An Individual Differences Perspective on Assessing Cognitive Processes

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This book focuses on methods for assessing cognitive processes in answering survey questions. As a number of theorists have noted, responding to a lengthy survey can require considerable cognitive effort. Tourangeau (1984) describes several stages of cognitive processing that are typically involved in responding to each survey question (see also, Bradburn, 1978; Cannell, Miller, and Oksenberg, 1981; Judd and Brauer, in press; Strack and Martin, 1987; Tourangeau and Rasinski, 1988). People must first interpret the meaning of each question. Then they need to search their memories for all relevant information. Next they integrate the retrieved information into a relevant summary judgment. A summary judgment is usually sufficient for answering a question such as, “How many times a week do you brush your teeth?” However, sometimes people must translate the information they have retrieved and integrated onto the researcher’s response scale. For example, an individual might have to determine where brushing one’s teeth fifteen times a week falls on the researcher’s ten-point response scale where 1 = very poor dental hygiene and 10 = very good dental hygiene (Ostrom and Upshaw, 1968).

In this chapter, we provide a brief overview of work on two individual differences variables that may aid our understanding of survey responses. First, we describe the implications of individual differences in the “need for cognition” (Cacioppo and Petty, 1982).
The need for cognition scale assesses the extent to which people tend to engage in and enjoy effortful cognitive activity. As one might imagine, some people enjoy thinking and problem solving and others do not. Thus, some people would be more likely than others to exert the cognitive effort necessary to provide thoughtful answers to surveys. A common assumption has been that when people exert little cognitive effort in responding to surveys they are more susceptible to various response biases (Krosnick, 1991; Schuman and Presser, 1981). To the extent that this is true, low need for cognition subjects (LNCs) would be expected to produce more biased responses than high need for cognition individuals (HNCs). However, research in social psychology indicates that some biases result from high rather than low cognitive effort. By including a few items from the need for cognition scale in a survey, we argue that one can isolate those individuals who are more susceptible to high effort biases (that is, HNCs) from those who are more susceptible to low effort biases (that is, LNCs).

After this discussion, we describe the implications of individual differences on the “need to evaluate” scale (Jarvis and Petty, in press). This scale assesses the extent to which people naturally tend to engage in evaluation (that is, consider what is good versus bad about various people, objects, and issues). Responding to a survey often requires people to provide their evaluations of various objects, issues, or people. Do they approve of the president’s new health care plan? Is Coke more desirable than Pepsi? Research on the need to evaluate suggests that some people are naturally inclined to evaluate aspects of their lives (“Is brushing my teeth fifteen times a week good or bad?”) whereas others appear to avoid doing so. People who are high in their need to evaluate are more likely to form opinions about a wide variety of issues and to report these attitudes more quickly than are people who are low in their need to evaluate. Previously, when individuals responded that they had no opinion on an issue it was usually assumed that they were unknowledgeable about the issue (Converse, 1970), too lazy to think about it and

retrieve their opinion (Krosnick, 1991), or said they had no opinion simply as an excuse not to participate in the survey. Inclusion of a few items from the need to evaluate scale on an opinion survey could aid in identifying individuals who report no opinions not for these reasons but simply because they do not spontaneously engage in evaluation.

In this chapter we describe the need for cognition and need to evaluate constructs, review some of the basic research on each, and describe the implications of these individual differences for understanding survey responses. We begin with basic research on the need for cognition.

Basic Research on the Need for Cognition

In their Elaboration Likelihood Model of persuasion (ELM), Petty and Cacioppo (1981, 1986b) noted that sometimes people engage in effortful cognitive processing before rendering a judgment but sometimes judgments are rendered without much thinking, such as when people agree with a communication simply because it is presented by an expert source. In the first phase of research on the ELM, investigators showed how various features of the situation such as how much distraction was present (Petty, Wells, and Brock, 1976) or how personally relevant the message was (Petty and Cacioppo, 1979) would determine how much thinking a person did about a message. When thinking was high (such as when the message was of high personal relevance and distraction was low), attitude change depended on the perceived merits of the substantive arguments presented in the communication. When thinking was low (such as when the message was low in personal relevance or distraction was high), attitude change depended less on the quality of the arguments in the message and was more influenced by the presence of various peripheral cues, such as whether the source of the communication was an expert. For example, in one study, Petty, Cacioppo, and Goldman (1981) manipulated the personal
relevance of the message, the quality of the arguments contained in it, and the expertise of the source. When relevance was high, attitudes were influenced by the quality of the message but when relevance was low and people were not motivated to think about the communication, attitudes were influenced only by the expertise of the source (see Petty and Cacioppo, 1986a, for a review).

Development and Validation of the Need for Cognition Scale

Cacioppo and Petty (1982) reasoned that just as certain situational factors could determine how much thinking occurred and therefore the manner of attitude formation and change, individual differences in intrinsic motivation to engage in effortful cognitive activity were also likely. In a series of studies, Cacioppo and Petty developed and refined an eighteen-item inventory that possessed high internal consistency, test-retest reliability, and convergent and discriminant validity (Cacioppo, Petty, and Kao, 1984). Some of the items on this scale are presented in Table 10.1 and the relationships we have found between need for cognition and other popular individual difference assessments are contained in Table 10.2.

