

DISSERTATION PROPOSAL

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“Quantity Perception and Hedonic Decline: How Increasing Sequence versus Decreasing Sequence Influences Consumption Experience”

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Zoom: <https://cmu.zoom.us/j/98217791613>

Quantity perception is an integral part of consumption experience, and more crucially, it guides responses to consumption. Seemingly physiological and emotional responses such as enjoyment of consuming a stimulus are no exception. In an elaborate demonstration, participants who viewed 20 photos became satiated with the photograph slowly when the benchmark quantity was 30 pictures (vs. 15 pictures; Redden & Galak, 2013). That is, comparing one’s consumption amount with a greater amount prolongs the enjoyment of a consumed stimulus, whereas comparing it with a smaller amount wears off the enjoyment fast.

However, it is difficult to estimate quantity precisely. First, time estimation fluctuates depending on attention (Chaston & Kingstone, 2004), motivation (Conti, 2001), caffeine (Gruber & Block, 2003), and background music (Kellaris & Mantel, 1996). Research on adults and children also well documents biases in other domains, such as volume estimation (Chandon & Ordabayeva, 2009; Piaget, 1968; Raghbir & Krishna, 1999). Furthermore, even if information about quantity is explicitly displayed, consumers may not be able to track quantities during a consumption episode. In lab experiments and a scanner data analysis of a supermarket chain, consumers forwent price discounts of large packages and bought small packages of vice goods—such as sugared cereal—to gauge the progress of consumption (Wertenbroch, 1998), suggesting that consumers were aware that they needed a salient marker to monitor consumption amounts.

That quantity perception is malleable provides marketers and decision-makers with opportunities to alter responses to stimuli. For instance, presenting a small quantity norm may decrease enjoyment associated with a stimulus. As compared to a large quantity norm, a small quantity norm accentuates hedonic decline (Redden & Galak, 2013). Here, hedonic decline refers to attenuating responses to a hedonically relevant stimulus with repetition (Galak & Redden, 2018). In other words, a higher reference point made people savor a product longer. Sackett et al. (2010) is another example of the effect of quantity perception on hedonic decline. In this study, covertly accelerating a timer raised pleasure of listening to a song relative to stealthily decelerating a timer. The study thus disclosed that enjoyment lasted longer when a subjective duration became shorter than an objective duration. To summarize, whether it is duration of a song or the number of photos, reducing subjective consumption quantity extends pleasure of a hedonically relevant stimulus.

In this project, I propose and demonstrate a novel factor influencing quantity perception and, in turn, hedonic decline. Specifically, how to divide a consumption episode into blocks will affect subjective quantity and the pace of hedonic decline. There exist two ways of compartmentalizing consumption quantity: an increasing sequence versus a decreasing sequence. An increasing sequence refers to instances that people consume more as they proceed to a subsequent block, whereas a decreasing sequence indicates

instances that people consume less in a subsequent block. To illustrate, consider Spotify Free, a streaming service that subscribers listen to music for free and advertisements interrupt while music is being played. While listening to a series of songs on Spotify Free, in-between ads may divide the consumption experience into blocks of an increasing sequence (e.g., 1 song – AD – 2 songs – AD – 3 songs) or a decreasing sequence (e.g., 3 songs – AD – 2 songs – AD – 1 song). In the increasing sequence, users listen to more songs in the first block than the second block, the second block than the third block, and so on. By contrast, they listen to fewer songs as they advance to a subsequent block in the decreasing sequence.

How will the difference between an increasing sequence and a decreasing sequence have an impact on consumers? Since a preceding block offers immediate and accessible information about consumption quantity, consumers will use the quantity of a preceding block as a reference point during consumption. As a result, a reference point of consumption amount will be larger (vs. smaller) than the present consumption amount in a decreasing sequence (vs. an increasing sequence). Thanks to this contrast, consumers will overestimate consumption quantity in an increasing sequence, and underestimate consumption quantity in a decreasing sequence. The difference in subjective quantities will then spill over to hedonic decline that pleasure of consuming a stimulus will endure longer in a decreasing sequence than an increasing sequence.

I ran five experiments to test this prediction ($N_{\text{Total}} = 1,850$). In Study 1, participants listened to music in either a constant sequence, an increasing sequence, or a decreasing sequence. Consistent with my prediction, hedonic decline was attenuated in the decreasing sequence condition as compared to the constant sequence condition ($p = .021$) and the increasing sequence condition ($p = .074$). Studies 2A, B, C, and D were similar with Study 1. However, participants viewed photos, and a constant sequence was not included. I also measured subjective quantity in Studies 2A, B, C, and D. As predicted, hedonic decline was less pronounced in the decreasing sequence conditions in all four studies ($p < .02$). Moreover, those in the decreasing sequence conditions felt that they viewed fewer pictures than those in the increasing sequence conditions ($p < .05$). Finally, the effect of a decreasing sequence on hedonic decline was mediated by subjective quantity in Studies 2B and D ($p < .05$). The mediation effect was also significant when the four studies were combined ($p = .03$). In sum, consistent with the predictions, decreasing sequences slowed down the pace of hedonic decline, and the reduction in subjective quantity partially mediated this effect.

I plan to run additional studies to manipulate processing variables directly and demonstrate downstream consequences. Specifically, since mediation analysis is, in essence, a demonstration of correlations between independent and dependent variables (MacKinnon, Krull, & Lockwood, 2000), I design studies entailing a direct manipulation of a processing variable. Next, to examine the ecological validity, I will replicate the effect in a more realistic setting and measure behavioral variables.