

The moderating effect of need for cognition on the informational role of accessibility experiences

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In forming judgments and inferences based on memory, people not only rely on the content information retrieved from memory but also use their subjective ease or difficulty experience of retrieval as a source of information (Schwarz and Clore, 2007). The present study examines the moderating role of an individual's need for cognition in his or her use of retrieval ease as information in forming product attitudes after self-generating reasons in favor of a product. In doing so, the present study also tests for two possible mediating mechanisms: perceived availability- vs. validity-based mechanism. The results show that retrieval ease (experienced in self-generating reasons) influences product attitudes when people are low on need for cognition but not when they are high on need for cognition. In addition, the ease effect on product attitudes (that was contingent upon need for cognition) was found to be mediated by the perceived availability of reasons. Several implications for practice and future research are also discussed.

Key words : *Ease-of-retrieval, Need-for-cognition, Availability, Validity*

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Past research into human judgments and inferences that are made based on memory has shown that an individual's memory-based judgments and inferences are not only influenced by the content information that the person retrieves from memory (e.g., "How many positive attributes does this product have?") but also affected by the person's subjective experience of ease or difficulty when retrieving content information from memory (e.g., "How easily could I recall those attributes?"), which is referred to as *ease of retrieval* or *accessibility experiences* (for a review, see Schwarz, 2010). A classic ease of retrieval effect on judgments was documented in Schwarz et al. (1991) where participants were asked to think of either 6 or 12 situations in which they behaved assertively before rating their assertiveness. If participants' judgments were merely content-based, then they would have inferred higher assertiveness after recalling more examples. However, contrary to the prediction of content-based judgments, participants inferred lower assertiveness after recalling twelve instances than after recalling six instances. Apparently, their accessibility experiences that it was so difficult to remember many examples led them to infer that they could not be that assertive after all. Since Schwarz et al. (1991)'s demonstration of the influence of retrieval ease on person perception judgments, many other studies have extended the retrieval ease effect into various other judgment domains including health-related

judgments (e.g., Raghurir & Menon, 1998), frequency judgments (e.g., Aarts & Dijksterhuis, 1999), safety judgments (e.g., Caruso, 2008), product evaluations (e.g., Wänke, Bohner, & Jurkowitsch, 1997), and credibility judgments (e.g., Ask, Greifeneder, & Reinhard, 2012), establishing that the accessibility experiences (i.e., retrieval ease) play an important role as *a source of information* (Schwarz & Clore, 2007) that people may use in addition to, or instead of, content information.

The present study investigates the role of an individual's tendency to engage in and enjoy thinking, namely *need for cognition* (Cacioppo & Petty, 1982), as a moderator for his or her use of retrieval ease as information in forming product attitudes. To illustrate, imagine a consumer who tries to think of some positive attributes of a product before making a purchase decision. The findings of Wänke, Bohner, and Jurkowitsch (1997) suggest that the consumer would form a more positive attitude toward a product and be more willing to buy it when self-generating reasons in favor of the brand feels easy (e.g., when generating few reasons) rather than difficult (e.g., when generating many reasons). Then, would the person's use of retrieval ease in forming judgments differ depending on the person's tendency to engage in thinking? If so, how does need for cognition moderate the influence of retrieval ease on judgments?

In the literature on the ease effects, a

growing body of research has been investigating the moderating roles of various factors that are related to one's processing motivation and capacity (for a review, see Greifeneder, Bless, & Pham, 2011). However, researchers do not seem to agree on the exact direction and nature of the moderations. In particular, one group of research (e.g., Florack & Zoabi, 2003; Grayson & Schwarz, 1999; Haddock, 2002; Janssen, Muller, & Greifeneder, 2011) suggests that people are more likely to use their retrieval ease feeling as information when they have a low (rather than high) level of cognitive elaboration, while another group of research (e.g., Tormala, Petty, and Brinol, 2002; Wänke and Bless, 2000; Petrocelli and Dowd, 2009) suggests the exact opposite relationship. Regarding the role of need for cognition, for example, Florack and Zoabi (2003) observed that people high in need for cognition were less likely to rely on their accessibility experiences than were people low in need for cognition. On the contrary, Tormala, Petty, and Brinol (2002) observed that people low (high) in need for cognition were less (more) likely to rely on their accessibility experiences. Regarding these contradictory findings and views in the extant literature, Greifeneder et al. (2011) suggest that, for the literature to be able to build a refined framework that can explain why we have these mixed findings, we need to acknowledge that the matter of *when* (in terms of low vs. high cognitive elaboration) people are more or less likely to use their retrieval ease as

information may be contingent up on, or very sensitive to, some characteristics of the specific judgment task at hand. If so, in order to be able to solve the puzzle, the literature, as a first step, needs to accumulate many empirical tests of those moderating variables using a variety of judgment tasks (with respect to judgment domains, targets, etc.) as suggested in Greifeneder et al. (2011).

