants themselves, many of whom emphasized the importance of working with physical representations during their own ideation processes rather than solely relying on computer-based work. Performing a manual sort of the summary statements allowed me to gain a

new perspective on them and to feel more freedom to experiment with different ways of categorizing them. The categories that emerged during each of the three iterations of sorting and category development are described in the following subsections.

First iteration of outcome categories. The first iteration of categories represents my preliminary attempt to sort the summary statements into structurally distinct categories that represented distinct ways of understanding emotional experiences associated with ideation. It is presented in Table 3.2.

Table 3.2: First Iteration of Structural Categories

Category	Description
1	Emotional signals are an important component of idea evaluation. However, these signals are often experienced as intuitive, muted, and/or difficult to articulate. Yet they are often key to decisions that move ideas forward and may evoke relief or excitement as an emotional response.
2	The context of the design project including client relationships and/or the degree of constraints influences emotional attitude about the project in general and ideation in particular.
3	Recognition of emotional patterns over time is an important catalyst for growth as a designer.
4	A state of calmness or comfort emerges during ideation.
5	Navigating personal attachment to ideas is an important emotional process during ideation.
6	Engaging in idea generation elicits ambivalent, high arousal emotions although patterns of emotions vary by designer.

This initial attempt at categorization allowed for the categorization of the set of synthesized summary statements, but felt incomplete. In particular, they seemed to capture only shallow aspects of the participants' experience and failed to reflect some of the complex processes that emerged from many of the interviews. When reconsidering the categories, I realized that many of them seemed more appropriate to a phenomenological approach instead of a phenomenographic approach – in other words, some categories seemed to describe the phenomenon of emotions during ideation rather than accounting for the participants' understanding of those emotions.

As one example, Category 6 (“Engaging in idea generation elicits ambivalent, high arousal emotions although patterns of emotions vary by designer”) seemed more focused on reporting attributes of the phenomenon (i.e., what kinds of emotions they experienced) instead of shedding light on how participants experienced and understood these feelings, which varied considerably. This is in contrast to Category 1, which described a pattern of functionality to emotional signals that moved beyond identifying what these emotional signals are, or Category 3, which highlights how participants understand the impact of recognizing their own patterns. Category 4 was problematic as well, since the wording implied that the state of calmness emerges on its own, while some participants specifically strived to achieve or maintain this state. Thus, for the second iteration of structural categorization, I re-sorted the synthesis statements with the aim of focusing solely on underlying patterns of understanding rather than solely describing the surface of the phenomenon itself. The results are described in the next subsection.

Second iteration of outcome categories. The second set of structural categories was strictly focused on describing patterns of understanding and resulted in the reconsideration of Categories 2, 3, 4, and 5; the elimination of Category 6; and the addition of two new categories, for a total of seven structural categories that are conceptually distinct. These are described in Table 3.3 below.

Table 3.3: Second Iteration of Structural Categories

Category	Description
1	Generalized emotional signals are an important component of idea evaluation and are typically experienced as intuitive, muted, and/or difficult to articulate. Yet they are often key to decisions that move ideas forward and may evoke secondary emotional responses such as relief or excitement.
2	Goodness of fit between the designer and the project influence general feelings about ideation as well as specific emotional feelings during ideation. Elements such as ethical alignment, relationship with the client, and/or project constraints influence the designer’s perception of this fit.
3	Reflection on emotional patterns over time is an important component of

	professional growth.
4	Engagement with ideation elicits high arousal emotions but these are incidental to the designer.
5	Engagement with ideation elicits high arousal emotions that the designer manages by introducing restriction or structure.
6	Engagement with ideation elicits primarily high-arousal emotions that the designer manages by seeking or reaching a sense of calmness.
7	Engagement with ideation elicits high arousal emotions that the designer manages by seeking feedback from peers.

This iteration of structural outcome categories better captured the nature of participants' understanding of their emotional experiences beyond the surface details of the emotions themselves. At this juncture, it was possible to sort all summary statements into a single category, strengthening the claim that categories were conceptually distinct from each other. Category 2 was reworded to emphasize the perceived goodness of fit between the designer and the project along important dimensions such as their relationship with the client, the constraints inherent in the project, or their ethical alignment with the project. While this will be described in more detail in Chapter 4, it should be noted that there was no singular template for a good project fit that was applicable to each designer; rather it was the integration of the designer's personal needs with the project and its context that influenced their feelings. Thus, goodness of fit was positioned as the focus of the category. The previous Category 5 from Table 3.2 (Navigating personal attachment) was subsumed under Category 2, as it relates directly to the constraints of the project itself. In other words, this category related more to goodness of fit between designer and project in terms of how much personal investment was allowed and how much was desired. The wording of Category 3 was slightly changed to emphasize that reflection on emotional patterns was a necessary condition (in addition to recognizing them) to foster a sense of professional growth.

From Table 3.2, Category 4 and 6 were eliminated and participants' understanding of how they respond to and/or manage high arousal emotions when engaging in ideation were recast as

Categories 4-7. These categories address strategies to manage high-arousal emotions during ideation including not attending to them, introducing elements of structure or restriction, seeking or maintaining a sense of calmness, and seeking external feedback,

Third iteration of outcome categories. The final task necessary to complete the identification of the structural categories that serve as the outcome space for phenomenography is the development of a hierarchy or ordering of the categories to develop an understanding of how they relate to each other. Table 3.4 below presents the categories reordered into a linear progression that roughly corresponds to the progression of a typical design process.

Table 3.4: Final Iteration of Structural Categories

Category	Description
1	Goodness of fit between the designer and the project influence general feelings about ideation as well as specific emotional feelings during ideation. Elements such as ethical alignment, relationship with the client, and/or project constraints influence the designer's perception of this fit.
2	Engagement with ideation elicits primarily high-arousal emotions but these are incidental to the designer.
3	Engagement with ideation elicits primarily high-arousal emotions that the designer manages by seeking or reaching a sense of calmness.
4	Engagement with ideation elicits primarily high-arousal emotions that the designer manages by introducing restriction or structure.
5	Engagement with ideation elicits primarily high-arousal emotions that the designer seeks to manage by inviting feedback from peers.
6	Generalized emotional signals are an important component of idea evaluation and are typically experienced as intuitive, muted, and/or difficult to articulate. Yet they are often key to decisions that move ideas forward and may evoke secondary emotional responses such as relief or excitement.
7	Reflection on emotional patterns over time is an important component of professional growth.

Thus, the first category addressing the general emotional tone or mood with which the participant approached the project and how that is established by the goodness of fit between the designer and the project. Categories 2-5 describes four patterns of addressing high-arousal emotions during ideation, moving in a direction from passive (minimizing attention to them) to

increasingly active (seeking a general state of calm, intentionally introducing structure or restriction, and finally inviting feedback from others outside the ideation space). Chapter 4 provides thorough descriptions of each category and its boundaries that are illustrated by quotations from the participants themselves. Chapter 4 also explores the structural relationships among the categories themselves to establish how they differ and how they relate to each other.

Researcher identity

In the interest of acknowledging and understanding how my identity may have influenced the project, a brief summary of my educational and professional background follows. My academic background includes an undergraduate concentration in psychology and Master of Education in educational psychology, along with significant coursework in instructional design and experience conducting qualitative research on design and design education. Although I have no formal training in graphic design, I have worked as a graphic designer since 2000. Initially this work was performed in-house for a global construction corporation and continued in a freelance capacity for the last fourteen years. My professional focus has never solely focused on graphic design as my primary expertise is writing; however, my design work has constituted up to 50% of my workload for large stretches of my career. Typical projects include identity and branding (such as logos, letterhead, etc.), web design, and marketing collateral (such as brochures, advertising, and long-form documents). I also teach a graduate-level course in Message Design for the Learning Design and Technology program at Wayne State University, which covers content on using graphic design principles to develop learning materials and messages.

As I planned and conducted this research project, I recognized that this background represented both an asset as well as a potential liability. For example, my background as a graphic designer allowed me to understand the language and concepts that my participants used as well as

many of the issues they faced, but it was also important for me to bracket my own assumptions about graphic design processes as well as my own responses to them. Failing to do this would have impeded my ability to enter the participant's world and thoroughly explore the meanings they create around their experiences. However, because graphic design has been a small part of my professional work for the past four to five years, this allowed me an opening for verifying my interpretations of participants' language and description of their practices.

Likewise, my academic background might have led either to a greater sensitivity to entering participants' world or to assumptions regarding how people experience emotions or how designers do or should think about their emotions. Although the emotions included in participant narratives did not end up being highly charged, it was nevertheless important to be sensitive and empathetic to those participants who may have a difficult time discussing their feelings with someone they've just met. Starting each interview with a brief discussion of their survey results and a few words about my background served as a useful way to build initial rapport before delving into the interview protocol. I also started interviews by emphasizing that the goal of the project was to capture a range of perceptions and experiences, and that there was no right or wrong response. This was intended not only to help participants feel comfortable sharing but also as a reminder to myself to remain receptive to participants' experiences that may differ from my own expectations.

Reliability and Validity

Qualitative research in general always contains an element of researcher bias that influences reliability and validity, and phenomenography is no exception. Because phenomenography is often carried out by individual researchers, as was the case with this study, it is important that the researcher maintain transparency in terms of data collection and analysis

(specifically the logic used to construct categories) as well as fidelity to the actual words of participants as evidence of category descriptions as these are steps that can improve the reliability of the findings (Åkerlind, 2005). I have attempted to achieve this in by using a consistent framework for interviews; by seeking examples in the interviews and in the resulting data that ran contrary to my own experiences or preconceptions; by delaying categorization processes until I achieved a deep familiarity with the data; by documenting several iterations of category development and seeking exceptions or borderline cases to test category stability and boundaries; and by anchoring all category descriptions in quotations from my participants.

While member checks are a common method for bolstering validity in qualitative studies, they are less appropriate for phenomenography as the outcome space (categories of understanding) represents the pooled experiences of all participants and thus participants may not be able to accurately perform member checks of the categories because of non-critical differences in their experience compared to other participants who were identified in the same category (Åkerlind, 2005). Åkerlind (2005) suggests pragmatic validity checks as an alternate lens for considering validity; this emphasizes the usefulness of the categories, or in other words, the value of the insights that the study provides to its intended audience. I have addressed this aspect of validity in Chapter 5, which includes a discussion of the implications for this study in terms of creativity and emotion as well as implications for learning design and allied fields. This is supplemented by a discussion of future research directions suggested by the findings. In addition, I strove to meet the criteria for quality of the outcome space categories as outlined by Åkerlind (2012) and Marton & Booth (1997), namely that they categories are distinct, logically arranged, and parsimonious, to support the development of useful insights from them.

CHAPTER 4 FINDINGS

Introduction

This chapter describes the findings that emerged from this phenomenographic investigation of how graphic designers understand their emotional experiences around ideation. These findings are conceptualized and organized as distinct ways of understanding emotional experiences during ideation and were based on the narratives of fifteen graphic designers who participated in the study. Recalling Åkerlind (2012) and Marton & Booth (1997), the outcome space for phenomenography should contain distinct categories with clear boundaries that are arranged to reflect some sort of structural relationship among them, all while keeping the number of categories as small as possible. The seven categories included in the outcome space for this study represent critical variations in the way participants represented and understood their emotional experiences around ideation. These categories are arranged to approximate the sequence of when these experiences might arise in the design process. The following sections will describe each category and its boundaries in detail and then discuss the structural relationships among them.

Overview of the Outcome Space

The seven categories of critical variation in understanding are described in Table 4. 1 and are arranged in an order that approximates a common sequence of when they could be expected to occur during a design project. Category 1 describes the way that primary elements of the project (such as ethical alignment, client relationships, and project constraints) interact with the designer's needs to set an emotional tone for ideation, which serves as a potential frame for ongoing emotional experiences during ideation. Categories 2-5 describe different patterns of responding to high arousal emotions that arise when designers engage in ideation, while Category 6 describes how designers interact with subtle emotional signals as cues for evaluating ideas. Finally, Category 7

describes a broader understanding of how reflection on emotional patterns in general influence growth as a designer.

