Perceptual Fluency, Attitudes and Choice

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In a series of three experiments we examine the effect of perceptual fluency, attitudes and their accessibility on choice from a limited set of brands under high and low motivation and opportunity conditions. In all of the experiments, the participants make a choice between four hypothetical personal music players that vary in quality. The test is a strong one, in that one brand is superior to all the others and the manipulations of perceptual fluency and attitude accessibility are on one of the inferior brands. Consequently, in order to find effects, the participants must choose one of the inferior brands over the superior brand. The results indicate that perceptual fluency influences choice only under low motivation and opportunity conditions. This occurs even when the attitude toward the brand is negative. Attitude accessibility acts in a similar manner, however, choices need to be made in less than 1.1 seconds. Finally, attitude accessibility also affects brand choice under high motivation and opportunity conditions, but only when the attitude is positive. These results indicate that even when attitudes are formed toward the alternatives, they do not influence choice when it is based on metacognitive experiences.

[to cite]:

[url]:
http://www.acrwebsite.org/volumes/12846/volumes/v34/NA-34

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SESSION OVERVIEW

Metacognition refers to people’s cognitions about their own thought processes. Over the past two decades psychologists have shown that our judgments and decisions are influenced not only by the available information, but also by the subjective ease or difficulty with which the information is processed. In this special session, we bring together three research papers that present hitherto unexplored aspects metacognition in consumers’ judgments. The three papers in this session share two common features:

All the three papers demonstrate novel effects of metacognitive experiences that have not been shown in the extant literature. By demonstrating that metacognitive experiences influence consumers’ emotional judgments, price evaluations and brand choice, the three papers, together, argue for a more pivotal role for metacognition in consumer psychology.

All three papers present a series of experiments to uncover the underlying psychological mechanisms and thus offer new theoretical insights about metacognitive processes.

The first paper, by Rucker, Briñol and Petty, examines the effect of metacognitive experiences on emotional judgments. Rucker et al. suggest that subjective ease has the power to moderate consumers’ emotional responses. Specifically, their experiments demonstrate that emotions are felt more strongly, and have a greater effect on consumer behavior, when it is easy to construe the emotion-inducing events. This paper, thus, not only uncovers a novel effect of subjective ease, but also offers new insights into the interplay of affect and cognition in consumer behavior.

The second paper by Thomas and Morwitz examines the effects of metacognition in judgments of numerical differences. Judgments of numerical differences are ubiquitous. For example, while comparing two products, people have to judge whether the price difference is small or large. While deciding whether to purchase a product on discount, people have to judge whether the difference between the regular price and sale price is small or large. This paper presents convincing empirical evidence for a counterintuitive hypothesis: People perceive the numerical difference to be larger when the difference is easier to compute than when it is difficult to compute, even when the arithmetic difference is not larger. A series of experiments reveal that this effect is on account of nonconscious attribution of the metacognitive experience induced by computational fluency to the analog distance between the numerical stimuli.

The domain of choice has always been a challenge for metacognition researchers. Little is known about the effects of processing fluency on brand choice. Huber (2004, p. 359) eloquently summarized the challenge: “The elegance of naïve theories (used for metacognitive inferences) seems to break down in the domain of choices…” The third paper by Chung and Mitchell takes on this challenge to identify conditions when perceptual fluency will influence choice from a limited set of brands. Their results indicate that perceptual fluency affects brand choice only under low motivation and opportunity conditions. Interestingly, fluency affects choice even when the evaluation of the brand is negative. Their results also suggest that attitudes formed toward the alternatives may not influence choice when the choice is based on metacognitive experiences.

The similarity of the theoretical constructs across the three papers will facilitate a coherent session. Yet, each paper addresses a different substantive problem and thus makes unique contributions to advance our knowledge of metacognition.

“The Role of Ease in Consumers’ Emotional Judgments”
Derek D. Rucker, Northwestern University
Pablo Briñol, Universidad Autonoma de Madrid
Richard E. Petty, Ohio State University

Human emotion has a long history in the study of consumer behavior. For example, earlier research focused on how emotional states influenced the amount of persuasion through various mechanisms (e.g., Petty et al. 1993). Petty et al. found that, when elaboration was low, placing consumers in a positive emotional state enhanced persuasion by serving as a simple cue; however, when elaboration was high, placing consumers in a positive mood facilitated persuasion by leading consumers to generate more positive thoughts. Given the profound role emotions play in the persuasion process, an important question that arises is what factors determine the degree to which consumers experience emotions?