Responding to this request, the present study provides an empirical test of need for cognition as a moderator for the retrieval ease effect. This study is different from the earlier studies of need for cognition and ease effects (e.g., Florack & Zoabi, 2003; Tormala, Petty, & Brinol, 2002) not only in that the judgment domain is different (which is meaningful given that the direction and nature of moderation might be contingent on the judgment task-related factors as mentioned above) but also, more importantly, in that we examine both moderation and mediation to better understand the relationship between need for cognition and one's use of retrieval ease in forming a product attitude. In the next section, we review some prior research that is relevant to the current study and present hypotheses. Then, we present an experimental study and report findings. Finally, we conclude with a discussion on some limitations and suggestions for future research.

Theoretical Background and Hypotheses

Accessibility Experiences as Information

Numerous past studies (see Schwarz, 2010 for a review) have provided ample evidence that human judgments and inferences that are made on the basis of memory rely on not only *what* comes to mind (content of memory that is retrieved) but also *how* the content information comes to mind (subjective experiences of ease or difficulty with which the information is retrieved). For example, in the domain of person perception, Schwarz et al. (1991) found that people who recalled many examples of their assertive behaviors rated themselves as less assertive than those who recalled few examples. Presumably, people inferred lower assertiveness from their experienced difficulty of recalling many examples of assertive behaviors because or else it should not be so difficult to recall many examples. This observation is consistent with Tversky and Kahneman's (1973) *availability heuristic*, which states that people infer higher frequency and likelihood when instances or associations are easy rather than difficult to bring to mind. Testing the role of accessibility experiences as information in an advertising context, Wänke et al. (1997) showed that anticipated retrieval ease triggers the same effects of actually experienced ease. In their study, participants were exposed to an advertisement slogan for BMW (an automobile brand) that challenged them to think of one or ten reasons

to drive a BMW. The authors found that people who imagined recalling ten reasons evaluated the brand less favorably than those who imagined recalling only one reason. They concluded that such judgments (that were counter to content-based predictions) were made presumably because the difficulty of recalling many good reasons served as information signaling limited availability of good reasons.

Accessibility experiences have also been found to influence judgments in various other domains. In health-related judgments, Raghurir and Menon (1998) have shown that when participants were asked to list some AIDS-related behaviors, their perceptions of risk were higher after generating few behaviors than after generating many behaviors. In attitude-related judgments, Haddock et al. (1999) have demonstrated that participants with moderate attitudes toward an issue rated their opinions as more intense, personally important, and held with greater certainty after generating few (rather than many) supporting arguments. In product choice judgments, Novemsky et al. (2007) have found that people were more likely to defer a choice after generating more (rather than few) reasons for choosing. Additionally, researchers have demonstrated similar retrieval ease effects on stereotyping (Dijksterhuis, Macrae, & Haddock, 1999), fairness perception (Janssen et al., 2011), behavioral frequency judgment (Aarts & Dijksterhuis, 1999), safety judgment (Caruso, 2008), and credibility judgment (Ask,

Greifeneder, & Reinhard, 2012). This large body of research into the effects of accessibility experiences on judgments has robustly established that the cognitive feelings of ease or difficulty associated with information retrieval process play an important role as a source of information (Schwarz & Clore, 2007) that people may use in addition to, or instead of, content information.

Processing Motivation as a Moderator of the Ease Effect

A growing body of research on the ease effects has been investigating *when* people are more or less likely to use the accessibility experience as information. In a recent review, Greifeneder et al. (2011) classified various moderating factors into five broad categories: salience (e.g., Hansen & Wänke, 2008; Ruder & Bless, 2003), representativeness (e.g., Caruso, 2008; Raghuram & Menon, 1998; Rothman & Hardin, 1997), disposition-related relevance (e.g., Keller & Bless, 2009; Ofir, 2000), processing opportunity (e.g., Greifeneder & Bless, 2007), and processing motivation (e.g., Haddock, 2002; Wänke & Bless, 2000). What is interesting and noteworthy about these moderators is the fact that the literature shows contradictory findings regarding the moderating role of *processing motivation*-related variables (see Table 1) unlike the other moderators that show consistent results across different empirical studies.