Following scale development, a number of studies designed to validate the scale were conducted. For example, in one early study subjects were given either very simple or more challenging instructions for a number-circling task (Cacioppo and Petty, 1982, Experiment 4). All were given sheets of paper that contained random sequences of numbers. In the simple instruction condition, they were asked to circle every numeral 1, 5, and 7. Very little cognitive effort was required to perform this task. In the complex or challenging instruction condition, they were asked to circle every numeral 3, any 6 that preceded a 7, and every other 4. This task required considerably more cognitive effort. All subjects were allowed to perform the task for ten minutes and then were simply asked how much they enjoyed the activity. In an analysis of the enjoyment ratings, a significant need for cognition by instruction interaction emerged such that people high in need for cognition preferred the high effort, complex task to the low effort, simple task whereas individuals low in need for cognition preferred the low effort, simple task to the high effort, complex task.

Need for Cognition and Attitude Processes

As might be expected based on their differential enjoyment of effortful cognitive activity, HNCs and LNCs tend to form and change their attitudes differently. Specifically, HNCs tend to seek out more information and think more carefully about it before making an evaluation. Thus, for HNCs, when the arguments in the message are subjectively strong and compelling they form favorable
Table 10.2: Correlations of Need to Evaluate and Need for Cognition with Individual Differences.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Sample</th>
<th>Correlation Size</th>
<th>Sample Correlation Size</th>
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<tbody>
<tr>
<td>Affective intensity</td>
<td>0.56</td>
<td>-</td>
<td>0.50</td>
</tr>
<tr>
<td>Age (range 17-26)</td>
<td>0.17</td>
<td>+</td>
<td>0.11</td>
</tr>
<tr>
<td>American College Test</td>
<td>0.42</td>
<td>+</td>
<td>0.33</td>
</tr>
<tr>
<td>Attributional complexity</td>
<td>0.36</td>
<td>+</td>
<td>0.28</td>
</tr>
<tr>
<td>Attributional complexity (intuitive reasoning)</td>
<td>0.20</td>
<td>+</td>
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Note: For clarity, select and reproduce in text. (The table continues with additional data not shown here.)
attitudes but when the arguments in the message are subjectively weak and specious they form unfavorable attitudes. The attitudes of LNCs are less influenced by argument quality (Cacioppo, Petty, and Morris, 1983; Haugtvedt, Petty, and Cacioppo, 1992) unless some other factor in the setting provides some special motivation to think, such as when the message source can't be trusted to tell the truth (Priester and Petty, 1995; see also Smith and Petty, in press).

If the attitudes of HNCs are generally more influenced by the quality of the arguments in a message than the attitudes of LNCs, what influences the attitudes of people who don't enjoy thinking? Cognitive misers (LNCs) are expected to be more influenced by relatively simple and cognitively untaxing evaluation strategies, such as using various persuasion heuristics (for example, "agree if the source is an expert" or "agree if many arguments are presented"; Chaiken, 1987). To examine this issue, Haugtvedt, Petty, and Cacioppo (1992) exposed HNC and LNC undergraduates to one of two advertisements for a typewriter. Only arguments that were pretested to be strong were used in the ads. However, the endorsers of the product were varied. In the positive cue condition the ad presented two attractive individuals described as university students (similar to the subjects). In the negative cue condition two less attractive individuals were depicted and described as vocational-technical students (dissimilar to the subjects). Although both HNCs and LNCs rated the positive cue endorsers as more attractive than the negative cue endorsers, only the attitudes of LNCs were influenced by the endorser manipulation.

Consequences of Thinking About One's Opinions

So far we have noted that HNCs think more carefully than LNCs before forming or changing their attitudes. This means that HNCs think more diligently about the merits of the information presented in a persuasive communication and are more influenced by the quality of the arguments in the message and less influenced by peripheral cues than are LNCs. If HNCs chronically think more about issues, people, and objects before forming their opinions than LNCs, then the attitudes of HNCs should have a number of characteristics that make them different from the attitudes of LNCs. In particular, according to the Elaboration Likelihood Model (Petty and Cacioppo, 1981; 1986b), thoughtful attitudes should be stronger than noughtful ones (see Petty, Haugtvedt, and Smith, 1995, for a review). This means that the attitudes of HNCs should be more highly correlated with underlying beliefs, more stable over time, more resistant to counterinfluence, and more predictive of behavior than the attitudes of LNCs.

