

The Impact of Choice Overload on Post-Purchase Experiences:

Creative Success Is Enjoyed Through Restricted Choice

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The choice overload hypothesis – the prediction that too much choice can hurt consumption – has been considerably documented (e.g., Csikszentmihalyi 1990; Iyengar and Lepper 2000; Schwartz 2004). However, in a recent meta-analysis including both published and unpublished studies, Scheibehenne, Greifeneder, and Todd (2010) find limited choice overload effects, which lead these authors to question the robustness of this phenomenon and call for research that clarifies the circumstances where increasing choice can hurt consumption.

The present research directly answers this call. The bulk of choice overload research has focused on dependent variables such as satisfaction with the options chosen, the likelihood of choice incidence, and the amount the chosen option is consumed (Scheibehenne, Greifeneder, and Todd 2010). The present research departs from this previous work to suggest that extensive choice may have long-lasting deleterious effects on post-purchase aspects of consumption, which often involve further choice-related cognitive processing by consumers.

We focus on the case of consumer creativity. Considerable research has established the importance of consumer creativity for marketing (Dahl and Moreau 2007; Moreau and Herd 2010). As a result, the investigation of contextual factors pertaining to the consumption environment that enable consumers to be creative seems critical (e.g., Burroughs and Mick 2004; Moreau and Dahl 2005). One potentially important factor in this regard is the amount of choice in creative inputs consumers are exposed to. We propose that an extensive rather than a limited choice of creative inputs influences not only consumers' processing at the moment of choice, but also the creative processing that follows choice. We conjecture that creativity is a unique outcome variable because

considerable cognitive processing occurs between choice and the creative output, and the influence of choice on that processing directly impacts the quality of the output. This article investigates how the number of creative inputs that a consumer can choose from influences both consumers' perception of their own creativity and the actual objective realization of creative output.

In support of the choice overload hypothesis, we find that increasing the choice of creative inputs (from a moderate to an extensive choice set) for consumers experienced in a creative task can hurt objective creative outcomes. Consumers that have experience and knowledge in a creative pursuit are shown to be objectively less creative with more input choice, while inexperienced consumers are relatively unaffected by differences in input choice. These effects on actual creativity stand in sharp contrast with consumers' perception of their own creativity: regardless of their experience level, we find that consumers perceive themselves as being more creative, the more choice they have. Our research makes three important contributions to the literature. First, we show that increasing input choice from a moderate to an extensive choice set has a deleterious effect on experienced consumers' actual creativity, when compared to consumers with limited experience in the creative task. Second, we show that more choice in inputs creates an illusion for consumers, who wrongly assume that they are more creative when they have an extensive rather than a moderate level of input choices to work with – confirming a lay belief that more is better. Third, we investigate the underlying mechanisms generating these effects.

THEORETICAL BACKGROUND

Creativity is the production of novel, useful ideas or problem solutions (Amabile et al. 2005). Creative thinking follows similar principles as normative thinking, which is why creative cognition research conceptualizes both creative and non-creative thinking along a continuum with no clear boundary separating the two. It is the extent to which creative cognitive processes are used in

coming up with a solution that determines the likelihood that a more creative idea will result.

Empirical research in marketing shows support for the use of generative and exploratory processes when consumers are creative (e.g., Burroughs and Mick 2004). It seems logical to believe that the more inputs that are available to this creative process, the better. Consistent with such thinking, most consumers believe that more choice is better in this regard (Schwartz 2004):

H1: Consumers' perception of their own creativity will be enhanced when they are provided with an extensive rather than a moderate choice set of creative inputs.

Prior research has shown that in a number of contexts too much choice can lead to suboptimal decision outcomes (e.g., Iyengar and Lepper 2000; Schwartz 2004). Focusing on creativity, as we noted above, the provision of more rather than less choice of creative inputs can make the domain of possible creative solutions drastically greater. It is in this situation, we argue, that consumers may produce suboptimal, less creative solutions. Why would this be so? A critical aspect of the creative process is the extent to which consumers enjoy the creative experience (e.g., Henderson 2004; Russ 1993) as task enjoyment is often consumers' very reason for engaging in creative thinking (Csikszentmihalyi 1996; Moreau and Dahl 2009). Extensive choice options, however, can generally cause anxiety (Csikszentmihalyi 1990). In the case of creative processing, we propose that anxiety can come from consumers exposed to extensive choice simultaneously pursuing many possible avenues for creative solutions. While this multi-pursuit opens up many creative opportunities, it also prevents consumers from focusing their cognitive processing on only a few promising creative paths. When consumers are exposed to an extensive rather than a limited choice set of creative inputs, we expect them to be unable to cognitively focus at the time of choice. A reduced focus will have spillover effects in the whole creative process, as less focused consumers will enjoy the entire creative experience less (e.g., Henderson 2004). In sum, because choice of

creative inputs is an integral part of the creative process, we propose that too much choice adversely affects enjoyment of the creative process, which in turn hampers actual creativity.