In specific, one line of research suggests that people are more likely to rely on the ease of

retrieval feeling in judgments when processing motivation is low rather than high (e.g., Florack & Zoabi, 2003; Grayson & Schwarz, 1999; Haddock, 2002; Janssen, Muller, & Greifeneder, 2011; Rothman & Schwarz, 1998). For example, Rothman and Schwarz (1998) investigated the moderating role of self-relevance of judgment topic in the ease effect in a health risk-related judgment domain. They found that when heart disease was not self-relevant, participants reported greater vulnerability after having recalled few rather than many risk-increasing behaviors, showing reliance on the ease of recall. When heart disease was self-relevant, participants reported greater vulnerability after having recalled many rather than few risk-increasing behaviors, indicating reliance on the content of the retrieved information. In the domain of political attitudes, Haddock (2002) examined the moderating role of personal interest in the judgment topic and found that politically uninterested participants rated Tony Blair more favorably after having recalled fewer positive attributes, while politically interested participants did not show the typical ease effect. This line of research findings suggests that the typical ease effect on judgment is more likely to occur under low processing motivation conditions (e.g., low involvement or low personal relevance) as the ease feeling is used as a *heuristic cue* in judgment making, while under high processing motivation conditions people tend to scrutinize the information content heavily rather than using the

Table 1. Past studies of processing motivation-related variables as moderators of the retrieval ease effects (Note: This table is modified based on Table 5 in Greifeneder et al., 2011)

View 1: "Reliance on retrieval ease is amplified under low processing motivation."	
<i>Tested Variables and Author(s)</i>	<i>Retrieval Task (RT); Key Dependent Variable (DV); and Availability of Mediation Analysis (MA)</i>
Personal relevance Rothman & Schwarz (1998)	RT: Generating heart disease risk factors DV: Perceived personal vulnerability MA: None
Personal relevance Haddock (2002)	RT: Generating positive or negative characteristics about Tony Blair DV: Favorability of attitudes toward Tony Blair MA: None
Personal relevance Broemer (2004) Study 3	RT: Imagining having (easy- vs. difficult-to-imagine) symptoms caused by a virus DV: Attitudes toward inoculation MA: None
Accuracy motivation Arts & Dijksterhuis (1999)	RT: Listing destinations for which participants have used their bicycle DV: Frequency estimate of past bicycle use MA: None
Uncertainty Janssen et al. (2011)	RT: Thinking of unfair aspects of a target event DV: Fairness perception MA: None
Processing capacity Greifeneder & Bless (2007)	RT (Exp. 1) Generating reasons favoring a new surgery fee DV: Attitude toward the fee RT (Exp. 2) Recalling one 's own past self-assertiveness DV: Self-assertiveness judgment MA: Judgmental latencies (as proxy measure)
View 2: "Reliance on retrieval ease is amplified under high processing motivation."	
<i>Tested Variables and Author(s)</i>	<i>Retrieval Task (RT); Key Dependent Variable (DV); and Availability of Mediation Analysis (MA)</i>
Need for cognition Tormala et al. (2002) Study 1	RT: Generating arguments against a comprehensive exam DV: Attitude toward the exam MA: None
Need for cognition Petrocelli & Dowd (2009)	RT: Generating counterfactual alternatives for a crime DV: Perceived causal role of the target person in the accident MA: None
Accuracy motivation Wänke & Bless (2000)	RT: Recalling ad claims (Study 1); Recall task aided by helpful vs. unhelpful cues (Study 2) DV: Product evaluation MA: Perceived compellingness of the recalled ad claims
Personal relevance Tormala et al. (2002) Study 2 & 3	RT: Generating positive thoughts about an exam policy DV: Attitude toward the exam MA: Confidence in thoughts and perceived number of thoughts participants thought they had generated
Need for structure Hirt et al. (2004)	RT: Generating alternatives to an outcome in a sporting event DV: Predicted probability of winning in a related vs. unrelated domain MA: None

ease experience as a judgment heuristic. As indicated in Schwarz (2010) and Greifeneder et al. (2011), this view is consistent with dual process models of persuasion such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (Chaiken, Liberman, & Eagly, 1989) because the dual process models suggest that simple heuristics or decision-rules better predict attitude changes when elaboration likelihood is low, whereas the content of messages (e.g., careful assessments of the content information) better predicts attitude changes under high elaboration. The view that people should be more likely to use their retrieval ease as information when they are under low (rather than high) elaboration conditions is, in a broad sense, similar to those models in that it assumes that retrieval ease will work only as a simple heuristic cue rather than influencing people's perception or evaluation of the retrieved content information in making judgments and inferences.