The present research submits that one previously unexamined factor that may influence emotional judgments is the subjective sense of ease accompanying emotion provoking events. We argue that subjective ease has the power to moderate consumers’ emotional reaction. Specifically, when it is easy to generate emotion provoking events, we hypothesize that emotions will be more strongly felt, and exert a greater influence, than when it is difficult to generate or process emotion provoking events. These predictions are borne out in several experiments.

Past Research

A growing body of research has documented that not only do consumers rely upon the content of the thoughts they generate, but they also rely upon the metacognitive experience of ease accompanying the generation of their thoughts. To illustrate, in one representative study, Wänke, Bohner and Jurkowitsch (1997) instructed participants to imagine either 1 or 10 reasons to drive a BMW. While instructing participants to consider 10 reasons in favor of driving a BMW provided more positive information about the BMW, participants held more positive attitudes when they had only thought of a single reason to drive a BMW. Thus, this finding could not be explained by participants relying upon the content of their thoughts. Rather, this finding could be explained by the fact that imagining a single reason was presumably easier than imagining ten, and the perceived ease led to the perception there must be even more reasons to drive it. That is, consumers could reason, “if I can think of one reason, there must be many more,” as opposed to, “if I have trouble thinking of ten, there must not be many more.”

Current Research

Ease has been studied in a number of diverse domains including, but not limited to, persuasion, risk assessment, likelihood estimates, attitude strength, interpersonal closeness, stereotypes, and implicit attitudes (for reviews see Rolf, Schwarz, and Winkielman 2004; Schwarz 2004). Surprisingly, no prior research has examined how the experience of ease influences judgments of one’s emotions. The present research examines whether subjective ease can influence consumers’ emotional judgments. In experiment 1, we induced emotions by instructing participants to list emotional events. Specifically, all participants were asked to recall happy
events in their life. However, participants were asked to generate either few (2) or many (10) of those happy events. After the event recall, participants were asked how happy they felt. Finally, because past research has found people rely on ease under high degrees of elaboration (see Tormala et al. 2002) we assessed participants’ need for cognition (Cacioppo and Petty 1982). As expected, high need for cognition participants reported feeling happier after generating few rather than many episodes of happiness, whereas low need for cognition participants reported feeling happier after generating many as opposed to few events. In short, Experiment 1 supported the proposition that consumers’ emotional judgments were significantly influenced by the subjective sense of ease accompanying the generation of the emotional events. Consistent with prior research, this held for individuals who were high, as opposed to low, in need for cognition.

Experiment 2 replicated the findings of experiment 1, and sought to establish the effect of ease was not limited simply to the self-report of emotions, but could have consequences on outcomes previously found to be influenced by emotion. To enhance generalizability, experiment 2 also used a different manipulation of ease. Specifically, participants were asked to write about 4 times they felt either sad or happy. However, to induce a feeling of ease or difficulty, participants were instructed to write the events with either their dominant or non-dominant hands, respectively. This task has been shown to successfully manipulate subjective ease (e.g., Briñol and Petty 2003; Petrova and Cialdini, 2005). Finally, after completing the emotion induction task participants were asked to estimate the likelihood a number of events would happen to them (e.g., finding a good job after college). Prior research has clearly documented that participants’ emotional states can influence the perceived likelihood of similarly valenced events (e.g., Desteno et al. 2000). Results of experiment 2 revealed that participants predicted that events related to happiness were more likely to occur when the emotion inducing task was easy compared to difficult. That is, emotions exerted a stronger influence on emotional outcomes when the emotion inducing events were physically easier to write.

Taken together, these findings suggest the experienced ease in generating affective information can increase the impact of that mental content on subsequent emotional judgments. That is, the easier it felt to generate thoughts about happy events (because few were requested), the greater participants’ emotional reactions (provided participants’ natural proclivity to think was high). The metacognitive experience not only affected self-reported emotions, but its effect extended to emotional consequences. In subsequent studies, we examined the implications of confidence and emotion for specific aspects of consumer behavior (e.g., consumers’ receptivity to advertisements).