Importantly, we hypothesize that this choice overload effect on creativity should only apply to consumers experienced in the creative task, as inexperienced consumers lack the domain-relevant cognitive resources and technical skills required to combine inputs and interpret combinations, as well as successfully identify creative solutions.

H2: A moderate rather than an extensive input choice set will lead to greater objective creativity for experienced consumers, but not for inexperienced consumers.

H3: Consumers' enjoyment of the creative process mediates the influence of choice of creative inputs on objective creativity.

We tested our predictions in a field study, in which experienced and inexperienced knitters created a scarf after choosing from a moderate versus a relatively extensive choice set of inputs.

A STUDY IN RECREATIONAL KNITTING

Method

Recreational knitting offers several advantages for creativity research: it provides a number of creative opportunities, as the process itself involves substantial choice in both materials and approach taken; the choice of inputs marks the beginning of the creative process, because a knitter needs to have a sense of how the yarn will look once knit; choosing is a binding phase in the creative process – purchased yarn is wound into balls and cannot be returned. Finally, our setting allowed us to observe the impact of a subtle manipulation – the provision of a moderate versus extensive choice – on a weeklong creative task, therefore providing solid ecological validity to our findings.

Overview. The study was a 2 (Choice: moderate vs. extensive) x 2 (Knitting level: experienced vs. inexperienced) between-subjects design facilitated by Purl Soho (www.purlsoho.com), a yarn store promoting creative knitting.

Participants and experience categorization. $N = 76$ knitters with at least a beginner level (2 men, 74 women, mean age = 29.82 years) took part in the study in return for a \$20 gift certificate for yarn. Before the data collection, discussion with knitting instructors indicated that knitting experience was best captured as a step function versus a continuous process. These instructors unanimously agreed that a discriminating criterion between experienced and inexperienced knitters was the ability to knit cables (i.e., a knitting stitch that produces a pattern resembling a rope). For this reason, in the study, we categorized participants who could not knit cables as inexperienced, and participants who could knit cables as experienced (a pretest confirmed this categorization).

Procedure. Upon their arrival at the store, participants were told that they would have one week to complete a scarf for a three-year old girl from a selection of yarn provided. After signing a consent form, they filled out a first questionnaire. They indicated their knitting level, and whether they had ever knit a scarf. Next, they were presented with a display of either a moderate (6) or relatively extensive (12) selection of yarn colors - we used a brand of wool of average quality and thickness. The store's 6 bestselling colors - bright blue, black, white, red, green and purple - were retained for the moderate choice condition. The twelve bestselling colors were used in the extensive choice condition: brown, magenta, pale blue, baby pink, orange and yellow were added to the first six colors. In the moderate (extensive) choice condition, the skeins were presented on two rows of three (six), in a randomized order for each participant. Participants took as much time as they wanted to select their yarn colors. Once they were ready, participants chose 12 mini-skeins in the colors they wanted. The skeins were provided in a paper bag, along with identical needles for every participant. Participants were given instructions to be creative and utilize only the materials

provided. In doing so, they were told that they neither had to use all the yarn provided, nor all the colors chosen, but only what they wanted to use. Participants were further asked to not talk about or show their project to anyone until the end of the study, and to not look at external sources (e.g., magazines or websites) for creative ideas. They were also asked to track the amount of time that they were actively working on their project, and come back the following week with their completed scarf and their needles. Before they left, participants reported their current mood.

A week later, participants returned their completed scarf, and filled out a questionnaire. Using seven-point scales (1-7), they reported how creative they thought their scarf was (not at all/very creative), and assessed how pleasant the creative process had been (not at all enjoyable/very enjoyable, very boring/very much fun). Next, they reported the extent to which the number of avenues possible in creating their design caused you some struggle during the weeklong creative process (1 = not at all; 7 = very much so). Participants also reported the total time that they took to create the scarf and how much time they spent on the design alone. After participants confirmed that they had not been influenced by external sources, they were debriefed, paid and thanked.

After all scarves were collected, two experts in creative knitting came to our lab to evaluate the creativity of the scarves. They first reported their evaluation of each scarf on a 10-point scale (“not creative at all” (1)/“extremely creative” (10)). Next, again for each scarf, they rate how original/novel/unique/useful/functional each scarf was (1= not at all to 10= extremely). They were then debriefed, paid (\$100) and thanked.

Results

Controls. Mood in the beginning of the study, the time taken to create the scarf, and the time taken for its design revealed no effects and are not further discussed.