While several other studies into the moderating role of processing motivation in the ease effect have provided similar evidence supporting this view, another line of research in the literature shows an exact opposite pattern of results suggesting that the retrieval ease effect is more likely to occur under *high* (rather than low) processing motivation conditions. For instance, Tormala, Petty, and Brinol (2002) found that attitude ratings of their participants under high elaboration conditions (e.g., high

need for cognition, high personal relevance) were more influenced by the difficulty of thought generation than those under low elaboration conditions. They suggested that the difficulty of retrieval influences high elaboration people's attitude because it lowers their confidence in the generated thoughts. Wänke and Bless (2000) manipulated participants' accuracy motivation and measured their product evaluation after seeing an advertisement with strong or weak claims. They found that under high accuracy motivation participants not only based their product evaluation on the quality of the recalled ad claims but also relied on the retrieval ease, revealing a more favorable evaluation under easy-retrieval condition where the recall task was assisted by helpful cues. In the low accuracy motivation condition, they observed a retrieval ease effect under the weak ad claim condition only and not under the strong ad claim condition. More recently, Petrocelli and Dowd (2009) found that high need for cognition participants made less punitive responses to a crime when they experienced difficulty of generating many upward counterfactuals (e.g., "only if" thoughts).

Regarding these diverging lines of research, Greifeneder et al. (2011) suggest that, for the literature to be able to build a refined framework that can explain why we have these mixed findings, researchers need to address the possibility that the matter of *when* (in terms of low vs. high cognitive elaboration) people are

more or less likely to use their retrieval ease as information may be contingent up on, or very sensitive to, some aspects of the *specific judgment task* at hand. For instance, some aspects of the judgment task may encourage people to use their cognitive ease or difficulty feelings either as an indication of the quantity of the content information or as an indication of their confidence in the recalled information content (Greifeneder et al., 2011; p. 127). Therefore, in order to be able to solve the puzzle, it seems to be a necessary first step that the literature accumulates many empirical tests of various moderating variables that are associated with cognitive elaboration using various types of judgment tasks (in terms of judgment domains, targets, etc.).

Accordingly, the intended contributions of the presented study are two-folds. First, we test the moderating role of need for cognition for ease effects in a new judgment domain (i.e., product attitude judgments) that was not examined in the past studies of NFC and ease effects (e.g., Petrocelli & Dowd, 2009; Tormala et al., 2002). Testing NFC and ease effects in a different judgment domain is meaningful given the fact that the moderation is suspected to be contingent on some aspects of the judgment task as mentioned above. Therefore, it is worth examining in what direction, if any, an interaction between NFC and retrieval ease may occur in the specific judgment situation where consumers form product/brand attitudes after

self-generating reasons in favor of a brand. Second, and more importantly, we will not only address whether and in what direction the moderation occurs but also examine the underlying mechanism. To our best knowledge, no prior research into the moderation between NFC and ease effects has examined the underlying mediation process. In the next section, building up on some relevant prior research, we present two opposing mechanisms that may underlie low and high NFC individuals' use of retrieval ease as information when they make product attitude judgments after self-generating reasons.

Possible Mediating Mechanisms for Low vs. High NFC Individuals' Use of Retrieval Ease

The two groups of research into the relationship between processing motivation and use of retrieval ease as information propose different reasons as to why the ease effects on judgments occur only under low or high cognitive elaboration conditions. The first group of research (listed in the upper part of Table 1) generally argues that people rely on ease in judgments only under low elaboration conditions due to the *heuristic nature* of the cognitive ease/difficulty feeling. As mentioned earlier, one important heuristic that people may rely on in using their ease experience as information is known to be the *availability heuristic* (Tversky & Kahneman, 1973). Availability heuristic suggests that if there are many occasions out there then

it should be relatively easy to recall and retrieve the relevant information from memory. In other words, if it is difficult to retrieve information from memory, then (people would infer that) it must be because there are not many instances to be stored in the memory system. As a result, people are likely to infer limited availability from the difficulty of retrieving information. However, although this availability heuristic-based account has been generally presumed to underlie the amplified ease effects under low elaboration conditions, this has not been directly measured and tested in prior studies of processing motivation and ease effects (as indicated in Table 1). Hence, it is worth empirically testing to see if in fact the information availability-related inference can explain why ease effects occur only under low elaboration conditions (e.g., low NFC) but not under high elaboration conditions.

On the contrary to this heuristic-based account, the second group of research (listed in the lower part of Table 1) generally argues that retrieval ease influences judgments only under high elaboration conditions because people in those conditions are more likely to think about their thoughts and have more concerns about *validity of the information content*. According to the self-validation account (Petty, Brinol, & Tormala, 2002), the more valid thoughts are perceived to be, the more likely they are to be used in forming judgments. Along the same line, Wänke & Bless (2000), who found the ease effect on product evaluations under high accuracy

motivation condition, reported that the difficulty of recalling product benefits (e.g., ad claims presented to participants) undermined the perceived compellingness of the recalled ad claims. Tormala et al. (2002) reported that participants under high personal relevance condition had less confidence in their self-generated arguments when they had to generate more arguments. Consistent with those findings, if we find an ease effect on attitude judgment among high need for cognition individuals in the current study, then the perceived validity of their self-generated reasons may explain the observed ease effect. Accordingly, the present study will measure participants' perceptions of their self-generated thoughts to see if the perceived validity can explain the influence of retrieval ease on product attitude judgments, if any, among high NFC individuals.