Contributions and Conclusions

The present experiments present a new perspective on how consumers reach emotional judgments and provide a new role for subjective ease in consumer behavior. Across different paradigms in which the ease of generating emotional thoughts was manipulated, we find the impact of emotional thoughts on affective judgments is greater when people have an easy, as opposed to difficult, time generating those emotional experiences. These studies provide new insights into the interplay of affect and cognition in consumer thinking, and new perspectives on understanding how consumer’s come to know their emotions.

Numerical judgments often entail mental computations. These mental computations are not always easy. One factor that affects the ease of mental computation is the complexity of the multi-digit numbers. Mental computations are easier when the problem entails simple single-digit computations (e.g., 5.00–4.00) instead of complex multi-digit computations (e.g., 4.99–3.98). Will this computational complexity in anyway affect our numerical judgments? In the context of the given example, will the difference between 4.99 and 3.98 be perceived to be smaller than, larger than, or the same as, that between 5.00 and 4.00? More generally, how does the subjective ease or difficulty of mental computations affect our numerical judgments?

Although ease of processing has been shown to affect judgments of the probability of an event occurring (Tversky and Kahneman 1973), fame (Jacoby et al. 1989), judgments of familiarity (Whittlesea 1993), the implication of these psychological phenomena for numerical comparisons is not clear. This research started by investigating whether the subjective experience of ease of computation has any effect on judgments of numerical difference between two numbers. Our experiments unearthed an intriguing phenomenon: Computationally easier differences are perceived to be larger than computationally difficult differences, even when the arithmetic difference is not larger. With the aim of delineating the underlying psychological mechanisms, we then focused our attention on two research questions: (i) Why are computationally easier differences perceived to be larger? (ii) To what extent are people aware of the role of subjective experiences in their judgments?

The Association Between Distance And Fluency

Research in numerical cognition has revealed a strong association between analog distance and the ease of processing. This association, labeled as the distance effect (Dehaene 1997; Moyer and Landauer 1967), suggests that people take more time to process two numbers when the analog distance between the two numbers is small, irrespective of the absolute magnitudes of the numbers. For example, it has been observed that the response time to discriminate between 4 and 5 is larger than that to discriminate between 2 and 5 (Dehaene 1997). The distance effect is said to occur because mental representations of numerical stimuli become difficult when the numbers are close to each other. The distance effect has been shown to be an extremely robust phenomenon. “After experimenting on number comparison for more than ten years, I still have to find a single subject who compares 5 and 6 as quickly as he or she compares 2 and 9, without showing a distance effect,” articulated Dehaene (1997, p.74). The ubiquity of the distance effect suggests an implicit association between numerical distance and fluency: fluent processing is associated with stimuli that are distant from each other. If the processing is difficult, then this associative rule suggests that the stimuli are possibly close to each other and therefore not easily discriminable.

Misattribution of Fluency Induced by Computational Complexity

Past research has shown that although the human mind is very adept at detecting small changes in processing fluency, it is not so adept at identifying the actual source of fluency. Instead, it misattributes the experienced fluency to the factor made most salient by the judgment task. For example, fluency induced by repetition is attributed to fame (Jacoby et al. 1989), and fluency...
created through an incidental noise mask is attributed to familiarity (Whittlesea, Jacoby and Girard 1990).

In this research, we suggest that the fluency induced by computational complexity is misattributed to the analog distance between numbers. Results from four experiments were found to support this hypothesis. In experiment 1, fluency and numerical distance was manipulated in a within-subjects design. Participants were shown 24 pairs of prices; each pair comprised of a regular price and a sale price. Participants were asked to evaluate the magnitude of the discount on a small-large semantic differential scale by computing the difference between the regular price and the sale price. The price stimuli differed from each other in the magnitude of the discount (small vs. large) as well as in the number complexity (difficult vs. easy). Consistent with our hypothesis and contrary to the rules of arithmetic, participants in our experiments perceived the discount magnitude to be larger when the difference was easier to compute (e.g., 5.00-4.00; difference 1.00) than when it was difficult to compute (e.g., 4.99-3.98; difference 1.01). This effect manifested across all levels of discounts as well as prices. Experiment 2 shows this effect is robust and manifests with judgments of price difference as well as judgments of weight difference. However, this effect manifests only when the judgment requires mental computations. When the participants did not have to do the mental computations to make the judgment, processing fluency had no effect on judgments (Experiment 3). Finally, the observed effect seems to be on account of non-conscious misattribution of the metacognitive experience. When the participants were explicitly warned that the computation is either easy or difficult, processing fluency had no effect on judgments (Experiment 4).