Table 4.1 also identifies which participants were associated with each category. As described previously in Chapter 3, this study focused on key passages from transcripts, rather than trying to summarize each transcript as a whole; this was the appropriate strategy for this topic because an individual participant may have more than one way of understanding their emotions during ideation because they may have more than one way of experiencing them. Thus, an individual designer may appear associated with more than one category; however, the summary statements that were used to iteratively build the categories were only capable of meeting the criteria of one category each, in order to ensure the categories were distinctly different. The quotes from participants that are included in the category descriptions are meant to illustrate the meaning and boundaries of the category; they are not intended to fully represent participants' interview or perceptions, but rather are presented as critical statements of description that provide support for the structure and meaning of the category. In cases where a high number of participants are associated with a category, descriptions will focus on transcript passages that illustrate boundaries and variation within the category, while other participant perceptions may be summarized and aligned with those passages as appropriate.

Table 4.1: Ways of understanding emotional experiences during ideation

Category	Summary	Associated Participants
1	Goodness of fit between the designer and the project influence general feelings about ideation as well as specific emotional feelings during ideation. Elements such as ethical alignment, relationship with the client, and/or project constraints influence the designer's perception of this fit.	GD2, GD5-GD7, GD9- GD15
2	Engagement with ideation elicits primarily high-arousal emotions but these are incidental to the designer.	GD2, GD3

3	Engagement with ideation elicits primarily high-arousal emotions that the designer manages by seeking or reaching a sense of calmness.	GD1, GD4, GD6, GD7, GD12, GD15
4	Engagement with ideation elicits primarily high-arousal emotions that the designer manages by introducing restriction or structure.	GD8, GD10, GD14
5	Engagement with ideation elicits primarily high-arousal emotions that the designer seeks to manage by inviting feedback from peers.	GD10, GD14, GD15
6	Generalized emotional signals are an important component of idea evaluation and are typically experienced as intuitive, muted, and/or difficult to articulate. Yet they are often key to decisions that move ideas forward and may evoke secondary emotional responses such as relief or excitement.	GD1, GD2, GD6, GD7, GD10-GD14
7	Reflection on emotional patterns over time is an important component of professional growth.	GD1, GD6, GD7, G15

Category 1: Goodness of fit between designer and project elements

Category 1 is summarized as: *“Goodness of fit between the designer and the project influence general feelings about ideation as well as specific emotional feelings during ideation. Elements such as ethical alignment, relationship with the client, and/or project constraints influence the designer’s perception of this fit.”* The focus of this category is on the alignment between the designer and the project, and how that alignment sets an emotional tone for the project and can intensify particular feelings during the project for some. The points of alignment that were identified by participants centered around ethical considerations, client relationships, and project constraints. Several participants identified more than one consideration, including some alignment points that overlapping, such as a constraint (lack of knowledge of client expectations) that also influenced the client relationship. Because of this, the category included all of these elements to better illustrate how they work together in some instances to support or impede a good fit between the designer and project as a path for influencing emotions.

GD2’s experiences provide a good starting point for outlining the meaning of the category

in that her response touched on all three aspects: ethical fit, client relationships, and project constraints (in her case, relative to the freedom allowed during ideation). One project she discussed was a designing a book about a landmark building in her Detroit, which she had identified as “a dream project” due to fond memories she had of the building and her interest in architecture generally as well as an interest in bookmaking as a design form. Her goal for the project was:

“the same thing I want to accomplish on most projects which is to have an authorship over the form. And also to work in subject matter that interests me and I don’t feel ethically conflicted by. There are a lot of people that are hard to work with in advertising. I felt like working for the people that owned [the building], I saw them doing a lot of neighborhood gentrifying, and there were people from different communities that reached out to me and wanted me to help them work on anti-gentrification with this organization so all of a sudden I was on both sides. The joy of politics of living [in this city].”

In this passage, she outlines elements of the project that are important to her: project constraints (including freedom over the form of the design which implies more control over ideation as well as an interesting subject matter), ethical agreement with the project, and client relationships. In this case, the actions of the client in the neighborhood led her to question if the project itself was acceptable to her on an ethical level. This was compounded by issues in the client relationship where she “got the impression because of my demeanor or how I look, that you know, you don’t do anything, you take the notes [referring to herself]...which is hard, hard pills to swallow.” She later reiterated her needs in relation to affordances for personal investment in ideation in reference to other projects:

“I like people that let me have some authorship, that’s really important to me. Um, some people you work under and It’s already clear how it has to be, it’s already clear what it has to look like. All the decisions are already made. And people like working with me sometimes because I can facilitate that. But I love when they don’t know where it is and we can figure that out.”

For GD2, she found working on this project “disheartening” due to the tension between its potential in terms of subject matter versus the reality of a client that was difficult to get along with

and presented an ethical conflict for her: “This was my high and my low of projects, hit both points, but a lot of projects do, you have your hopes up and the idealism fades.” It’s clear she understands elements of a project that would be a good fit for her and that finding this goodness of fit translates to her overall emotional experience in relation to a project and its ideation potential. In her case, she did not feel that a less-than-ideal fit would necessarily limit design ideas, but “some clients make it harder, well, what do you do for a client you don’t like? I work slower” thus suggesting that the ideation process may be impeded when the fit with the project is less than ideal. This seemed particularly true for her in relation to the architectural book project, where there was a sharp contrast between her expectations of the project and her experience of it; in describing her ideation processes, she focused almost exclusively on objective descriptions rather than identifying any emotional experiences even with prompting, which hints at a possible emotional disengagement with ideation for this project.

Both GD15 and GD14 also emphasized ethical alignment as an important element along with project constraints when setting the initial emotional tone for a project. For GD15, she focused a significant portion of the interview on her decision whether to even engage in a recent project because of its political content and its implications for ethical ideation. It was a project to design a visual identity and accompanying graphics for an upcoming conference on community empowerment and equality in Detroit (due to a confidentiality agreement with the organization, she could not share its name at the time of the interview as it was still in process). Her internal struggle centered around whether she was the right person to design the identity package because of her own history and identity. On the one hand, she is Black, she lived in Detroit for many years during its lowest times, and her mother was a Detroit native and current resident. On the other hand, she and her husband moved out of the city several years ago to a nearby suburb to start their

family, so she feels disconnected from the political community and constituency that the conference is concerned with. For her, she questioned her own ability to generate ideas that were authentic for this project because of her sensitivity to the underlying ethical alignment. In her words:

“So the project was very sensitive to me because it’s wanting me to show a visualization of what’s happening in Detroit. And after college, even though I worked in Troy for ten years, I was still living in Detroit, still in the rough period, and at that point I met my husband and we moved, we moved to the suburbs. We had kids, we wanted a better school district, you know, the public school district, there was no way. For a family decision, we moved, you know? And we went through it all, we went through broken cars and windows [in her former city neighborhood], which is all like five-star restaurants now...it’s wonderful, I’m not against it. But it is happening pretty quickly and people are getting pushed out...I’d say my emotions were in the middle, I was like, I don’t really live in Detroit now and I live in the suburbs so I wasn’t really sure about taking the project because I didn’t feel like I was qualified, I wasn’t in the movement itself, to be able to draw on it or design something for it...Another part of it was like my business, if I’m going to make a design for a business that’s like, Power to the People, you know, will that deter other businesses from me? Will they be like, we see what her angle is and we don’t want to be connected to that designer?”

She ultimately decided to take the project on in part for financial reasons but also because she still does identify herself as being from or of Detroit. She would be able to use her history and perspective on the city along with her design skills to successfully achieve the goals of the project. Later she went on to describe how she prefers projects that are highly constrained – what she referred to as “in the box” – because they have clear goals and expectations and allow her to draw on her professional expertise while minimizing her emotions during design. Yet at the same time, she is still drawn to projects that allow or require more personal investment of herself and her vision despite emotional experiences during ideation that are more intense or uncomfortable. For this project (which affords greater personal investment in ideation than an “in the box” project), she stated:

“That’s another challenge with this project, the free reign. I could do the typical

iconic looks or I could just do whatever I want. It's scary, you know I'm a little nervous...I don't want to misrepresent what's going on in Detroit because of too much 'do whatever you want' and I'm like wahoo!"

This indicates she is aware of the need to balance her own creativity (and the emotional energy it generates) against the political and ethical constraints of the project, and also that this tension evokes anxiety which carries over into ideation for her.

GD14 also emphasized ethical and personal alignment with the role of project constraints as well as the subject of the design itself as being critical to her general emotions toward engaging in a project. For her, the contrast between the freedom to ideate and design on projects that allowed her ownership of the ideation process and were calibrated to her own beliefs was a stark and difficult contrast to what she experienced in her professional career. As she stated:

"The idea just gets so watered down. It's just like I'm doing this to get it done and get paid for it but I no longer care about this project as much. But when it's yours and when it's something you're passionate about and you're having fun doing it. That's when I was starting to work in ad agencies and I was so sad that like, that was no longer any of my work you know, and it ate away at my creativity, like I wasn't able to be creative anymore in an agency. And that was just my personal experience because at the time I was working on like a lot of car accounts or this and that, where you just have such set brand guidelines that I was basically plugging in templates. I was like let me drop this into this template in here and I, you know, so yeah. [shaking head, pausing] So I kind of, my process now is kind of the same process that I had when I was in college [she is currently working as a freelance designer]...I was trying to get back to that feeling when I was in school and learning and I could pick my own projects and I could you know show my friends and like we can kind of brainstorm together like that's where I wanted to get back to. One of the projects [from school] I really enjoyed was, it would be like environmentally friendly things which I'm very passionate about, anything that's like eco-friendly you know. Come up with this product that is, you know, eco-friendly cleaning products -- that was one of my projects and you have to come up with this whole brand strategy, marketing, advertising, packaging design...that's where I realized like I was just super passionate and and no one prepared me like in the real world, you don't know we can't get those catchy projects, you're, you're just doing the work to get the work done."

For this designer, the highly constrained projects for clients she didn't believe in were so detrimental to her creativity that they "chipped away in my self-esteem and made me question if I

was even a designer.” It was this lack of alignment with her needs as a designer that led her to leave her agency job and begin freelancing, where she could have more autonomy over client selection and opportunity to have more ownership over ideation processes.

GD6 provides a useful contrast to the previous examples, in that the relationship with his client provides the primary filter that he relies on to set an emotional tone and provide emotional energy that permeates his ideation. He owns a branding agency and is able to focus on types of projects that afford great personal ownership of ideation as well as work with the types of clients he feels most aligned with (entrepreneurs and non-profit organizations primarily in Detroit). He views branding design in particular design “as much as it's a problem-solving tool it's also kind of an emotional pursuit, branding particularly more so is really kind of an emotive exercise.” He attributes this to branding being a visual representation of the essence of an organization or person’s identity, thus he must develop an intimate and emotional understanding of that identity in order to be able to ideate and design effectively in this context. These elements are linked to and filtered through his understanding of the importance and influence of the interpersonal relationships he has with his clients, as he describes:

“It's another aspect of what I try and pride myself on and bring into my overall practices, that sense of personal understanding. It's a relationship you know, because in a lot of cases when you're working on a design for somebody...but it's all that is even more amplified and even more like intense when you're working with an individual or an entrepreneur, a small business...this is someone's livelihood, this is their passion... (that energy) you want to pursue it forward, like courtship. I feel like it it's a very similar energy to you know meeting a person of interest or you know going on a first date, having a blind date. It's the same repetitive sense of excitement, the same sort of, you know, initial fervor, and I think I try to harness that energy in the beginning to, you know, kind of kick off the creative process... like through satisfying or satiating that curiosity, it's like the wheels are already starting to turn you know...I try and consider where's this person at, how invested do they seem in this business, is there mutual respect for time and craft, precisely because I take it so seriously and personally...I look for mirrors [mutual investment of energy and emotion in the design relationship].”