The Present Study

Using an experiment, the present study will examine whether the influence of retrieval ease (experienced in self-generating reasons in favor of a brand) on product attitudes differs depending on the person's need for cognition. It is designed to test the following two competing hypotheses concerning the interaction between NFC and ease effects on judgments, and the mediation mechanism:

H_{ALT} A: (a) The retrieval ease people experience in generating reasons in favor of a

brand will influence their product attitudes when they are low (but not high) on NFC and (b) this conditional effect of retrieval ease on attitude judgments will be mediated by the perceived availability of reasons.

H_{ALT} B: (a) The retrieval ease people experience in generating reasons in favor of a brand will influence their product attitudes when they are high (but not low) on NFC and (b) this conditional effect of retrieval ease on attitude judgments will be mediated by the perceived validity of reasons.

Method

Participants and experimental design

Eighty-five undergraduates (43 men and 42 women; $M_{age} = 22.5$ years, $SD = 2.5$) at a large U.S. university participated in exchange for course credit. The experiment was a 2 (Reason Generation Task: few vs. many reasons) x (NFC: measured) between-participants design.

Materials, measures, and procedure

Participants filled out a computerized questionnaire where a fictitious online advertisement of an automotive brand (BMW) was presented. Modeled after Wänke et al. (1997), the advertisement contained a photo of a BMW sedan and read: “There may be many reasons to drive a BMW. Can you think of ONE reason (TEN reasons)?” Immediately after

seeing the ad, participants were asked to type in one reason or ten reasons. After completing the reason generation task, participants made attitude-related judgments by answering the following two questions: “How much do you like BMW cars?” (1 = do not like at all, 7 = like very much) and “How favorable are you toward BMW cars?” (1 = not favorable at all, 7 = very favorable). After the main judgment task, participants indicated the perceived availability of reasons for buying a BMW (“In your opinion, how many good reasons are there for buying a BMW?”; 1 = none, 7 = many reasons). In the next section of the questionnaire, they completed a validity judgment task. On the computer screen, each reason they had typed in earlier was presented one at a time and participants rated how good the reason was for buying a BMW (1 = not good at all, 7 = very good). Then, they rated their experienced difficulty of generating the requested number of reasons for buying a BMW (1 = very easy, 7 = very difficult) and completed the 18-item need for cognition scale (Cacioppo, Petty, & Kao, 1984). Finally, for a screening purpose, participants indicated if they owned a BMW.

Results

Need for cognition (NFC)

The need for cognition scale was assessed on a 5-point scale anchored at 1 (= “completely

disagree”) and 5 (= “completely agree”). Appropriate items (e.g., “I only think as hard as I have to do” or “Thinking is not my idea of fun”) were reverse-coded such that higher scores reflect greater need for cognition. The 18 items were summed to produce a need for cognition score with a possible range of 18-90, an actual range of 34-88, a median of 59, a mean of 59.87, and a standard deviation of 11.31. The scale was highly reliable in this sample ($\alpha = 0.89$).

Manipulation check: Ease-of-retrieval

In the few reasons condition, all participants generated one reason as requested. In the many reasons condition, the average number of reasons that participants actually generated was 8.7 ($SD = 2.8$). Indicating a successful manipulation of the ease of retrieval experience, participants who had to generate one reason favoring the target brand perceived the reason generation task as being significantly easier than those who had to generate ten reasons, $M = 2.62$, $SD = 1.85$ vs. $M = 5.02$, $SD = 1.88$, $F(1, 83) = 35.29$, $p < .001$.

Product attitude

To test for the two competing hypotheses

regarding *when* (low vs. high NFC) the retrieval ease is more likely to influence people’s product attitudes ($H_{ALT} A(a)$ vs. $H_{ALT} B(a)$), the attitude data were analyzed using a hierarchical regression method (Cohen & Cohen, 1983). The two product attitude items (liking and favorability) were combined into one attitude measure ($\alpha = 0.95$). The reason generation task variable (effect-coded) and NFC (mean-centered) were entered first into the regression to test for main effects and their product was entered next to test for the two-way interaction. No significant main effects were found but there was a significant two-way interaction, $b = 0.029$, $SE = 0.014$, $t(81) = 2.074$, $p < 0.05$. Further analyses revealed a significant ease of retrieval effect for low NFC participants (analyzed at -1 SD) such that they made a more favorable attitude judgment on BMW after generating few rather than many reasons favoring BMW. On the contrary, the attitude judgments of high NFC participants (analyzed at +1 SD) were not influenced by the ‘few vs. many’ reason generation task (see Table 2). This interaction is illustrated in Figure 1. These results (along with the supplementary analysis results described below) support $H_{ALT} A(a)$ over $H_{ALT} B(a)$ pertaining to when (low vs. high NFC) the

