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Consumer creativity: Effects of gender and variation in the richness of vision and touch inputs

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ABSTRACT

This study investigates the influence of vision and touch inputs and gender on the creativity of consumer-derived product concepts. Manipulating vision and touch richness affects how much information is apprehended from product components. Tests include solid three-dimensional components (rich inputs) and line-diagram two-dimensional components (impoverished inputs). In a controlled laboratory setting, consumers imagined products, and the product concepts' creativity was assessed on functionality and novelty. Results show that higher vision levels and touch inputs enhance the product concept's functionality, while lower levels of vision and touch inputs enhance novelty. Gender modestly affects both functionality and novelty, with women generally more creative in designing products than men.

1. Introduction

Previous studies support creativity's influence on business success (e.g., Gumusluoglu & Ilsev, 2009; Im, Hussain, & Sengupta, 2008; Rosa, Qualls, & Fuentes, 2008). Surprisingly, acknowledgment of creativity's importance at the consumer level remains limited. Evidence of consumer involvement in new product creation and product market advancement exists (e.g., minivans: Porac, Rosa, Spanjol, & Saxon, 2001; motorcycles: Rosa, Judson, & Porac, 2005). Moreover, consumer creativity processes and antecedents are garnering attention among management and marketing scientists (e.g., Moreau & Dahl, 2005), affirming that consumer creativity creates product value (Hirschman, 1980). This body of evidence calls for a better understanding of consumer creativity (Burroughs, Mick, & Moreau, 2008), to which this research contributes by exploring factors that influence consumer creativity at primitive levels.

Laboratory and field research shows consumers make creative contributions, and identifies key contextual, dispositional, and emotional factors shaping creative endeavors (e.g., Dahl & Moreau, 2002; Moreau & Dahl, 2005; Moreau & Herd, 2010). Most consumers engage in creative product use (e.g., using answering machines as home safety monitors) or product alteration (e.g., customizing backpacks), and some implicit value in most products depends on consumer creativity. Consumers use existing artifacts, be they simple or complex, as starting points for creativity; sometimes leading to novel and beneficial product concepts and other times to impractical and possibly dangerous experiments.

Postulations about what comprises consumer creativity (see Burroughs et al., 2008) lead to the prevailing confluence perspective (Woodman & Schoenfeldt, 1990), that views creativity as a gestalt process combining contextual factors and individual characteristics such as cognitive capabilities, knowledge, affective state, and dispositional factors. As this perspective gains acceptance, researchers seek to better understand creative process antecedents such as different knowledge types (e.g., pre-existing schemas, sensory inputs) and static factors (e.g., gender) (Burroughs et al., 2008).

This research explores how varying gender and two modality-specific inputs (vision and touch) influence consumer creativity. Modality-specific inputs arise from sensory systems for vision, touch, smell, taste, hearing, and body motion, and help shape mental representations and decisions (Barsalou, 1999). Comparing tennis rackets' appearance and test-swing feel, or sensing body posture and weight distribution while comparatively evaluating bicycles, exemplifies how modality-specific inputs affect consumer decision making (Rosa & Malter, 2003). Modality-specific inputs influence consumer product judgments (Förster, 2004; Peck & Childers, 2003a) and self-regulation (Hung & Labroo, 2011), suggesting a plausible link between modality-specific inputs and creativity.

In evaluative tasks, mental representations that arise during product exposure or experience are compared against a pre-existing or idealized representation, and adequacy is assessed. In many product categories,

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such as apparel, art, and culinary creations, modality-specific inputs may be the primary basis for evaluation. Creativity, in turn, is involved when pre-existing knowledge, some of which can be sensory in origin, is combined into novel arrays that seem interesting or valuable. Admittedly, mental representations are emergent and evaluative judgments are iterative in the creative process, but some of creativity's fundamental building blocks and processes also affect consumer judgment and decision making. Plausibly, vision and touch inputs influence consumer creativity. Consumers may attempt being creative while handling physical components (e.g., building blocks) while at other times they use nothing more than pencil and paper. Even when attempting the same creative outcome (e.g., imagining a kitchen renovation), results may vary based on creative medium. Managers trying to understand and channel consumer creativity, therefore, may benefit from knowing how modality-specific inputs (e.g., vision and touch) systematically generate differences in consumer creative outputs.

Similar to how modality-specific inputs are recognized as affecting consumer judgment but remain underexplored in consumer creativity, gender is a recognized determinant of consumer assessments of promotion (e.g., McDaniel, Lim, & Mahan, 2007) and product and service attributes (e.g., Dabholkar & Sheng, 2009). Surprisingly, gender has not been considered in the domain of consumer creativity. Gender effects are likely more complex in their influence on consumer assessments than modality-specific inputs, not unlike what is known about gender-related creativity and achievements outside consumer research (see Baer, 2008 for a review). Links have been established between gender and creativity, however, which suggests that managers may also value insights into the role of gender in consumer creativity. Both men and women encounter opportunities to be creative in many markets and product categories.