Self-reported creativity ratings. Focusing on the knitters’ self-reported measure of creativity, a Choice x Knitting level ANOVA only revealed two main effects: a main effect of Choice, such that

knitters with extensive rather than moderate choice reported that their scarf was *more* creative ($M_{\text{moderate}} = 4.55$ vs. $M_{\text{extensive}} = 5.09$, $F(1, 72) = 4.19$, $p < .05$, $r^2 = .05$). There was also a main effect of Knitting level, such that experienced knitters reported that their scarf was more creative than inexperienced knitters ($M_{\text{experienced}} = 5.17$ vs. $M_{\text{inexperienced}} = 4.34$, $F(1, 72) = 10.23$, $p < .002$, $r^2 = .12$). Thus, more choice of inputs made knitters feel more creative, in support of H1.

Experts' creativity ratings. To test our key prediction that restricting choice can increase creativity, we averaged the knitting experts' creativity ratings ($r = .66$, $p < .01$) to form an objective creativity index. We subjected this index to a Choice x Knitting level ANOVA. As predicted, we found a significant Choice x Knitting level interaction ($F(1, 72) = 7.75$, $p < .007$, $r^2 = .10$). In support of H2, the analysis of simple effects revealed that scarves knit by experienced knitters under moderate rather than extensive choice were more creative ($M_{\text{moderate}} = 7.67$ vs. $M_{\text{extensive}} = 5.56$, $t(72) = 3.80$, $p < .001$, $r^2 = .17$). Scarves knit by inexperienced knitters were equally creative under moderate and extensive choice ($t < 1$). We also found a main effect of Knitting level, such that the scarves knit by experienced knitters were judged more creative than those knit by inexperienced knitters ($M_{\text{experienced}} = 6.74$ vs. $M_{\text{inexperienced}} = 4.60$, $F(1, 72) = 24.05$, $p < .007$, $r^2 = .25$). Finally, there was a main effect of Choice, such that the scarves knit under moderate rather than extensive choice were judged more creative ($M_{\text{moderate}} = 6.20$ vs. $M_{\text{extensive}} = 5.15$, $F(1, 72) = 5.71$, $p < .02$, $r^2 = .07$). In terms of process, after averaging the two measures of knitters' enjoyment during the process ($r = .29$, $p < .02$), we found that this enjoyment index mediated the experts' creativity ratings.

Struggle with creative possibilities. A 2x2 ANOVA using the measure of amount of struggle with the creative possibilities revealed a significant two-way interaction ($F(1, 62) = 3.82$, $p = .05$, $r^2 = .06$). Supportive of our conceptualization, experienced knitters who had been offered moderate choice reported struggling less than experienced knitters offered extensive choice ($M_{\text{experienced moderate}} = 2.88$

vs. $M_{\text{experienced extensive}} = 4.31$, $t(62) = 2.46$, $p < .02$, $r^2 = .09$). Inexperienced participants did not differ in the amount of struggle they reported, $t < 1$.

We also checked the extent to which our results were caused by the specific color assortment we used in the study. We found that creators' self-perception of creativity was indeed caused by more colors being present in the extensive compared to the limited condition. In other words, choosing from many rather than few colors gave consumers the illusion they were creative. For experts' ratings, however, results showed that the effects we report remain when color-related covariates were added to our analyses. This means that it is the extent of choice *per se*, above and beyond the quantity and variety of colors used in the study that was driving our results.

Our findings reveal that restricted choice increases enjoyment and objective creativity for experienced consumers, but generally decreases subjective creativity ratings made by consumers. Consumers experienced in a creative task seem to enjoy the task far more when they have a constrained choice of inputs for the task. This enjoyment is shown to translate into more creative outcomes. We argue that the difficulty consumers have to focus when choosing among extensive creative input options drives this effect. Anxiety and potential decision paralysis (Schwartz 2004) over creative inputs likely results in less focus and reduced task enjoyment, which has negative implications for the creative outcomes produced by the consumer. This pattern of effects is not realized for inexperienced consumers who lack domain-relevant knowledge and ability and thus are unlikely to be sensitive to change in the input choice set. Interestingly, choice gives consumers the illusion that an extensive selection of creative inputs will enable more creative outcomes. This illusion seems to result from consumers sampling more inputs, as well as seemingly more unique inputs. The juxtaposition of our experts' and our knitters' creativity ratings creates a conflict as reducing choice to a moderate level appears to enhance creative output, but it remains likely that an experienced creator would seek out the largest choice set available.

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Figure. Examples of creative scarves knit by experienced knitters exposed to a moderate (upper picture) versus extensive (lower picture) choice of inputs