For GD6, the impact of his client relationships not only affects the general emotional tone and energy of a project as an important context and driver for ideation, but also has the potential to influence the efficiency of his ideation processes if not necessarily their design outcomes: “(the influence of relationships is) not always about exactly kind of what decisions you make creatively but where you're at mostly does affect your creativity, you know how easily it comes.”

GD13 also highlighted relationships with clients along with typical project constraints on the ability to see ideas through their final realization as major influences on her emotional orientation to a project. Client relationships provide information and energy to fuel ideation, while the project's affordances of personal investment in the ideation process set an emotional context for GD13.

“So their emotional energy kind of gives me information that I need to design, right?...To me I feel like a little lost and like a little bit of a failure if I don't get it and when you do when you do get it, it's so wonderful, you know, like it's such like ‘Oh we have understood each other.’ Not only like pat me on the back like I did something that you like, but that will be successful and I heard you and I listened to the things that you said and I gave it back to you in a way that was like a conversation you know and to me that feels really like an important part of a project. [Describing the importance of being able to see ideas through to completion] I don't want to leave this project like half-finished now, especially that like I finally am getting to do the stuff that I've been wanting to do. It's like I like I feel like I need the closure...three-quarters of the things that we would be pushing for and creating and spending all this time [at a previous job] on would never would never go live, they would never be published it, it wouldn't go online like we slid through the cracks. When you are working for these larger companies that have all this money, they can afford to pay for all this creative and then be like, ma'am we changed our mind, we're not gonna forge ahead whatever reason and then that is like, there are so little words for that, you know. It's not just disappointing, it's like pointless, like what's the point? It's just people standing around telling each other that they have good ideas for nothing.”

The difficulties she described with futility around ideation in this job were compounded by distant relationships with clients, which were mediated through account managers and included little to no direct contact. She subsequently left this job and began working on a freelance basis in

order to seek clients and projects that were more satisfying to her creatively and emotionally. In terms of direct associations with ideation, she identified either being in either “a really good place” or “a really rocky place” as giving her license to feel free during ideation. Good relationship for her give her confidence that the decisions she makes about ideas will be good decisions, while pool relationships give her freedom to please herself during ideation because there is minimal investment in what the client cares about.

Both GD7 and GD5 shared a similar understanding of the influence that client relationships and project constraints around ideation have on overall emotional attitude toward ideation and design. For GD7, she also left a position where she was no longer allowed to have direct collaborative relationships with clients, a situation that she found impeded her own creativity which is driven by a desire to find a design solution that pleases the client first and foremost (“I'm one for wanting to give the client choices so that they can have some input and feel good about it that...I want them to feel invested in it...I want them to be happy, yeah, I don't want to push my agenda on to them”). Ideation constraints are secondary to concerns about client relationships, but still important in that she is happiest when she is working on a mix of loosely-constrained and tightly-constrained projects; the balance between them allows her to avoid feeling overwhelmed or stagnated. For GD5, client relationships that include a shared schema for what is possible to achieve through graphic design are ideal; in the absence of this shared schema, he finds projects become too constrained and he experiences ideation as frustrating. In his words,

“I feel great, if I'm having fun with it, if it's something I can kick around with it and take it in a new direction that's great. The frustrating part is feeling like it's just me out there doing it...They could be doing more and utilizing me more which is frustrating.”

The remaining participants in this category focused primarily on constraints around ideation as being important for setting a general emotional attitude for a project. It is worth noting

that all of these participants work in-house at media agencies or other organizations and thus only have one primary client, so the nature of this relationship is quite stable for these participants. GD9 echoed GD7 in that he operates better with a mix of tightly-constrained and loosely-constrained projects; tightly-constrained projects give him confidence that he will find an appropriate idea while loosely-constrained projects involve more anxiety due to risk of failure but also the potential for greater personal reward when ideas are successful.

On the other hand, GD12 discussed how the projects that she typically works on in her job (at a media agency with minimal client contact) require her to set aside her own personal investment in the fate of her ideas, as often they won't be selected by the client or will be significantly changed by them. As she stated, "the client is going to want they're going to want and you just kind of have to you have to accept this and let it go, so I don't really form a lot of attachment to my designs." This need to emotionally detach due to project and client factors was echoed by GD10, who works at the same agency as GD12: "You can't get super emotionally attached because you never know what something's going to change or when the scope the project will change so you have to be ready to switch your state of mind." Likewise, GD11 (a colleague of GD10 and GD11) stated: "You can't be attached to your design or to your art; otherwise you won't be able to work in peace." For these designers, the nature of their relationships with clients and the constraints of the project they work on (which often require them to generate different conceptual approaches for the same project) influence the degree to which they can feel personally invested in the project. For all three, it is an adjustment they are comfortable with and even feel liberated by (GD10 and GD11 in particular), so it provides another perspective on how goodness of fit between the designer and elements of the project and context shapes the emotional attitude they bring to their ideation work.

Category 2: High-arousal emotions during ideation are present but incidental

With Category 2, we enter the series of categories (2-5) that describe structural variations in how participants experience and understand high-arousal emotions in particular when engaging with ideation. Before continuing with these categories, it is important to note that some participants were classified in more than one because they engaged in more than one strategy to manage these emotional states. This does not negate the structural differences among the categories, but rather reflects that these emotional experiences are complex and individual designers may engage different approaches to deal with them depending on timing and context. Having clarified that we can turn to Category, 2 (*“engagement with ideation elicits primarily high-arousal emotions but these are incidental to the designer”*); for this category, the associated participants do not appear in other categories because these emotional experiences are not important or salient for them.

While GD2 and GD3 were both able to identify high-arousal emotions such as excitement, anxiety, or fear, these feelings were incidental to these participants and were not attended to or experienced as being important to ideation processes. For example, GD2 was able to identify moments of feeling excited, frustrated, and even satisfied (a low-arousal emotion) after being directly queried to identify her feelings in relation to an example, but she conveyed through her tone and compressed attention to the topic that they were not pivotal or important issues to her. Instead, she favored descriptions of the intellectual tasks involved in her design work, specifically the actions she took to research and order information. She also described herself as a “realist” who needed to reel in clients’ excitement at times. While she does experience emotions during ideation, they do not resonate with her as a salient influence on her work beyond existing as an element in her experiences.

GD3's attention to emotion displayed a similar pattern. Although he self-identified as "probably not the most emotional kind of guy, I kind of stay at the same plane most the time" and had trouble remembering emotional experiences, he did identify feelings of frustration, excitement, and stress, as well as satisfaction. However, his experience of these emotions seemed fleeting and inconsequential to his perceptions of his ideation processes. Even when describing a design conference he had recently attended that reawakened a desire to push himself as a designer, his tone remained very even and he did not convey a sense of being excited or energized by the experience despite his words. Interestingly, he also described his design style as simply "practical." It was important to include the experiences of GD2 and GD3 in this category, because it does represent a distinct way of understanding emotions during ideation: that they are present but ancillary to the designer's ideation processes.

Category 3: High-arousal emotions during ideation are managed by seeking calmness

Category 3 includes participants for whom "*Engagement with ideation elicits primarily high-arousal emotions that the designer manages by seeking or reaching a sense of calmness.*" For these participants, high-arousal emotions accompany engagement with ideation (either beginning or during ideation activities) – and may be necessary to provide the motivation needed to enter ideation – but ultimately they are emotions that are diminished in favor of an internal state of calmness that facilitates more productive ideation work. In some cases, this dormant period is then followed by the re-emergence of high-arousal feelings. GD6 who enters ideation with high levels of excitement along with some anxiety that provide initial fuel for ideation (as described in Category 1), provides a good initial example of this:

"Then a lot of times I like just kind of, after all this stuff gets cooking you know, there's kind of like a dormant period, a calm before the storm. There's a time, right, that sort of like I don't try too hard to connect straight lines and I just sort of let it all go, you know...that's how you know, to it sort of is like the callus analogy I was

talking about, like you get kind of deadened to certain things [in this case, he has become used to intense initial emotions during ideation] but then it makes it, it heightens when you do get a little impulse.”

For him, this pattern of moving away from high-arousal emotions and intentionally seeking calmness at a distance from them provides a level ground for later emotional signals to emerge and enter his awareness; the initial high arousal feelings are important for entering ideation but might obscure more salient emotional cues later on. GD15 shared a similar approach of intentionally seeking calmness and comfort early on in the ideation process in order to let high-arousal emotions emerge when more confidence in herself had been established:

“Okay first let me just do what people like and just settle right now, okay settle for design, I’m just going to settle for what’s typical, what’s normal, what’s safe, really. I just feel like comfortable because I know I can get through it faster and you can get paid faster, and it’s just like this feeling like this is what I went to school for you to do a commercial project and yay. But then in this part of me starts to feel honestly like – which is kind of like the next page of the notebook okay – I want to actually do it like real designers do that are written down and world renowned we read about them in the books. So I start to get really like excited and start to feel a little bit more connected to what it really means to be a graphic designer, just your way of visualizing your message and your problem statement. And it just kind of goes like that, those are the actual steps. You know it’s just like okay I’m feeling comfortable to like then I’m more excited that yeah, this is really what I want to do [flings her hands and arms outward].”

GD15 also begins ideation with high-arousal feelings of excitement and fear, intentionally engages in ideation activities that feel calming and safe to her, which in turn trigger a second wave of excitement that feels more manageable and driven by a desire to achieve rather than a fear of failure. The period of calm allows her to access her training and prove to herself that she can provide a convention or commercial solution, which set the stage for grander ambitions.

GD4 also emphasized the importance of reaching but also maintaining a sense of calmness in the face of excitement or frustration during ideation; this mental state is not necessarily a resting point on the road to later excitement but rather a state she associates with productive ideation

periods and thus something she seeks in the face of high-arousal emotions. For example:

“When the emotion goes from being stressed or a little bit overwhelmed and feeling like more calm okay, like I can see this happening like this could actually work, like I feel confident about this...I think um if I'm if I'm working and I'm flowing, it's more like a zen thing, it's kind of a calmness. ...but I think doing design work though [which for her she identifies as primarily ideation], it's more like I'm not excited or overjoyed or anything it's more of zen calm. A lot of my design work is more of an intellectual exercise than an emotional exercise, so having that sense of balance and sense of calm is important.”

For GD7, the excitement she feels around ideation is related to the need to capture and externalize the ideas she has “flying around in her head,” an experience that is exacerbated with projects that have few constraints and also by her own desire to give clients many preliminary design concepts to choose from. She manages the excitement of jumping among various ideas in part by engaging in a lot of sketching and also physical prototyping (she is primarily a print designer) to relieve the pressure of ideas in her head and bring her back to a place of calmness and balance. Building prototypes is a particularly soothing activity for her and described the effect in part as: “it's busy work, yeah, I totally don't mind that kind of busy work and I think that's probably why, I'm using that as a way to decompress.” She also mentioned that she becomes noticeably hungry during high-arousal ideation experiences and uses eating as a way to soothe herself, too.

GD1 experiences a consistent pattern of fear followed by excitement when engaging in ideation activities, and relies on evoking a sense of calm that is based on confidence in himself as a designer to manage these high-arousal emotions:

“I'm calm because I know, like I have done it so many times, I know eventually ideas come, I kind of know what that's going to be like...cockiness is replaced by method and process and a kind of calmness covers over me.”

He went on to state, in relation to frustration during ideation, “having to put them [frustrating emotions] aside to get the work done...the synapses are not going to fire so you really

do just have to put them away and stay even.” Interestingly, GD1 also stated at one point that he does not specifically attend to his emotions during ideation work (after initial high-arousal emotions have faded) beyond awareness of a broad sense of feeling satisfied or not satisfied, yet he was also able to recall specific examples of feeling anxious, excited, fearful, etc. This suggests that he does possibly experience these specific emotions and encode them into memory, but that perhaps a need for calmness during ideation causes him to turn down his conscious awareness of them in the moment to only receive generalized internal feedback about satisfaction.