This research suggests that variation in richness of vision and touch inputs and gender can influence consumers' creative outcomes through effects on novelty and functionality of imagined product designs, two often-used indicators of creativity (Burroughs et al., 2008). When consumers are asked to envision a product that incorporates a given set of components, changes in vision and touch inputs (e.g., rich inputs that offer visual-in-the-round, texture, and weight information versus impoverished inputs that do not offer such information) likely affect functionality and novelty of the resulting product concepts. On these creative imagination tasks, women and men likely differ in the functionality and novelty of their product concepts.

Evidence that vision and touch richness and gender affect the functionality and novelty of consumer creations is valuable for consumer research. At a theoretical level, linking some modality-specific inputs and gender to consumer creativity extends understanding in the consumer creativity domain (Burroughs et al., 2008) and burgeoning domain of grounded cognition, which emphasizes how such inputs affect consumer decision making. At a more practical level, creating input-rich and input-impoverished environments may be a way of selectively generating greater functionality and novelty in consumer creative endeavors. Firms may also benefit by creating environments where women and men can best exercise their creative inclinations.

2. Theoretical foundation

2.1. Vision and touch inputs' influence on novelty and functionality

Novelty is determined by how different an envisioned product is from known products in its class, while functionality depends on the perceived performance potential of an imagined product compared to others in the category (e.g., Amabile, 1996). Novelty occurs when unexpected attributes or unusual attribute combinations are encountered in product designs, or previously unknown values for attributes are added. Functionality exists when design characteristics make new valued outcomes possible relative to typical products in the category. Creativity involves divergent thinking (Guilford, 1964) and occurs when pre-existing knowledge is combined into novel, functional, and elegant arrays (Amabile, 1996; Burroughs & Mick, 2004). Using pre-existing knowledge and new inputs, individuals apply mechanisms like concept association and analogical transference to create representations that engender valued outcomes (Ward, Smith, & Finke, 1999). Consumer creativity involves the conceptual assembly of plausible product concepts and problem solutions from apprehended knowledge.

Knowledge types employed in creative pursuits vary in abstractness and complexity. Some research investigates the conceptual representations that arise when word descriptions of complex artifacts such as cars and drive-in window food trays are presented (e.g., Dahl & Moreau, 2002). Other investigations use simple components such as lines drawn on paper (e.g., Torrance, 1974), and ask people to associate such components to representations held in memory (e.g., cars). A third series of studies uses drawings of objects (e.g., cylinders, rectangular blocks, pyramids) as inputs to the creative process (Finke, 1990; Moreau & Dahl, 2005). Varying the richness of vision and touch inputs, however, has not been done in consumer creativity studies, despite anecdotal evidence that product developers create different product concepts when vision and touch inputs are varied (see IDEO deep-dive process in Hargadon & Sutton, 1997).

This research examines how varying the richness of vision and touch inputs (three-dimensional solid objects versus line diagrams) influences consumer creativity. Consumer research on modality-specific inputs draws on perceptual symbol systems theory (Barsalou, 1999). Perceptual symbol systems are mechanisms that use modality-specific inputs (e.g., vision, touch, smell) and amodal concepts (i.e., between-concept relations like verticality and containment) as building blocks in developing (or simulating) mental representations that guide understanding and behavior. Further, while some building blocks (e.g., between-concept relation schemas) are retrieved from memory, others (e.g., modality-specific inputs) are recreated as needed. For example, if consumers are asked to think of a red felt hat, details about texture and color are generated as needed by modality-input systems while verticality and containment are retrieved from memory (Barsalou, 1999). Similarly, imagining a dining room chair involves modality-specific inputs, such as the feel and appearance of wood, and the amodal notion of verticality. The same concepts and mechanisms are involved whether objects are envisioned in vivo or in memory, and the same mechanisms would be involved if consumers were asked to imagine an object built from available components. For example, characteristics of available wood components (e.g., solidity, weight, hardness) apprehended through touch will influence visualizations of new chair designs, and help consumers predict if a particular design would support an adult's weight. In contrast, when imagining a new chair based on the line diagrams of the components, the consumer might find more difficult to predict the chair's weight-bearing capacity. As a special case of mental representation simulation as postulated by perceptual symbol systems theory, creative imagination draws on existing building blocks and processes to imagine novel products and problem solutions.

Because vision and touch inputs affect the content of mental representations, the differences in the richness of available inputs will affect the imagined new product's functionality and novelty. Vision and touch inputs add information to the creative process, and creative visualization based on modality-rich inputs likely will be more detailed in the physical characteristics and limitations of the products (e.g., how they bend, weight and fit), and hence more functional. On the other hand, because richer vision and touch inputs (e.g., weight, hardness) limit component manipulation, components represented as solid and resistant to reshaping hinder visualizing them as fitting inside one another or being integrated, limiting the envisioned product's novelty. Consequently, vision and touch inputs should have asymmetric effects on functionality and novelty, with richer inputs increasing the imagined products' functionality and reducing their novelty.