“Perceptual Fluency, Attitudes and Choice”
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In a series of studies we examine the relationship between perceptual fluency, attitudes and their accessibility and choice from a limited set of brands. We hypothesize that under these conditions, brand choice is a two-stage process. The first stage is a recognition stage where certain brands will “stand out” in the environment. The second stage is a choice stage, where consumers use information about the brands, which is stored in memory to make a choice.

Previous research indicates that objects with highly accessible attitudes “stand out” in the environment (Roskos-Ewoldsen and Fazio 1992) and that perceptual fluency will also cause this to happen (Jacoby, Kelley and Dywan 1989). Consequently, attitude accessibility and perceptual fluency are expected to influence the first stage. Previous research also indicates that beliefs, attitudes and their accessibility will influence the second stage (e.g., Fazio and Towles-Schwen 1999).

These conjectures are tested in a series of experiments. In all the experiments, the participants are provided with information about four hypothetical brands of personal music players that vary on five attributes so that there is a clear rank order of the brands on the attributes. One brand is evaluated as very positive, the second as slightly positive, the third slightly negative and the fourth very negative. Both the attribute information and the attributes provide the same rank order. During the experiment, the participants form an attitude toward each brand.

In the first experiment, the perceptual fluency, attitude accessibility of the second best personal music player are manipulated and the participants are asked to select which brand they would purchase if they all had the same price under either high or low motivation and opportunity conditions. Under high motivation and opportunity conditions the participants are given as much time as they want to make a decision and are told that if they select the best brand they are eligible to enter a drawing to win $25. Under low motivation and opportunity conditions the participants were told to make a decision as quickly as possible.

Under high motivation and opportunity conditions only attitude accessibility had an influence on choice while under low motivation and opportunity conditions, both attitude accessibility and perceptual fluency were found to have independent influences on choice. The response times of the choice process were not measured in this experiment, so it is possible that the low motivation and opportunity condition included both the recognition stage and part of the choice stage in the choice process. In other words, the choice of the brand with the highly accessible attitude may be due to effects at both the recognition and choice stage.

To examine this possibility we conducted a second experiment, which is similar to the first, only the perceptual fluency and attitude accessibility of the third best brand, which has a negative attitude, are manipulated. In addition, the response times in the choice task were measured. As expected, neither attitude accessibility nor perceptual fluency affected choice under high motivation and opportunity conditions. However, under low motivation and opportunity conditions, perceptual fluency has a significant effect on choice while attitude accessibility has a marginally significant effect. A closer examination of the data indicates that with a median split on the response times used when reaching a decision, all the participants who selected the third best brand, which had a negative attitude made the decision quickly. In fact, all the participants who choose the third best brand did so within 1.1 seconds.

In a third experiment, we replicated the low motivation and opportunity conditions of the first experiment, however, we forced the participants to make a choice within 1.1 seconds. The results indicate a significant interaction between the effects of perceptual fluency and attitude accessibility on choice. Both high perceptual fluency and high attitude accessibility had significant effects on choice. However, these effects were not additive.

In summary, the results of our experiments indicate that the recognition stage lasts for approximately 1.1 secs and perceptual fluency and attitude accessibility affect this stage. If choices are based on this stage, perceptual fluency and attitude accessibility will affect choice regardless of the valence of the attitude. Attitudes, attitude accessibility and attribute information will influence the second stage. In our studies attitudes and attribute information provided the same rank order information of the brands, so only attitude accessibility had an effect on choice when the attitude was positive. These results indicate that even when attitudes are formed toward the alternatives, they do not influence choice when it is based on metacognitive processes.