Finally, GD12 presents an interesting example in that, while she did acknowledge feeling excited or frustrated during ideation, she characterized her engagement with ideation as “I just stay even and calm regardless,” “like I tend to zone out a lot of stuff and then I just kind of focus on the design work,” and “I find work is my sanctuary, this is where I go and I can just focus.” To provide additional context, this participant also finds personal alignment with projects that require her to disengage with her emotional attachment to her ideas, which is consistent with her desire to remain in a calm and focused state that minimizes high-arousal emotions. However, her insight into this process shows less complexity than previous responses, demonstrating a boundary of the category.

Category 4: High-arousal emotions during ideation managed by introducing structure

Category 4 includes participants for whom “*Engagement with ideation elicits primarily high arousal emotions that the designer manages by introducing restriction or structure.*” For these designers, introducing either an external or internal restricting influence into the ideation space was a necessary counterbalance to fear and excitement in relation to ideation. For example, GD8 identified that he feels a surge of fear followed by excitement when engaging in ideation on a project, which he also states is his favorite part of designing (“to me it is always what are the

possibilities, how can we do this?"). For this designer, his boss is an external influence that he invites into his ideation processes early on as a way to impose structure or constraints on his flow of ideas:

"I just start thinking we can do this and we can do that, yeah and that's when I am thinking or especially pitching to my supervisor or director, yeah it's like we can do this we can do this and here is this and I thought of this and it's all of the possibilities. My boss always tells me, we gotta scale it back, we're just a university, but we could do a billboard. At the top of my creative bug is like we can do so much with this. Um, that part of the process is to me is the unknown and it's always a little fun. Because I see in my head so many different ways of doing this. Hopefully one of the outcomes, it works. You need to be so broad, and you need another person to bring you back."

In the case of GD8, the relationship he has with his supervisor provides him with a way to contain the flow of ideas by initially filtering them for what is reasonable, what is not reasonable, and what boundaries he might be able to push. For GD10, she relies on herself to provide this element of structure to the ideation process, which starts with feelings of excitement and runs the risk of feeling overwhelming to her if she stays in it too long. As she describes her efforts to impose order on ideation:

"Like I said before I can get obsessive, um, I'm a very, like I'm a weird mix of creative hairbrained and like analytical obsessive and I think that like in the middle is where I why I enjoy graphic design because you have to be really analytical and organized and have a process but you also have to be like, oh where, what's that, oh okay and then I go with it, right? so I feel like having this keeps me from getting too many you know thoughts coming to me or inspiration, that excitement, yeah whereas like you need a starting point or like a to-do list that type of thing so it kind of helps...[certainty] is definitely what this gives."

GD10 shared examples of her highly-detailed notebooks containing lists, ideas, sketches, etc., indicating that this sort of structured, externalized idea documentation allows her to manage the high arousal she feels around the generative side of her mind. She also described how she carries the same emotional duality in ideation processes to creative projects in her personal life. As a point of contrast that may help clarify this category, GD2 also spoke of her 'OCD nature' that

was an important organizing tool for ideation, but she directed the force of her need for structure at the information itself (i.e., bringing order to what felt like informational chaos) and did not characterize the structure she imposed as being related to her own emotional excitability as GD10 did in the previous passage.

GD14 provides a slightly different perspective, in that her high-arousal emotions linked to ideation are centered largely around anxiety over meeting time constraints. For her, this began during previous jobs that had rigid expectations for efficiency and client billings, expectations that she had difficulty living up to. This anxiety has continued during her freelance work in terms of concerns about billing clients fairly while also protecting her own financial interests (in other words, by not spending too much time on ideation, thus diluting her earnings). While she states that some anxiety around efficiency can be beneficial as a motivating force, too much can be overwhelming. In order to gain control and avoid over-arousal, she manages this by setting time limits for herself that are reasonable to her and switching to other tasks that she has scheduled:

“So I will sometimes break up my day I'll work on computer in the morning and go make prints (at a screen printing shop) and come back later and the physical it's like it's a lot of work...it helps take away all that excitement and anxiety, so yeah I will break that off and I do, I do like how being able to take breaks or whatever, yeah it really helps the flow of it when I'm in it again.”

While she still seeks efficiency through structure in her ideation processes, having control over her schedule and expectations of her work allows her to manage the arousal levels of her emotions rather than feeling overwhelmed by demands she experiences as unreasonable or by having no structure at all.

Category 5: High-arousal emotions during ideation managed by seeking feedback

Category 5 includes participants for whom “*Engagement with ideation elicits primarily high arousal emotions that the designer seeks to manage by inviting feedback from peers.*” For the

participants associated with this category, seeking outside feedback from peers or colleagues is an important strategy for managing emotional arousal during ideation, although GD14 and GD10 seemed to find this process more effective or contained than GD15 did. In contrast to previous categories, this strategy involves sending design ideas to others outside of the ideation space, rather than attempting to manage emotions within that space itself.

GD14 actively seeks feedback from peer designers to quell anxiety she feels around her ideas as well as minimize stress related to feelings of isolation in her work. She limits the number of colleagues she is interacting with around a given idea, though, as this seems to improve the quality of the experience for her. Furthermore, she is capable of pushing back against feedback that is overly critical or not understanding of the core idea of the design. She stated:

“Working solo feels like working in a bubble, so I reach out a lot of feedback from colleagues or friends really who are designers mostly. I mean sometimes when people aren't available and I'm just like – and I think this is kind of a holdover from some of the anxieties I felt in those jobs [previous agency jobs that involved high anxiety about efficiency and job performance] – if I don't have someone to bounce an idea off of, I am sometimes not confident that I'm, like I'm not sure about this... I don't need that reassurance from like somebody else but if it feels like right, it's always so helpful to have that collaborative input... I do find a lot of the times talking with another creative friend like bouncing that those ideas back and forth always helps working from home. I'm like designing in a bubble. One of my friends is a graphic designer in Chicago and I'm constantly on g-chat with him. I'm like sending him stuff all the time, what do you think of this? And then it's just like you know me and one other person like kind of chipping away and we're finding that one idea... when it's just like me and one other person having fun I mean I feel like you know that stress and pressure go away... but yeah I mean I have run into that, too, with even some of my own creative work when I you know ask friends now I designed this idea and put it out there and some friends kick pick it apart so much that I'm like, well, no, that's how you would design it, that's yours. That's not, that's completely different than my idea.”

GD15 draws explicitly on feedback from her mother (an artist) and her husband (an engineer) when she is feeling high arousal emotions around ideation and feels lost without them. At the same time, once feedback is given, she feels herself shut down emotionally even when

feedback is positive, and another cycle of high-arousal anxiety begins which makes her feel dependent on ongoing feedback rather than her own design judgment. As she describes it:

“Yeah so right now I feel like I'm on the path of finding something really, really great, right [for an identity package for a community engagement conference] it's an exciting feeling, a little anxiety, though. It is weird, I have to have somebody tell me, I have to get, like, people's advice. I have to get some type of feedback to know sometimes if it's in the right direction. It's almost like I look for approval from somebody else... Getting the right solution is a great feeling, but it's according to what someone else thinks. [She turns to] my mother, who is an artist and a graphic designer back in the day, a textile artist and radical mom, and my husband, who is a manager in corporate software engineering, very technical world, I have these two different worlds to draw on... I depend on that approval and I don't work in design, in a corporate environment anymore so I don't have a staff or group of people to go to. But having that approval makes me feel confident in the direction I am going...but here's the thing, once they give that approval, my emotions and my creativity just stops, they don't go anywhere. And they are like why are you stopping? And I'm like, I'm kind of depending on you guys to let me know if I should keep continuing. It's the weirdest thing, I go blank and get nervous, and it becomes more about what they think.”

In contrast to the previous participants who have broader triggers for seeking feedback, GD10 described how feelings of anxiety during ideation that specifically arise when information about client expectations was insufficient were managed by seeking feedback from her colleagues within her agency:

“I feel like I'm much more questioning, I'm less confident about it, um, those are the designs that I send out quarter or halfway through to, you know other people in the agency. Like what do you think of this, that's kind of great right, now reassure me that this is what the client is going to want because I have nothing to go off of so it's a guessing game but yeah, that helps.”

In this case, GD10 provides an example of this understanding that is tightly contained and purposeful in terms of how and when she uses colleague feedback to manage anxiety about ideation, versus the broad and sometimes challenging experiences with peer feedback described by GD14 and GD 15.

Category 6: Emotional signals are intuitive cues for idea evaluation

Category 6 is summarized as: *Generalized emotional signals are an important component of idea evaluation and are typically experienced as intuitive, muted, and/or difficult to articulate. Yet they are often key to decisions that move ideas forward and may evoke secondary emotional responses such as relief or excitement.* Of the fifteen participants, nine identified subtle emotional signals as being central to their own ongoing and internal idea evaluation processes – their ability to recognize when a conceptual direction was heading in the right path or when an individual idea was working or nearing realization. While much of ideation is concerned with generating ideas, the ability to recognize and select good ideas among options is an important component of ideation and also a central issue for participants in this study. Many participants shared their perceptions, but GD6 offered perhaps the most reflective perceptions regarding this issue so his transcript will serve as a useful starting point.

It may be helpful to recall that GD6 considers the design process itself to be “an emotional pursuit” driven by a courtship-like relationship with his clients. He describes how subtle emotional signals, often correlated with physical sensations (like “gut checks”, “hair raising up,” or “electrical impulses”), provide him with cues for intuitive decision-making within ideation. Furthermore, these instinctual cues always precede rational or logical justifications for design decisions, and make him confident that such a justification could be constructed to support an otherwise intuitive and emotional justification for a design decision. As he put it:

“I’m definitely more in tune, I call myself an empath you know, I’m really um more like ENFP, a lot more feeling and intuiting. I just I’m sensitive to energy, and emotional energy... the more you know [in terms of exposure to visual culture], well it's the more insights you can pull from within and you know, glean and parse it. Just you just can build up this compass, my internal compass., it just gives me a sense of yeah, this is right...[When I encounter an internal signal that a design idea is good] it's always a post rationalization, it's for sure a more instinctual kind of compass, you know, and it's like okay, like you know, I know if and when I look for it, that the validations are going to be there. You know it's one of those cases where I'm like okay, I comfortably feel like I can validate this or I can rationalize

this because I like you know I have that sense in the abstract that it's right and you know I think it I think it just comes from kinda like putting yourself in contact with like that subject matter, you know...like you really you just look for any little sign you look for that feedback on the wire, yeah, like you know kind of hold the thread.”

While the other eight participants described similar moments of intuitive judgment that were central to their ideation processes in terms of evaluating ideas, they varied in the level of insight or access they had to detail about these experiences. Because of the number of participants who were associated with this category and because many of their statements about it were often brief, relevant transcript sections are included in the bulleted list that follows and identified by designer.

- GD1: “It’s another one of those hard to express, searching moments. Where it’s like, when do you stop? How do you know it’s right? You could play with this all day. So you just keep, you just, when it’s balanced, when it feels balanced. You just have to know when it’s right...[and then I feel] total satisfaction that is very satisfying when I can go, yeah, I’m done. I’m done messing with this, it’s baked, on to the next.”
- GD2: “Usually I stop when I just feel settled. It is a feeling, but it is also a knowing. It's a technical thing, like with a composition once it feels balanced, you're like ok, it's a feeling and a knowing.”
- GD7: “A lot of it just it feels wrong or feels right? Um, I do tend to design a little more organized or balanced, so naturally all my stuff is very balanced. So if it doesn't feel balanced to me, you know, yeah that's kind of uh-uh, not happening. And yeah, that’s like a gut-level feeling. It’s like when I go people’s houses, I straighten their pictures. If they are straight, it’s going to make me crazy. So yeah.”