Table 2. Simple effect analysis results

Simple Effect of Ease Manipulation on Attitude	B	SE	t	p
at Low NFC (-1SD)	-0.453	0.226	-2.008	< 0.05
at High NFC (+1SD)	0.211	0.225	0.934	0.353

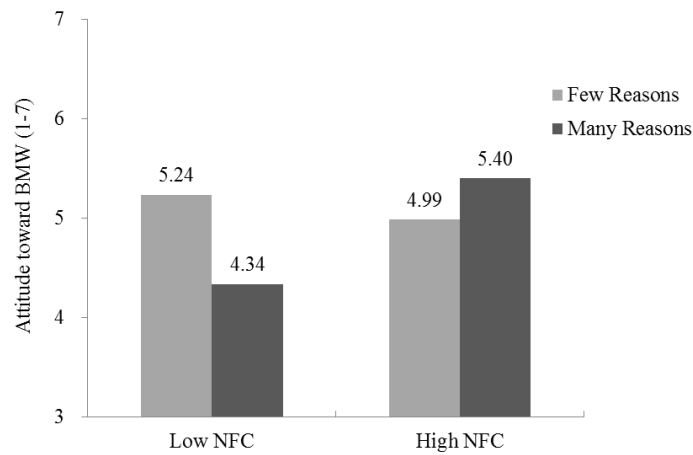


Figure 1. Attitude ratings as a function of need for cognition and the number of generated reasons (plotted at -1 and +1 SD for NFC)

retrieval ease is more likely to influence product attitudes.

To confirm the influence of subjective ease of reason generation on participants' attitude judgments, we also calculated the correlation between the experienced ease measure and the attitude measure (for a similar procedure, see Aarts & Dijksterhuis, 1999; Rothman & Hardin, 1997; Schwarz et al., 1991). As anticipated, for participants who were low on NFC (based on median-split), the reported ease was significantly correlated with the attitude judgment ($r = -0.41, p < 0.01$) revealing that the more difficult participants found the reason generation task, the less favorable their attitude judgments. On the contrary, the correlation between the two measures was not significant for participants who were high on NFC.

Analysis of Mechanisms

Next, we examined the role of perceived availability and perceived validity of reasons in the relationship between the ease of reason generation and product attitude judgments that was found to differ across low and high NFC individuals (i.e., $H_{ALT} A(b)$ vs. $H_{ALT} B(b)$). We conducted a series of analyses as the following. First, as preliminary analyses, we first examined if there was a significant ease x NFC interaction effect on perceived availability and perceived validity. Then, we performed a formal test of indirect effects of ease x NFC through perceived availability and validity as described below.

Preliminary analyses. Results of a regression analysis showed that an ease x NFC interaction predicted the perceived availability ($b = 0.035, SE = 0.016, t(81) = 2.164, p < 0.05$). A similar analysis on the perceived validity of

generated reasons showed a significant ease x NFC interaction effect on the validity perception as well ($b = 0.052$, $SE = 0.018$, $t(81) = 2.913$, $p < 0.01$). In other words, the ease of retrieval effects on perceived availability and validity both were moderated by NFC. This was not surprising as perceived availability and perceived validity were significantly correlated ($r = 0.25$, $p < 0.05$). However, although these two variables were correlated, perceived availability did not predict perceived validity ($t < 0.9$, ns). In addition, further analyses revealed that NFC moderated the ease effect on perceived availability of reasons such that only low NFC individuals (but not high NFC individuals) were influenced by the ease of generating reasons in their availability judgment ($b = -0.617$, $SE = 0.252$, $t(81) = -2.454$, $p < 0.05$). Participants with relatively low NFC inferred a higher level of scarcity of reasons after generating many reasons (vs. one reason), while those with high NFC did not. As for the validity judgment, participants with relatively high NFC perceived their self-generated reasons to be more valid (i.e., good reasons) after generating many (vs. one) reasons ($b = 0.665$, $SE = 0.272$, $t(81) = 2.447$, $p < 0.05$), while those with low NFC did not show any difference in their validity judgment. The result patterns were still the same when validity was controlled for as covariate in the analysis of availability, and vice versa.

