The Affective Dimension of Visual Design: Importance of Understanding Holistic Visual Perceptions

This literature review discusses the need for instructional visual design research to investigate the 1) combination of multiple visual elements as opposed to single visual elements, and 2) student factors in addition to the material design factors. Particularly, students’ affective process influences the learning as a holistic experience and incorporating the affective dimension is critical to design effective instructional visuals. Finally, this review suggests a method for investigating holistic visual perceptions.

Multiple Dimensions of Instructional Visual Design

Since visual design plays a critical role in instructional material design (Brown & Green, 2011), many scholars have formulated principles to help designers develop effective visual materials (e.g., Fleming & Levie, 1993; Lohr, 2008). Such principles are often based on findings from experimental studies that focus on a single visual element (See Morrison & Ross, 2014) since it is critical for experimental studies to control confounding variables. For example, Nakarada-Kordich and Lobb (2005) focus on colors. However, in actual learning settings, it is unrealistic that learners are exposed to just a single visual element. As Karl (1994) says, “images do not occur in isolation” (p. 199). Every instructional material consists of various visual design elements, and thus there is a synergy between them (Koffka, 1935). Merleau-Ponty (2013) argues that the whole experience should be directly described instead of being...
analyzed into parts since this is the only way to understand the truth of someone’s experience. Namely, to understand the impact of visual designs on student’s learning experience, the effect of the combinations of multiple visual elements as a whole, as opposed to single visual elements, should be described.

**Importance of Affective Consideration**

Dewey (2005) argues that the quality of an object cannot be determined independent of human beings but exists in the interactions between people and the objects. Each student brings a different background, which impacts how the visual design of learning materials are perceived. The same notion is shared by phenomenologists who assume that the reality of objects can be understood only through the experience of individuals (Creswell, 2012). Accordingly, to understand how students experience the visual design of instructional materials, it is critical to investigate not only the material design factors but also the student factors.

Particularly, Norman (2002) points out that certain emotional processes can interfere with the cognitive process and thus can interrupt learning. Scholars in neuroscience argue that not only are cognitive and emotional processes highly related to each other but also emotion shapes the architecture of the human cognition (Greenspan & Benderly, 1998). While students are engaging with learning tasks, they experience certain emotions that in turn determine how they structure the learning content in their brains. Thus, to enhance learning as a holistic experience, it is essential to consider the affective as well as the cognitive aspect of the learning experience.

Despite this broad interest, Keller and Burkman (1993) point out that there are a lack of studies on how to design motivating materials. Likewise, Bishop (2014) argues, “message designers also will need to become more mindful of the non-cognitive factors” (p. 380). Reeves (2006) reports, “most instruction in higher education is focused on the cognitive domain rather than the affective” (p. 297), and he added that one simple reason for the state is that it is easier to measure cognitive goals than affective goals.
Research Method to Understand Holistic Visual Perceptions

Creswell (2012) states that it is difficult for quantitative measures and statistical analyses to capture complex phenomenon. Indeed, Giorgi (2012), despite his background in experimental psychology, argues that reductionist approaches like experimental studies could not grasp the totality of human behavior and experience. He was inspired by phenomenologists and developed a phenomenological method, *descriptive phenomenological psychological method*, to study the whole human embracing the complexity of the affective process. Keller (1987) also emphasizes the importance of audience analysis for motivational design and recommends designers conduct interviews with learners. He adds, “it is not possible to give concrete, generalizable prescriptions for what will motivate any given audience or individual” (p. 1). To understand how visual designs influence students’ holistic experience, embracing affective and emotional dimensions, it is critical to consider an interview as the method of inquiry.

Bishop (2014) states that message design studies not only focus predominantly on cognitive dimension but also did not evolve a lot since Fleming and Levie’s earlier work. To date, Grabinger and Amedeo (1988) seem to most directly respond to the needs of investigating multiple visual elements simultaneously as well as considering the affective dimension of the learning experience. They showed that different combinations of visual elements impact the learners’ perception of the ease of reading and studying the materials, which touches the affective dimension of a learning experience. However, there are various aspects of visual design that remain uninvestigated in their study such as typeface or color which significantly affects people’s affective perceptions (Lohr, 2008; Gatto, Porter, & Selleck, 2011). Furthermore, their study consisted solely of quantitative measures and did not report why different combinations of visual elements were perceived differently and how learner factors, such as their previous experiences, impacted the perception of the visual designs.

Without understanding the mechanism of how learners’ visual perceptions are formed, it is harder to predict the visual design of instructional materials that motivate learners (Keller, 1987), bring optimal affective experiences (Norman, 2002), and thus, enhance learning as a holistic experience (Dewey, 2005; Greenspan & Benderly, 1998). As Keller and Burkman (1993) point out, there are a lack of studies on
how to design motivating materials. This could be due to the fact that most instructional visual design studies use experimental study methods and focus on a single visual element (Morrison & Ross, 2014), and such reductionist approaches could not grasp the complex nature of human experience (Creswell, 2012; Giorgi, 2012; Merleau-Ponty, 2013).

Understanding the structure of the student’s experience of instructional materials and the factors affecting the students’ perceptions of instructional materials will inform future designers how to predict what kind of visual designs would bring positive learning experiences to students. A method designed to describe individual experiences in order to retrieve the universal structure of the experience is phenomenology (Creswell, 2012). Particularly, Giorgi’s (2012) descriptive phenomenological psychological method would be beneficial to understanding students’ affective processes.

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References