- GD10: “[I feel] comfortable, like I'm not second-guessing it. I'm not scrolling through it over and over again, like, does this look right? I just know that what I'm doing feels right, like, um, for example I'll preview a section of the website or something and go through it and I'll be like okay, feels great, go back to designing... it's really not like a Eureka moment but it's just like smooth sailing... [Alternatively] it helps you figure out what doesn't work because once you get to a certain point you're like, no, this is uncomfortable, like, I need to go, let's try this or whatever.”
- GD11: “You when you feel that you chose the right colors, you chose the right structure, you feel that you think the user will have a really nice looking website and also user experience to navigate for all, you feel like how, if you probably, yeah. I think I'm going the right, right way so, it's hard to explain what you are feeling in the moment.”
- GD12: “I get a feeling like ‘oh that looks kinda cool’ but it is non-specific, really more of a sorting process. It’s almost kind of feeling very intuitive that way... It’s one the worst phrases that as a designer you hear from a client which is ‘you know it when you see it’, but that’s kind of it. It’s like oh, it’s like that aha moment it’s like oh there it is. I’ve been looking for you... it’s more excitement. Because once I find that one, like the missing piece, then it’s like oh then I can do this and then I can go here and then I can do this. I would say it’s mostly excitement actually.”
- GD13: “I kind of feel like it would be hard to do that [make decisions about ideas] without like sort of being based on my emotions. I think that is for

me something that is just like tied to composition and like overall balance like I, especially if I'm sketching it out I don't know that I would be able to separate those feelings from each other.”

- GD14: “It's a good feeling because I then then I start to find that comfort again and I'm like this is this is the direction that's working the best this is the solution to the problem that seems like it, that puzzle piece that's the best fit as to where I'm trying to go, yeah so, um, it is kind of like a click and it'll end in a flow through the rest of the work.”

These statements all describe a common understanding that subtle signals that carry some sort of emotional tone or color are an important, even primary, influence on the decisions participants make about their design ideas. These signals are internal and may link feeling and cognition as paired processes (for example, GD2), may represent an acknowledgement that a desired destination has been reached (GD14), or may elicit more specific feelings of comfort or satisfaction. To provide further insight on the boundary of this category, GD8 provide a good example. His cues for knowing when an idea was right were all centered around the visual alignment – that he could see or visually understand the idea matched what was in his head for it. However, he excluded the word feeling or any other reference to an emotional correlate and instead focused solely on the perceptual response he had to the idea. In all the examples listed in this section, the participants in some way articulated an emotional tone or aspect of the signals they use to assess their ideas internally.

Category 7: Reflection on emotional patterns supports professional growth

Category 7 is summarized as: *Reflection on emotional patterns over time is an important component of professional growth.* This category draws on many of the perceptions already

included in prior categories but adds an additional layer of complexity to them by focusing on how participants reflected on their experiences to spur their own growth as designers.

For GD1, this took the shape of being more confident and comfortable in his ability to navigate ideation processes after he recognized the patterns of emotions that he would experience:

“It took a long time to recognize that I had a pattern of ‘oh god’ to ‘this could work’. It’s kind of a roller coaster ride through any sort of assignment...but seems like when I was younger I had this belief, like the end result is, I’m going to get there, you know like, no problem [to a brilliant idea] and the road there would be rockier than it is now. Now the road is like, I don’t know necessarily if it’s gonna be great like if I’m going to come up with the greatest thing, I don’t have a million ideas, but I know how to get to there just faster, it’s a smoother trip to get there [because of the understanding he developed about his emotional patterns].”

For him, there was a sense of sacrifice of the possibility of being brilliant, but the reward of an easier design process counterbalanced this loss. Being able to identify and anticipate patterns of emotional experiences, particularly high arousal emotions, was at the core of this shift to “smoother” ideation road for GD1.

Similarly, GD6 reported that, through repeated experience with the emotional aspects of the ideation process, not only does it become easier for him to navigate and interpret them, but they begin to become imprinted on his brain as intuitive influences on the emergence of ideas and conceptual paths:

“It’s like a roller coaster you know, not to be trivialize it but it’s like, the more times you ride, the more kinda you know, the drop still gets to you every time but it’s like you know what’s around your curve, you know a little bit more, like just a heightened sense. You have like a cat reflex, pre-primed your pathways a little bit. I’m just kind of trying to you know, keep my stomach like level, they’re like an altimeter, like a little barometer. I’m gonna, you know, not having it down in the pits, not too much in the throat, right...There are so many sensitivities, little calluses you build up over time, almost instinctual, like animals. These little mental callouses where it subconsciously triggers you, because you know, there’s like some dirt in the road, there’s some dirt on that neural pathway, or a tree fell on that one, so you’ve got to go a different way and you just feel that. So certain paths get more engrained, and then certain ideas just trickle down those paths more quickly.”

For GD7, recognition of a pattern of getting angry when clients altered her idea lessened considerably over time. While other designers mentioned that the intensity of their emotional experiences waned over time, GD7 not only recognized a similar waning of intensity, but reflected on it to accept that maybe this also meant that her ideas were not the only or even the ideal solutions, that there could be multiple successful ideas that satisfied the design problem:

“Yeah definitely, as I’ve aged I’ve definitely gotten better about clients changing things and not getting my way. You know as a younger designer I got much angrier about it and I really wanted my way...As I’ve gotten older, I’ve learned to take my personal out of it more. And really just accepting that there can be many different ways, many ideas or approaches that all can work.”

This consistent with her current work context as a freelancer as well as her own preferences for presenting clients with multiple design ideas and working closely with them to make sure the final idea and its realization meets their needs. The gradual sacrifice of her own image as the defender of her ideas above others was a necessary reflective shift to get to her current work context and understanding of herself as a client-oriented designer.

Finally, GD15 provides an interesting example of a borderline case that defines a boundary for this category, in that she is just now entering a place of reflection and conscious intention to grow as a designer based on her awareness of her emotional patterns:

“Ultimately I could and can take my emotions out of a lot of corporate projects, I can just go with industry standards, with fundamentals, with what’s trendy. And I kinda feel like I want to take that into my more personal projects, and my business, to run a consistent, proper freelancing firm. Because sometimes I think my emotions really hurt me, they cause me to think too much into a project and spend too much time. I’d like to take some of them out, like on this conference project (on community politics) and just get down to it more and still do a good job...I think it’s possible.”

For these four designers, moving beyond recognition of their own emotional patterns and working instead to use the pattern to their advantage or to change the pattern itself to effect a desired state represents a reflective process that contributes to their perceived sense of professional

growth.

Summary

This phenomenographic investigation of how graphic designers understand their emotions during ideation resulted in seven structurally distinct categories of understanding including: (1) goodness of fit between designer and project is an influence on emotional tone; (2) high-arousal emotions are present but incidental to ideation; (3) high-arousal emotions during ideation are managed by seeking calmness; (4) high-arousal emotions during ideation are managed by introducing structure or restraint; (5) high-arousal emotions during ideation are managed by soliciting feedback from others; (6) subtle emotional cues are important signals for decision-making during ideation; and (7) reflection on emotional patterns supports professional growth as a designer. These categories represent critical variations in ways of understanding emotional experiences during ideation for the graphic designers who participated in the study.

CHAPTER 5 DISCUSSION

The purpose of this research study was to explore and document the variety of distinctly different ways that graphic designers understand their emotions as they relate to idea generation processes in their professional practice. Based on interviews with fifteen graphic designers, a total of seven categories of understanding emerged as reported in Chapter 4. This chapter presents a discussion of the categories themselves as well as an exploration of the implications for research on creativity and emotion; implications regarding professional identity in design; and implications for learning design specifically. Directions for future research and limitations of the study are also addressed.

Discussion of the Findings

This section will discuss each of the seven categories included in the outcome space as described in Chapter 4, including relationships among the categories when appropriate.

Category 1: Goodness of fit between designer and project elements

This category was concerned with the interaction between the designer and elements of the project and its context, primarily ethical fit, project constraints, and client relationships. The individual designer's perception of goodness-of-fit of these elements with their own professional goals and proclivities often set an emotional tone that influenced subsequent emotional responses during that project, particularly ideation. It is important to note that there was not one ideal combination of project elements that served all participants best. For example, GD2 emphasized ethical concerns, client relationships, and project constraints while GD14 and GD15 focused on ethics and constraints without highlighting the importance of client relationships. On the other hand, GD6, GD7, and GD13 rely heavily on close client relationships, while GD10, GD11, and GD12 all prefer working in contexts where they are distant from the client. Participants also varied

in their preferences regarding project constraints: for example, GD7 prefers a mix of tightly constrained and loosely constrained projects to keep a balance between overstimulation and boredom. Others, such as GD2, GD13 and GD14, emphasized a need to retain some sort of ownership of the design idea in order to feel emotionally positive about the project. For GD14 in particular, this need was so strong that she almost left the profession when her job prevented her from investing herself in the design idea. For GD10, GD11, and GD12, they are more comfortable in a context where they can limit their personal attachment to the design outcome in order to focus on the design problem itself

When projects have a positive emotional context due to sufficient alignment between designer and context, this does not mean that designers feel only positive emotions about the project. To the contrary, these projects may amplify both excitement and fear but counterbalance the increased intensity by supporting confidence (GD9 as an example) and supplying motivation in the form of emotional energy (such as GD6 or GD13) as well as the potential for higher reward in relation to the designer's individual goals (GD7). On the other hand, negative emotional contexts due to poor fit tend to amplify anxiety (GD2 and GD14) or frustration (GD5) without compensatory experiences of excitement, motivation, or confidence.

Interestingly, while these participants traced relationships among their perceptions of goodness-of-fit and its influence on their emotions about and during the project, they hesitated to make direct connections to ideation in terms of project outcomes. While a few designers mentioned that ideas may come more slowly or quickly depending on their fit with the project, none stated that the ideas (and thus the outcome) suffered from a poor alignment of designer and project. This may be due to the need to save professional face; it could be difficult to admit that their work was of lower quality when they did not feel aligned with the project. However, GD14 alluded to this

when she mentioned that “there are a lot of pieces I never think about again, that never go into the portfolio” when discussing projects that were not a good fit for her; while she didn’t negatively evaluate their quality in terms of design, she did indicate that they held little meaning to her and her body of work as a designer. Similarly, GD7 mentioned that, in relation to projects where she ceded her own professional opinion about the design idea to the client (which she is comfortable doing), she is “never unhappy about the details of the design; I just can’t let that happen” indicating that she finds a way to satisfy her own professional standards even when the conceptual idea of the piece was not as she would have preferred it.

Category 2: High-arousal emotions during ideation are present but incidental

Category 3: High-arousal emotions during ideation are managed by seeking calmness

Category 4: High-arousal emotions during ideation managed by introducing structure

Category 5: High-arousal emotions during ideation managed by seeking feedback

Categories 2-5 will be discussed as a group, because they offer alternative pathways for managing the same underlying issue: high-arousal emotions during ideation. For this group, ideation was both a specific phase of design that generally commenced after a period of research and was intended to identify a conceptual direction for the project. During this time, designers may come up with a range of different ideas (sometimes upwards of 20 different visual approaches to the problem) and then filter these ideas down to a smaller number of concepts (or design comps) to present to the client. However, ideation also continues at this point while concepts are being developed into high-fidelity prototypes as creative decisions need to be made during this period. Once a conceptual direction has been chosen and the preferred idea is being developed into a final product, ideation also continues as there are again decisions that need to be made that require designers to generate and select from options. Thus, designers discussed emotional experiences in

relation to both conceptual ideation (i.e., the big idea or creative direction) as well as smaller ideation tasks necessary to realize bigger ideas. It should be noted that all designers mentioned some combination of these feelings upon engaging with ideation, typically excitement, fear, anxiety, or frustration, either simultaneously or sequentially. Some participants mentioned low-arousal emotions such as satisfaction as well, but these were incidental in that they did not trigger any need to process, manage, or reflect on them. Thus, these categories focused primarily on high-arousal emotions such as excitement or fear.