Mediation analyses. The analyses of ease effects on attitude judgments and the analyses of ease effects on the two proposed mediators (availability and validity) suggested that the ease x NFC interaction effect on attitude (i.e., only low (and not high) NFC individuals showing the typical ease effect) is in fact likely to be mediated by perceived availability of reasons. For a formal test of mediated moderation, we applied a procedure suggested by Preacher, Rucker, and Hayes (2007) for testing *conditional indirect effects* (e.g., Baron, Kenny, 1986; Muller, Judd, Yzerbyt, 2005). We used the SPSS Macro PROCESS provided by Hayes (2012) that enabled us to examine the contingent nature of mechanism using a series of multiple regressions and bootstrapping. The bootstrap estimates presented here are based on 1000 bootstrap samples. The results revealed that availability still predicted product attitudes when validity was controlled for, but not vice versa. Moreover, as shown at the bottom of Table 3, the indirect effect of ease on attitude through availability was significant when NFC was relatively low (tested at $-1SD$) as indicated by the 95% boot confidence interval which did not include zero, while the indirect effect was not significant when NFC was high (tested at $+1SD$) as indicated by the corresponding C.I. that included zero. This test results confirmed a mediated moderation relationship amongst ease of reason generation, NFC, availability, and product attitudes.

To summarize, the presented experiment

Table 3. Testing of the conditional indirect effects

Mediator variable model (DV = availability)				
	B	SE	t	p
Ease of Retrieval	-0.2161	0.1866	-1.1579	0.2503
NFC	0.0041	0.0165	0.2477	0.8050
Ease x NFC	0.0355	0.0164	2.1557	< 0.05
Mediator variable model (DV = validity)				
	B	SE	t	p
Ease of Retrieval	0.0738	0.2076	0.3553	0.7233
NFC	0.0270	0.0177	1.5238	0.1315
Ease x NFC	0.0523	0.0178	2.9366	< 0.01
Dependent variable model (DV = attitude)				
	B	SE	t	p
Availability	0.2832	0.1361	2.0802	< 0.05
Validity	0.1722	0.1124	1.5315	0.1295
Ease of Retrieval	-0.0663	0.1507	-0.4401	0.6610
Conditional indirect effects on attitude through availability (at each level of NFC)				
	Indirect effect	boot SE	boot 95% C.I.	
Low NFC (-1SD)	-0.1748	0.1015	[-0.4568, -0.0283]	
High NFC (+1SD)	0.0524	0.0859	[-0.0669, 0.3020]	

Figure 2. Relationships amongst ease of retrieval, NFC, perceived availability, perceived validity, and product attitudes (solid arrows indicate significant paths; dotted arrows indicate non-significant paths)

found that when participants self-generated reasons for a product purchase, the ease of generating reasons influenced their product attitude when they were relatively low on need for cognition but not when they were high on need for cognition. Furthermore, we found that the NFC-contingent effect of ease on attitude was explained by the perceived availability of reasons rather than by the perceived validity of self-generated reasons. This relationship is also presented in Figure 2.

Discussion

According to the psychology literature on ‘the ease of retrieval as information,’ an individual’s subjective ease or difficulty of retrieving content information from memory plays an important role in the individual’s judgment and inference making (see Schwarz, 2010 for a review). However, despite the robustness of the ease effects on judgments in a variety of judgment domains including frequency judgment, truth judgment, safety judgment, and product evaluations (e.g., Aarts & Dijksterhuis, 1999; Caruso, 2008; Raghurir & Menon, 1998; Wänke, Bohner, & Jurkowitsch, 1997), there is still not much understood about boundary conditions especially with respect to the moderating role of processing motivation (see Greifeneder et al., 2011 for a review). In particular, the extant literature has two lines of

research arguing that the ease effect is more likely to occur under low or high processing motivation conditions. One line of research (e.g., Florack & Zoabi, 2003; Grayson & Schwarz, 1999; Haddock, 2002) suggests that the ease effect is amplified under low processing motivation conditions because people use the ease of retrieval feeling as a heuristic cue (e.g., availability heuristic) in making judgments, while the other line suggests that the ease effect is more likely to be amplified under high processing motivation conditions because the ease or difficulty influences perceived validity of, or confidence in, the retrieved content information (e.g., Petrocelli & Dowd, 2009; Tormala, Petty, & Brinol, 2002; Wänke & Bless, 2000).

The present study examined whether the retrieval ease an individual experiences in self-generating reasons in favor of a brand influences his or her product attitudes when the person is low or high on need for cognition. We found that low (but not high) NFC individuals’ product attitudes were significantly influenced by their retrieval ease experience such that low NFC individuals liked the product more after generating few, rather than many, reasons consistently with the typical ease effect on judgments. More importantly, we also found a mediated moderation in the ease effects on product attitude judgments. That is, low NFC individuals inferred limited availability of reasons from their experienced difficulty of generating many reasons unlike high NFC individuals, and

this difference in their availability inference resulted in the difference in their product attitudes. This study contributes to the extant literature on the relationship between NFC (and processing motivation in general) and the informational role of retrieval ease in judgments by testing the relationship in a new judgment domain and, more importantly, by providing empirical evidence which explains why the moderation occurs.