Category 2 (high arousal emotions are present but incidental) describes a way of perceiving and managing high-arousal emotions by minimizing them through lack of attention. For example, GD2 and GD3 reported feelings of excitement, fear, and frustration but often needed additional prompting to name their emotions; both their words and their tone suggested that these feelings were not something they paid a great deal of attention to during their work. For GD3, he attributes his perception of emotions as being incidental at least in part to his personality, which he characterized as being not particularly emotional to begin with, which may explain his lack of sensitivity to the high-arousal feelings he identifies during ideation. Whatever the underlying cause of inattention to their emotions during ideation, by perceiving them as incidental, their intensity and arousal level is likely also reduced for these designers. While this would probably best be considered a passive strategy rather than an intentional attempt to manage high-arousal emotions, it is still a legitimate way of understanding these feelings during ideation – that they are simply not important or influential for some designers.

Category 3 (high-arousal emotions are managed by seeking calmness) describes an approach to managing these feelings that seeks to mute or minimize their intensity by entering a state of calmness – where the designers' minds can be free from their influence. While high-arousal

emotions may be important for some of these designers to engage with ideation initially (such as GD6 or GD7), all the participants associated with this category identified a need to turn down the intensity at some point in order to continue engaging in ideation in a productive way. GD6 and GD7 both described the importance of taking breaks from direct ideation work (by running errands or engaging in production tasks) although for others, the calmness emerges by drawing on confidence (GD1) or just as a perceived natural state (GD4 and GD10). For both GD6 and GD15, this period of calmness provides a harbor for the emergence of high-arousal emotions later on. In the case of GD6, abatement of emotion provides space for emotional cues to emerge later; for GD15, this period of calm allows her to access confidence that she can come up with conventional ideas which gives her a signal to move into a more emotionally-intense experience of taking creative risks during ideation. While the associated designers have unique ways of perceiving and interacting with this period of calmness, in all cases it serves to reduce the arousal level of excitement and/or anxiety that they experience when they engage with the uncertainty of ideation.

Category 4 (high-arousal are emotions managed by introducing structure) was concerned with perception that high-arousal emotions can be contained by incorporating structure and restraint during ideation to bring the intensity of these emotions to a manageable level. In the case of GD8, this element of structure was his supervisor; he relied on her to help him manage and contain his excitement, which causes ideas to spill out of him. His supervisor counterbalances this by helping him restrict this flow of ideas to what is possible in the design context. For GD8 and GD14, the restricting force is located internally. In the case of GD8, she perceives this as being a reflection of duality in her own personality of being highly organized on one hand, and hare-brained on the other. By externalizing her thoughts in very detailed ways, it allows her to contain the intensity of excitement to a level that helps rather than hinders her design work. GD14 also

calls on herself to impose order on anxiety about ideation through maintaining timeframes of her choosing on ideation tasks and intentionally alternating these periods with other design work to keep herself within her own schedule. While Category 4 was concerned with using a state of calmness to mute high-arousal emotions, Category 5 is aimed at intentionally containing and balancing their intensity by imposing some structure on them. As such, this represents a more active attempt to managing this high-arousal emotions as the associated designers must take specific actions to institute restraint; for some (but not all) designers in Category 4, calmness was something that came over them rather than something they specifically induced for themselves.

Finally, **Category 5** (high-arousal are emotions managed by seeking feedback) also represents an active strategy to manage intense feelings during ideation, but does so by introducing an element external to the design context through feedback from peers. For GD10, this is specific for situations where she doesn't feel like she has enough information about the design problem to make decisions on her own, which relates to uncertainty driven by lack of confidence. For GD14 and GD15, the need for feedback is more globalized but also related to anxiety borne out of a lack of confidence as well as reducing isolation for GD14. While GD10 and GD14 are both able to draw boundaries for when feedback is effective and useful, GD15 described her need for feedback as producing anxiety and undermining her confidence in the long run, possibly because it lacks such boundaries. However, the core drive for reassurance to boost confidence in the face of high-arousal emotions during ideation are similar for all three.

Categories 2-5 illustrate that there are many different paths for regulating and tempering high-arousal emotions during ideation – through minimizing attention, through muting emotional input by maintaining a state of calm, through introducing structure or restraint to the ideation process, or through inviting outside feedback to reduce anxiety and bolster confidence. While some

identify a need for high-arousal emotions in order to be able to engage with ideation tasks initially (as a motivating force, for example), it is not clear that all designers perceive these emotions as necessary or functional in some way for ideation, although they did all identify them as present during ideation at various points. Although each approach arrived at the destination differently, they all shared a common goal of down-regulating the intensity of emotions. For many, this was necessary to either improve the lived experience of the ideation process for the designer, to improve the quality of design ideas, or to maintain forward movement in the design process itself.

Category 6: Emotional signals are intuitive cues for idea evaluation

This category had the nine participants associated with it, the highest number of any single category. Their narratives echoed a common experience of intuition judgment that told them when an idea was working and gave them the green light to head the design in that direction. Again, for this group of designers, this could be in reference to a big-picture conceptual idea or a smaller idea related to a component or element of the whole. These moments were intimately tied to decision-making about creative direction and momentum, as they allowed for the closing of the present ideation task and allowed forward movement into the next. At the same time, these signals varied in terms of the degree of the emotional valence they carried. In other words, for many participants, the emphasis often was not on whether the feeling was positive or negative; instead, many of the words they used (satisfied, settled, balanced, comfortable) seemed to refer to a state of internal equilibrium, neither aroused or not-aroused, with a broad or generic overtone of pleasure. As the relevant quotes in Chapter 4 indicate, many participants struggled to find the words to describe these moments of insight or intuition beyond vague or generic statements. Others identified specific feelings such as relief (GD7), excitement (GD12), or satisfaction (GD1), and others made somatic connections with their gut (GD6, GD7).

GD6, however, shared a particularly complex understanding of this experience; he clearly relies on and cultivates his internal compass as a foundation for his design decisions, integrating emotional, somatic, and intellectual elements in his understanding of it. To paraphrase his passages in Chapter 4, his intuitive signal (often experienced physically) about the value of an idea always precedes his cognitive rationale; once his intuition tells him an idea is right (or wrong), he knows he can then make an intellectual validation for the idea (i.e., to justify it to the client) but the internal compass must ping first. Similarly, both GD2 and GD13 perceived that their emotional and intellectual responses were integrated or inseparable parts of their intuitive judgments – as GD2 put it, it is both “a feeling and a knowing.” While GD6 understood the relationship to be sequential rather than simultaneous, these three designers in particular offer a more complex view on the way emotions may be linked to intellectual design knowledge via intuition.

Category 7: Reflection on emotional patterns supports professional growth

This category is appropriate as the final finding since it involves the participants' experiences with reflection on their own emotional patterns, with the key distinction being how that reflection has changed their sense of themselves as a designer in some way. For GD1, gaining an understanding of his emotional patterns allowed him to gain confidence in his ability to navigate the design process more easily; this required him to sacrifice brash belief in the brilliance of his ideas in favor of a professional identity that emphasized steady competence, a trade-off that was worth it for him. For GD6, a deep familiarity with the emotional signposts of ideation has allowed him to navigate these processes more easily via more sensitized intuition. As someone who conflates his identity as a designer with his emotional sensitivity (the designer as empath), this insight seems particularly important to developing and maintaining his professional identity. For GD7, a lessening of negative emotional responses to criticism was linked with the acceptance of

the notion that there can be many possible solutions to a design problem. This represented a big shift in her sense of herself as a designer, from one whose ideas must be right to one who can be comfortable embracing a client's perspective alongside or before her own. GD15 represents an emerging awareness on her own need to reflect on her emotional patterns and how they might be impeding her business. If she does undertake the task of reflecting and acting on her insights, she might find herself changing into the type of designer who tunes out her emotions during ideation, or she might find herself managing these emotions differently in some way. In either case, the end result would be a shift in her sense of self as a designer that is driven by insights into her emotional patterns.

Implications for research on creativity and emotion

Existing research on ideation and emotion tends to position ideation as an isolated act that is separated from problem identification and evaluation (Davis, 2009) while conceptualizations of creativity view this as integrated or entwined activities that are directed toward the goal of realizing a novel solution to a problem (Kozbelt et al, 2010; Plucker & Makel, 2010; Ward & Kolomyts, 2010). For the designers in this study, the latter seems to be a better fit for understanding how they position and enact idea generation: it is always intimately linked to idea evaluation. In fact, for GD1 and GD11, they both described idea generation as a process of searching to arrive at the destination of a good idea. Likewise, many designers conflated the concepts of ideation, creativity, and design in their narratives about their experiences. The emotions that designers feel around ideation arise from the design problem and context itself, rather than being induced by experiences outside of the creative problem as is typically the case in experimental research on creativity and emotions. This implies that there are distinct and notable differences in the way ideation and associated emotional experiences are defined and enacted in applied versus experimental contexts.

However, there were still noticeable parallels in the findings of this study to the results of prior studies on emotions and creativity. For examples, the results of Davis (2009) and De Dreu et al (2008) suggest emotional arousal level may be more influential on creativity than the valence of the emotion. The findings related to Categories 2-5 (managing high-arousal emotions during ideation) lend support to the idea that high-arousal emotions are an important affective condition that accompanies embedded ideation tasks, a conclusion that also emerged in the work of Sas & Zhang (2010). The work of Fong (2006) as well as Sas & Zhang (2010) further suggest that combinations of ambivalent emotions as important affective conditions for creativity. While this study was not primarily focused on explicitly cataloging the types of emotions participants experienced but rather their understanding of these emotions, it was clear from their narratives that they often experience ambivalent combinations of high-arousal emotions, such as excitement and fear, anxiety, or stress.

Another critical difference between experimental research on creativity and the findings that emerged from the lived experiences of designers is the role of discrete emotional states as compared to the role of emotional patterns over time. Most experimental research is concerned with isolated and induced emotional states that directly precede idea generation tasks. The designers in this study were more concerned with emotional patterns that developed over time; while these were most evident in Categories 1 (goodness of fit between designer and project) and 7 (reflection on emotional patterns supports professional growth) although emotional patterns were a component of all the outcome categories. For Categories 1 and 7, however, emotional patterns were at the heart of the designers' experiences, how they viewed the profession and their role in it, and how they understand themselves as designers.

The role of emotional patterns in design ideation has important implications for the work

of Baumeister et al (2007) on emotions as a feedback system for cognition. This relationship seems quite important for many designers, and the value of emotions as a feedback mechanism arises in part from the accumulated experience that designers have with their emotional signals during ideation. Category 6 (emotions as intuitive emotional cues for evaluating ideas) is provides support for this theory within an applied context, with GD6 in particular offering meaningful insights into how this process unfolds for him. More research on the role of intuitive signals as feedback for cognitive processes in creativity is needed, with Hodgkinson et al (2008) providing a framework for integrating they emotional, physical, and cognitive influences on intuition.

Finally, the theory of emotional labor as described by Grandey (2000) may prove to be a fruitful lens for investigating the emotional experiences of designers during ideation. This theory is concerned with how people regulate the experience and expression of emotions during the performance of occupational expectations. Categories 2-5 (managing high-arousal emotions) directly address the ways that these designers regulated intense emotions during ideation, while Categories 1 (goodness of fit between designer and project) and 7 (reflection on emotional patterns to support professional growth) both describe larger patterns of emotional regulation across multiple occupational experiences. More focused investigations of how designers manage their feelings and the expression of these feelings could shed additional light on the relationship between emotions in embedded creative contexts such as design.

Implications for learning design and allied design fields

While this study focused on graphic designers, its findings contain meaningful implications for learning design specifically as well as design as a general field of practice and inquiry. First, graphic design and learning design are both subsumed under the broad umbrella of design as a community of practice (AIGA, 2016; Boling, 2008; Frascara, 2006; Nelson & Stolterman, 2003;

Tracey & Boling, 2013). Furthermore, these fields share a special affinity for each other in that they are both concerned with organizing and presenting information visually to an audience; although the purpose of this presentation may vary, both rely on Gestalt principles of human perception to provide form to content (Frascara, 2006; Richey, Klein, & Tracey, 2010). At the same time, there are meaningful differences in their ideation processes, at least in my history as a practitioner and researcher in both fields. For example, it is common for graphic designers to develop several high-fidelity concepts for a given project before working with the client to choose a direction, while learning designers do not engage as comprehensively in generative ideation processes based on my experiences. For example, a logo design project often involves selecting and developing at least three to five design concepts (and sometimes many more), whereas it is uncommon for a learning designer to come up with this many distinctive ways solving a learning design problem. This isn't too say that one approach to ideation is preferred over the other, but rather to point out that contextual and historical influences on the respective fields may result in different experiences of ideation. However, the fields have substantial overlap with each other and with design as a larger community of practice. While the implications discussed in this section focus specifically on learning design, it is possible that they could be successfully extrapolated to other fields, although discipline-specific modifications may be necessary.

Perhaps the most important implication that arises from these findings is the role of emotions as an aspect of professional identity for designers. Category 1 (goodness of fit between designer and project) and Category 7 (reflection on emotional patterns as a support for professional growth) are the most relevant for this, although Categories 2-5 (managing high arousal emotions during ideation) and Category 6 (emotional cues as intuitive signals for idea evaluation) are also linked to professional identity as a designer. For participants in this study, the fit between the

designer and the project (Category 1) had important consequences for their own understanding of how emotional attitudes about their work influence their identity as a designer. It should be noted that the main elements of the project that influenced goodness of fit – ethical considerations, client relationships, and project constraints – are all directly relevant to the context that learning designers operate within as well. For example, GD14 found the misalignment between herself and her projects impeded her ideation to the point that she considered leaving the profession entirely. For other designers, misalignment with the project triggered more high-arousal negative emotions around ideation, again to the point where some sought out different professional positions in order to escape these negative feelings. Thus, achieving a good fit has important implications both for professional identity and as well as ideation processes. It is also important to note that the participants in this study largely conflated design with ideation; in other words, they view the ability to come up with good ideas as the core responsibility of design and often used the concepts and words design, ideas, and creativity interchangeably. This underscores the importance of goodness of fit and its emotional consequences for designers when it is achieved or not achieved.

Reflection on emotional patterns (Category 7) were a catalyst for growth or change in professional identity for some participants; in other words, this reflection process resulted in a modification of their understanding of themselves as a designer, either solidifying their identity (GD6) or shifting it (GD1, GD7). It is important to note that these findings do not prescribe or advocate a particular relationship between emotions and creative design work. Instead, they emphasize that designers must undertake the task of understanding themselves – their personalities and proclivities – in relation to the emotional demands and affordances of design in order to better understand themselves as designers and manage the emotional aspects of creativity embedded in complex contexts.

One key emotional task during ideation appears to be management of intense, high-arousal emotions, as demonstrated in Categories 2-5. The important implication again is that there are multiple possible pathways to handle intense feelings during ideation, and thus multiple ways of being a designer. The particular pattern a designer engages in has meaningful implications for what it means to be a designer for that individual (i.e., that being a designer means calming or containing high-arousal emotions) and how they integrate their own personality with their professional responsibilities. Thus, understanding one's own habits for managing high-arousal emotions may constitute an important part of professional identity for designers generally. Research on uncertainty and reflection in graduate learning design students (Tracey & Hutchinson, in press; Tracey & Hutchinson, 2015a) suggests that students in this field often experience high-arousal emotions around uncertainty in design, including both positive and negative high-arousal emotions, either singularly or in pairs. Thus, the implication that being a learning designer also involves managing these emotional states is important for understanding emotional labor and its relationship to professional identity in learning design.

Likewise, recognizing how and when subtle emotional cues arise as a signal for idea evaluation may represent an important threshold in understanding the self as a designer, especially since these cues are often muted or difficult to explain, yet are seen as crucial to successful design outcomes for many participants. Identifying how these cues are refined over time and through experience is another important component of intuition as a pillar of professional identity. GD6 in particular recognized and reflected on his processes for developing intuition by expanding his store of design precedents to calibrate his internal design compass and serve as fuel for ideation and evaluation. Thus, an important component of professional identity for learning designers may include recognition of intuitive moments and their role as a feedback mechanism for design

decisions or cognition, as well as an understanding of how intuition is developed and maintained over time.

Finally, it is important to consider implications for learning design education in light of these findings and their relationship to learning design as a profession. Recalling Dall'Alba (2009) and Tovey et al (2010), a transformative approach to professional education involves providing students with opportunities to explore how they subjectively embody the professional role, above and beyond the acquisition of knowledge and skills. Thus, it is important to provide design students with the opportunity to both experience the performance of the role of designer through authentic projects, but also to provoke them to reflect on how these experiences help them understand themselves as designers. For example, design students should have the opportunity to work on authentic design projects that vary in terms of ethical considerations, project constraints, and the nature of client interaction and involve embedded divergent and convergent ideation activities. Hand-in-hand with this, they should be given opportunities to reflect on what these experiences feel like, how they handle these emotions, what patterns or differences emerge based on the project context, and how they understand themselves as emerging designers in relation to these issues.

Interestingly, after our interview had ended, GD6 thanked me for the opportunity to reflect on his emotions as he doesn't often have the chance to deliberately step back and think about them in his day-to-day work, although he does rely on them heavily in his design practice. GD2 emailed me after the interview to mention that she had started paying more attention to her emotions in her work, and several other participants mentioned that they were intrigued by the study because they had never really considered how their emotions might play a role in design or ideation. Establishing reflection on emotions, design, and identity as a habit during design education may support designers in carrying this practice into their professional role as an intentional strategy for ongoing

professional identity development and growth.

These considerations are particularly crucial to learning design educators; we are unique among design educators in that our field is self-reflexive – we design learning experiences that support our students in learning how to design learning experiences. Thus, the experiences we design as part of professional education for our field act as important models and design precedents for students and should mirror the principles and standards we expect them to enact when they assume the professional role. Providing students with opportunities to (1) engage in authentic problem-based learning around divergent and convergent creative thinking and (2) reflect on their subjective emotional experiences and patterns that accompany these activities are crucial supports for the construction of a preliminary sense of professional identity that is closely aligned with the transfer context they will encounter when they leave school and enter the profession.

Directions for future research

Because the study of both designers' personal emotions and professional identity in design are both recently emerging lines of inquiry, the possibilities for future research are expansive. Building on Chapter 2 which discussed possible directions for future research in this area as well as outlined methodological options, this section will focus on possible research topics relative to designers' emotions during design, professional identity in design, and design education.

In terms of potential research topics, continuing investigation of the nature of designers' emotional experiences (i.e., the types of feelings they experience and when they experience them) remains important to augment existing research. In particular, ambivalent emotional pairings, whether sequential or simultaneous, appear to be an important component of ideation for many designers and thus worthy of more focused research attention. Research that specifically examines how uncertainty may elicit emotional responses that feed designer cognition and performance

during design would also enrich our understanding of why certain emotions arise during ideation, how they are managed, and what function they might serve. The Uncertainty Driven Action (UDA) model developed by Cash & Kreye (2017) may be a particularly useful framework for examining how emotions interact with design actions, tasks, and activities. The UDA model positions the designer's metacognitive uncertainty perceptions as a primary driver of design activity; for many of the designers in this study, initial engagement with ideation was associated with high-arousal emotions and thus may serve as an emotional cue or correlate for metacognitive awareness of uncertainty. Likewise, intuitive emotional cues that emerged in response to good ideas may serve as a signal that uncertainty has been sufficiently modified to allow forward progress in the UDA model. While these connections are conjecture at this point, there appears to be a natural alignment of the UDA model and emotional cues as feedback for cognition as outlined by Baumeister et al (2007).

Professional identity development also provides a rich landscape for further investigation of designers' emotions during ideation, in particular the emotional patterns that designers display, identify, and/or reflect on as part of their work. It was clear that many of the designers in this study were attuned to their emotional patterns generally and specifically used these patterns as a basis for deepening or changing their sense of professional identity. More research is needed on professional identity in design as a general construct, including how it is developed and maintained, and what aspects of the professional role are emphasized or de-emphasized. Along with this, it will be important to specifically investigate how emotional experiences influence (or are influenced by) other aspects of professional identity. As mentioned previously, emotional labor as defined by Grandey (2000) may provide an important theoretical framework for understanding how designers manage emotions in service of their design work, and how these strategies influence their

professional identity.

In terms of design education, more research is needed on the types of learning activities that support professional identity development and how they can be implemented in different design disciplines in contextually-appropriate ways to provide a transformative (rather than acquisitional) educational experience. This will require investigation of how design projects should be constructed to provide varied experiences in terms of constraints, client contact, and ethical considerations as a starting point. It also requires further study of how to best support students in recognizing and managing emotional patterns around uncertainty, including the high-arousal emotions that surround engagement with uncertainty and the intuitive emotional cues that feed decision-making about ideas. Reflective writing has been shown to be an effective method for facilitating meaning-making in graduate learning design students (Tracey & Hutchinson, 2016; Tracey et al, 2015) and bears further inquiry into how it can best be incorporated in discipline-specific ways in terms of topics, format, medium, and feedback.

Limitations of the study

While I have attempted to remain transparent about my method and identity as well as loyal to the words of my participants, there will always be some degree of inherent bias in qualitative research generally and phenomenography specifically. It is entirely possible that another researcher could take these interviews and come up with a distinctly different mapping of the critical variations in understanding. That would not negate this set of findings, however; provided they can both stand by their own merits, they can stand together. This study was intended as an investigation of a little-known phenomenon to provide a preliminary understanding of it from the perspective of those who experience it, and to identify potential directions for future research. These findings should be considered within the context and boundaries of those goals.

This study was based on gathered data from interviews that were centered around the participants' self-perceptions, which are frequently criticized as a data source because they are highly subjective and prone to error. At the same time, self-perceptions are an important perspective for understanding the lived experience of phenomena as they provide context and insight that may not be accessible via other data sources or analysis methods. In the case of this study, data collection and analysis remained focused on participants' understanding of their experience and no attempt was made to equate these perceived understandings with objective performance. Again, the findings of the study should be considered within the context and boundaries of the method and goals.

Finally, the participant pool included only fifteen designers; although this is an appropriate number for phenomenography, it should be acknowledged that the number is small. They were also limited to experienced graphic designers who work in urban contexts in the Midwestern United States, almost all of whom either work directly or indirectly for corporations or other organizations for part or all of their design work. Findings may be more or less applicable or relevant to other design disciplines; to other regions, countries, or cultures; and to other graphic designers who work outside of corporate and/or organizational contexts.

Summary

This study sought to explore the variety of ways that graphic designers understand their emotional experiences during ideation, drawing on phenomenography as the method for gathering and analyzing data based on interviews with fifteen graphic designers. The outcome space for this study outlined seven distinctly different ways that these designers understood their emotional experiences, including how alignment with the project and its context influences emotions before and during ideation, how high-arousal emotions are managed during ideation, how emotional cues

support decision-making during ideation, and how emotional patterns affect growth and identity as a designer. These findings suggest that designers' emotions are important, if not integral, to their ideation processes specifically as well as their practice and identity as a designer generally. This topic offer exciting opportunities for future research in a variety of directions and I hope this study contributes in some small way to understanding how designers experience, manage, and use their emotions in their work.