The contributions of this study, however, should also be viewed in light of some limitations. First, as we measured the perceived availability and validity after participants answered the product attitude question, it is not clear whether participants did in fact make the inferences on availability and/or validity when (or before) they made the product attitude judgments. Some participants might have inferred availability and/or validity in retrospect. Therefore, future research needs to address these possibilities by using a study design that can better examine whether people in fact make those inferences prior to or at least at the time of product attitude judgment making. Second, and on a related point, it needs to be noted that the availability-based mechanism we found here (and also proposed in some past studies) should not be generalized to other contexts of judgments without proper investigation. Although we intended to test the two particular mechanisms (one favoring availability heuristic and the other favoring perceived validity)

proposed by the two diverging lines of prior research into the moderating role of processing motivation in the ease effects, the specific types of inferences people can make from their experienced retrieval ease are malleable and dependent on the judgment context (Schwarz, 2010). For example, Xu (reported in Schwarz et al., 2005) asked participants to list few or many “fine Italian restaurants” in town. When people were first asked to think about the number of fine Italian restaurants in the town, they inferred a small number of restaurants based on the difficulty of retrieval, consistent with the availability heuristic. However, when they were first asked to think about their knowledge about the town, they inferred limited knowledge from the same cognitive feeling. Schwarz (2010) highlights that the same ease of retrieval feeling can be informative for various types of judgments via different applicable naïve theories of memory and that, more importantly, the (initial) judgment task determines what inference rule will be activated as the underlying mechanism. Accordingly, when a consumer self-generates product benefits, the same cognitive feeling of ease or difficulty can indicate different things depending on the specific judgment context such as lack of knowledge (“I do not know much about cars”), limited availability (“There are not many good reasons for buying this car”), etc. Hence, future study may follow up by addressing the possibility of other inference-based mechanisms relevant to the

ease effect found in the present study.

An important theoretical implication that the current study provides to future research is that, although at the surface level our finding of ease effects on judgments only among low NFC participants may seem to support View 1 over View 2 presented in Table 1, it should be rather interpreted as an empirical evidence showing that the interplay of processing motivation and the informational role of retrieval ease is likely to be sensitive to some characteristics of the judgment task used in the experiment as proposed by Greifeneder et al. (2011). As, to date, little is known about those likely interplays and contingency, the literature first needs to accumulate many empirical tests of these variables so that it can start to build a more refined theoretical framework that can better explain the role of retrieval ease feeling in judgment and inference making. The current study also provides marketers important implications for better understanding how consumers' minds work. Predicting consumers' judgments and perceptions should not be merely based on the information content marketers provide to consumers but also based on how the information content is likely to come to their minds. Our findings suggest that advertisers should not encourage or challenge consumers to self-generate product benefits and positive attributes if consumers cannot do so easily. This is particularly the case with the consumers who are not highly motivated to process information.

Wänke et al. (1997) found that the ease effect can occur even when consumers merely imagine thinking of product benefits. Hence, a marketer may want to think twice before blatantly saying to customers, "There are many great reasons for you to buy our product!" without actually telling them those specific reasons.

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인출 용이성의 정보로서의 역할에 대한 인지 욕구의 조절 효과

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사람들은 기억에 의존하여 어떤 판단이나 추론을 할 때, 기억으로부터 인출된 서술적인 정보에만 의존하는 것이 아니라 그 서술적인 정보를 기억해 내는 과정에서 주관적으로 경험한 정보 인출의 용이성(ease of retrieval)도 하나의 정보의 원천으로서 이용한다(Schwarz and Clore, 2007). 본 연구는 소비자가 제품 구매에 대한 이유들을 생각해내는 상황에서 느낀 인출의 용이성이 소비자의 제품 태도에 미치는 영향이 소비자의 인지 욕구(need for cognition)에 따라 어떻게 달라지는지를 조사하였다. 그 과정에서 또한 그러한 조절 효과를 매개할 수 있는 두 가지의 기제인 지각된 가용성과 타당성(perceived availability and perceived validity)에 대해서도 살펴보았다. 연구 결과, 인지 욕구가 낮은 소비자들만의 경우에만 인출 용이성에 따라 제품에 대한 태도가 달라지는 것이 관찰되었으며 이러한 인지 욕구의 조절 효과는 타당성보다는 가용성에 대한 지각에서 오는 차이에 의해 일어남이 확인되었다. 끝으로, 본 연구 결과가 주는 이론적, 실용적인 시사점을 논의하였다.

주제어 : 인출 용이성, 인지 욕구, 가용성, 타당성