APPENDIX A: EMAIL TEMPLATE FOR CONTACTING POTENTIAL PARTICIPANTS

Subject: Wayne State University study on graphic designers, emotions, and ideas

Dear _____,

First, I'd like to thank you for taking the time to review this email. I am a doctoral candidate in Learning Design & Technology at Wayne State University and have been approved by our Institutional Review Board to conduct a study called *Designers, emotions, and ideas: A qualitative investigation of graphic designers' emotional experiences during ideation*. My goal is to learn more about how designers experience emotions as part of their professional practice.

I am currently recruiting potential participants for the study and you were identified from/by (name of source here) as someone may be interested and eligible to participate. Criteria for participants includes:

- Currently working as a graphic designer
- 5+ years of experience in graphic design
- Willingness to discuss a recent or memorable design project where you had primary and solitary responsibility for coming up with ideas
- Willingness to share a copy of your final design
- Completion of a brief online survey regarding your professional training and experience
- Participation in a 45-60 minute interview regarding your chosen project, ideation processes, and related emotional experiences.

Interviews will take place in-person at your place of work or, if you do not work in a fixed location, another related site of your choosing. I am happy to schedule a time and location that is convenient for you. I have also attached a research informed consent sheet for your review that contains more detail about the study; if you decide to participate, I will collect the signed form at the interview.

If you are interested in participating, please reply to this email and include 2-3 time slots in the next month that would be convenient for you as well as your contact phone number. If you have any other questions, please don't hesitate to contact me.

Thank you so much for your time and we look forward to talking with you soon!

Best,

Alisa Hutchinson
 Doctoral Candidate
 Learning Design & Technology, College of Education
 Wayne State University, Detroit, MI
alisa.hutchinson@wayne.edu
 313.409.9442

APPENDIX B: INFORMED CONSENT SHEET

Research Informed Consent Designers, Emotion, and Ideation

Principal Investigator (PI): Alisa Hutchinson
Wayne State University
College of Education
Learning Design and Technology
(313) 409-9442
alisa.hutchinson@wayne.edu

Purpose

You are being asked to participate in a research study that will explore graphic designers' experiences with idea generation and emotion as part of their professional practice. This study is being conducted at each participant's workplace or other site of choosing. The total number of participants is estimated to be approximately 10-15 graphic designers from metropolitan area of Detroit, Michigan. **Please read this form and ask any questions you may have before agreeing to be in the study.**

The purpose of this study is to investigate emotions as part of the creative process of design professionals when they are generating ideas in their practice. In particular, the study will be addressing the types of emotions that designers experience, the role they play, and how they are managed. The findings of this study will help us better understand how designers engage in their professional practice as well as help clarify the relationship between creativity and emotion.

Study Procedures

If you agree to take part in this research study, you will be asked to provide consent to:

1. Participate in an interview lasting approximately 45 minutes conducted in your primary workplace or other location of your choosing. During the interview, you will be asked to describe a completed design project and reconstruct your thoughts, actions, and feelings related to this project.
2. Provide the principal investigator with either physical or digital representation(s) of the work product you described during the interview, including the final design as well as earlier iterations if possible and appropriate.

Benefits

There will be no direct benefit for participants in this study, but findings from this research project may benefit others now or in the future.

Risks

Participants will be asked questions pertaining to the emotions they experience while engaged in professional work, which may represent a risk for psychological discomfort or distress. There is also a risk of loss of confidentiality, although the likelihood of this is minimal. The principal investigator will store all data collected in confidence, and access to the data will be limited to the principal investigator and her advisor. There may also be risks to participation that are unknown to the principal investigator at this time.

Confidentiality

All information collected about you during the course of this study will be kept confidential; you will be identified in the research records by a code name or number. Information that identifies you personally will not be released without your written permission. However, the study sponsor, the Institutional Review Board (IRB) at Wayne State University, or federal agencies with appropriate regulatory oversight [e.g., Food and Drug Administration (FDA), Office for Human Research Protections (OHRP), Office of Civil Rights (OCR), etc.] may review your records.

When the results of this research are published or discussed in conferences, no information will be included that will reveal your identity.

Study Costs

Participation in this study will be of no cost to you.

Compensation

You will not be paid for taking part in this study.

Voluntary Participation/Withdrawal

Taking part in this study is voluntary. You have the right to choose not to take part in this study. If you decide to take part in the study you can later change your mind and withdraw from the study. You are free to only answer questions that you want to answer. You are free to withdraw from participation in this study at any time. Your decisions will not change any present or future relationship with Wayne State University or its affiliates, or other services you are entitled to receive.

The PI may stop your participation in this study without your consent. The PI will make the decision and let you know if it is not possible for you to continue. The decision that is made is to protect your health and safety, or because you did not follow the instructions to take part in the study.

Questions

If you have any questions about this study now or in the future, you may contact Alisa Hutchinson or one of his research team members at the following phone number: (313) 409-9442. If you have questions or concerns about your rights as a research participant, the Chair of the Institutional Review Board can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Consent to Participate in a Research Study

To voluntarily agree to take part in this study, you must sign on the line below. If you choose to take part in this study you may withdraw at any time. You are not giving up any of your legal rights by signing this form. Your signature below indicates that you have read, or had read to you, this entire consent form, including the risks and benefits, and have had all of your questions answered. You will be given a copy of this consent form.

Signature of participant

Date

Printed name of participant

Time

Signature of person obtaining consent

Date

Printed name of person obtaining consent

Time

APPENDIX C: ONLINE SURVEY (DISTRIBUTED VIA GOOGLE FORMS)**Background Survey
Designers, Emotion, and Creativity**

Principal Investigator (PI): Alisa Hutchinson
Wayne State University
College of Education
Learning Design and Technology
(313) 409-9442
alisa.hutchinson@wayne.edu

Purpose

This survey is designed to collect general background information about participants in the study “Designers, emotion, and creativity: A qualitative investigation of visual designers’ perceptions of emotions during ideation.” The goal is to gather basic data that will help the researcher understand you and your practice a little better.

Participants are asked to complete this survey prior to their scheduled interview for the study. Please ensure that you have also returned a signed Research Informed Consent team prior to completing this survey and the research interview. Thank you!

1. How long have you been in the field?
2. Do you have any training in graphic design? Can you describe that?
3. Can you briefly describe your work history?
4. What kinds of projects do you typically work on?
5. If someone asked you to describe your visual style, how would you respond?
6. How would you explain what it means to be a graphic designer to someone else?
7. How important do you think creativity and the ability to come up with ideas is to your work?

APPENDIX D: SEMI-STRUCTURED INTERVIEW PROTOCOL

I'd like to talk to you today about your experiences as a graphic designer, including how you generate ideas in your work and the emotions you experience during idea generation. First, I'd like to confirm that you have read and signed the informed consent form. Do you have any questions about the study or the process before we start?

Before we move on, let me summarize the answers you provided through our online survey about your background and practice to make sure I understand them.

[At this point, the interviewer will briefly outline and confirm the participant's responses to the background survey.]

Exploring ideation on a specific project

Next, I'd like to talk with you about a specific project that you've recently completed, where you had primary and solitary responsibility for generating design ideas. Can you describe the project to me?

Possible follow-up prompts:

What were your thoughts and feelings when you first heard about the project? Why?

How did you feel when you confirmed you would be working on the project? Why?

What did you hope to accomplish on this project?

What was the context of this product, i.e., where or how was it expected to be used?

Can you describe your client a little bit?

Were there other people involved in the project and if so, what were their roles?

How would you describe your role in the project overall?

Where did your design work take place?

Can you briefly outline your design process for this project from start to finish? What were the key phases or tasks?

Would you describe the final design for this project as a success? Why or why not?

How did you feel about the outcome? What were those feelings based on?

Next, I'd like to focus your experiences and feelings as you first began thinking about ideas for this project. What did you do and how were you feeling as you prepared to generate ideas?

Possible follow-up prompts:

What sorts of activities did you engage in to help you come up with your initial ideas?

Did your emotions play any role in the choices you made about idea generation activities?

What sources did you turn to as part of your initial idea generation process?

Did these sources draw out any particular feelings for you? Can you describe them?

How did you feel during these initial steps?

Can you describe the feeling(s) in a little more detail?

Is there anything else you were feeling?

How important were these feelings to your idea process?

What impact do you think they had on your progress or on the design? Why or how?

Did they help or hurt your work? Why?

Can you make any connections to your earlier drafts or final work product?

How did you respond to these feelings? Why?

Did you feel like you needed to do anything to manage or control these feelings?

Did you express these emotions in some way (by talking to someone, journaling, self-talk, social media)?

Are these experiences typical for you in your work? If not, how did they differ from other projects?

Now I'd like you to think back on the idea that you think had the biggest impact on final direction of the project. This does not necessarily need to be the idea for the final form of the design, but rather the idea or insight that you feel was most important to helping you get to the final outcome. Take a few moments to reflect or talk through this if you need to. Can you describe the turning point idea for this project?

Possible follow-up prompts:

At what point did this idea emerge?

What were you doing and feeling prior to the turning point idea?

What were you doing and feeling at the time that this idea emerged?

What were you doing and feeling after this idea emerged?

What activities or sources did you draw on when coming up with this idea?

What feelings were associated with these activities or sources for you?

What impact did these feelings have on the process for you?

How did your feelings influence you?

Did your emotions play an important role in coming up with this idea?

What impact did they have the turning point idea?

What impact did they have on the design moving forward from this point?

Can you make any connections to your earlier drafts or final work product?

Did they help or hurt your work?

How did you respond to these feelings?

Did you feel like you needed to do anything to manage or control these feelings?

Did you express these emotions in some way (by talking to someone, journaling, self-talk, social media)?

Were these experiences typical for you in your work? If not, how did they differ?

General thoughts on emotion, ideation, and design

Possible follow-up prompts (if similar topics do not emerge earlier in the interview):

What function(s) do emotions play for you?

How do they influence you as a designer?

What strategies do you use to manage your emotions?

Has your experience with emotions in your work changed over time? If so, can you describe those changes?

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ABSTRACT**DESIGNERS, EMOTIONS, AND IDEAS: HOW GRAPHIC DESIGNERS UNDERSTAND THEIR EMOTIONAL EXPERIENCES AROUND IDEATION**

by

ALISA HUTCHINSON**August 2018****Advisor:** Dr. Monica W. Tracey**Major:** Learning Design & Technology**Degree:** Doctor of Philosophy

Research on the role of designers' own emotions as an influence on design processes, outcomes, and professional identity is limited but indicates that these experiences may play a meaningful role in design, particularly around ideation processes. This phenomenographic study sought to investigate and identify critical variations in the ways that graphic designers understand their emotional experiences around ideation. Based on interviews with 15 graphic designers, seven distinct categories of understanding emerged. These included (1) goodness-of-fit between designer and project sets an emotional tone for ideation; (2) high arousal emotions are present during ideation but incidental; (3) high arousal emotions are present during ideation and are managed by seeking calmness; (4) high arousal emotions present during ideation are managed by introducing structure or restraint; (5) high arousal emotions present during ideation are managed by seeking feedback; (6) emotional cues serve as intuitive signals for idea evaluation; and (7) reflection on emotional patterns supports professional growth. Implications for the relationship between creativity and emotions as well as for learning design and allied fields are discussed. Directions for future research on creativity and emotions, professional identity in design, and design education are also identified.

AUTOBIOGRAPHICAL STATEMENT

Alisa Hutchinson is a Michigan native with a Bachelor's degree in General Studies from the University of Michigan and a Master's in Educational Psychology from Wayne State University. Prior to returning to graduate school, she worked as a proposal writer and graphic designer, primarily working in the corporate real estate sector. She is interested in the intersection of design, creativity, and psychology, both as a researcher and teacher. Her current research work is focused on reflective and intuitive decision-making in both practicing and student designers, with an emphasis on understanding the role of emotion in creative cognition. Along with this, she is also interested in how designers construct and maintain a sense of professional identity over time, what sorts of experiences help facilitate identity development, and what impact identity has on professional achievements and satisfaction. She is also interested in exploring qualitative and mixed method approaches to design research.