Attitude-Belief Consistency

The attitudes of HNCs should generally have a more extensive informational foundation than the attitudes of LNCs. In an attempt to examine this hypothesis, Pieters, Petty, and Haugtvedt (1985) conducted a field survey in collaboration with the Water and Light Department of Columbia, Missouri. The department was beginning a trial program to save energy. Enrollment in it would allow the department to shut off an individual's air conditioner for brief periods during times of peak energy demand. A survey designed to help understand the basis of support or opposition to the program was mailed to a sample of 450 households in a neighborhood selected for the pilot test. The survey contained ten questions on the expected consequences of joining the program. For example, after describing the peak load management program, respondents were asked to rate how likely it was that they would experience discomfort in their homes in the summer if they participated and how likely it was that their participation would aid in the development of new technologies. Following this, they rated their overall attitudes toward participation in the program on three seven-point scales. The questionnaire also contained nine items from the need-for-cognition scale as well as a number of other measures.

A total of 128 questionnaires was returned within the five-week
target period. A factor analysis of the ratings of the ten consequences produced two dominant factors. In the first factor, all the advantages of joining the new program were represented and in the second factor all the disadvantages were represented. More pertinent to our current concerns, a regression analysis revealed that the attitudes of HNCs (those scoring above the median on the nine-item scale) could be explained significantly by the advantages and disadvantages they perceived of the energy program (multiple $R = .62$, $p < .001$) whereas this was not the case for LNCs (multiple $R = .32$, $p > .05$).

**Attitude Persistence and Resistance**

If attitude change is based on careful scrutiny of issue-relevant information it should persist longer than attitude change based on cues and it should be more resistant to explicit attacks. To examine attitude persistence, Haugtvedt and Petty (1992, Experiment 1) presented college students with a television commercial for a telephone answering machine. The message was designed to have sufficiently strong arguments and positive peripheral cues to create the same positive initial attitudes in HNC and LNC individuals. The ad was presented along with eleven others during a forty-five minute television program about the American Indian. Following the show, subjects rated the telephone answering machine along with a variety of other products. Two days later they returned to the lab for an ostensibly unrelated study and were again asked to report their attitudes toward the target product as well as others. The most important result of this study was that where both HNCs and LNCs formed the same initially favorable attitudes toward the product, only HNCs persisted in this favorable attitude two days later.

In a second study, Haugtvedt and Petty (1992, Experiment 2) examined the differential susceptibility to attack of the attitudes of HNCs and LNCs. As in the previous study, the attitudes of HNCs and LNCs were initially changed to the same extent by exposing them to a message containing strong arguments and positive cues. The initial message, attributed to a professor of nutrition at Princeton University, argued that a popular food additive was unsafe. Following this message, subjects reported their own beliefs about the safety of the additive. Shortly thereafter, they were given a second message taking an opposite position that was also attributed to a high status source. Although both HNCs and LNCs came to see the food additive as more unsafe than they originally believed after the first message, only LNCs succumbed to the counterpropaganda. The HNCs, who had carefully thought about the first message, were better able to counterargue and resist the second communication.

**Attitude-Behavior Consistency**

Another consequence of having a well-developed attitude is that it should be a better guide to behavior: the attitudes of HNCs should predict behavior better than the attitudes of LNCs. In a test of this hypothesis, Cacioppo, Petty, Kao, and Rodriguez (1986) conducted a survey of a large number of undergraduates eight weeks before the 1984 presidential election. The students' attitudes toward the Democratic ticket (Mondale/Ferraro) and the Republican ticket (Reagan/Bush) as well as their need for cognition were measured. A preference index was constructed by subtracting attitudes toward the Democratic ticket from attitudes toward the Republican ticket. Two days after the election, 108 of these subjects who fell in the top and bottom thirds of the distribution in need for cognition were contacted by telephone and asked to reveal for whom they had voted. The primary result of this study was that the attitudes of HNCs were more predictive of their reported votes ($r = .87$) than were the attitudes of LNCs ($r = .46$, $p < .05$).

**External Validity of Need for Cognition Findings**

In sum, individuals who are high in need for cognition think more about the substance of issues and are less influenced by peripheral cues. Their attitudes are based more on their underlying beliefs, are more stable over time, are more resistant to counterpropaganda, and
are more predictive of their behavior than are the attitudes of low need for cognition individuals. However, with one or two exceptions (for example, Pieters, Petty, and Haugvedt, 1985), these findings have been obtained in separate experiments conducted in the psychology laboratory with college students as subjects.

To what extent do the need for cognition results generalize to the more common survey context? To what extent is it practical to include items from the need for cognition scale in a representative national survey? In an attempt to address these and other issues, Verplanken (1991) conducted a field survey in which attitudes, beliefs, and behavioral intentions toward the use of coal as an energy source were measured. He began with a pretest sample of 2,439 residents of Leiden (the Netherlands) and obtained a response rate of 78 percent. Within this sample, need for cognition (with five items) and involvement in the issue were also assessed. Attitudes were assessed by asking how good or bad coal was as an energy source. Beliefs were assessed with seventeen statements examining the risks (such as increased pollution) and benefits (such as lower electricity prices) of using coal as an energy source. Behavioral intentions were assessed by asking respondents questions such as whether they would sign a petition for or against the use of coal. To examine the interrelationships among beliefs, attitudes, and intentions in the pretest sample, high and low thinking groups were first constructed by combining individuals' responses to the involvement and need for cognition measures. The most important result was that, as expected, there was significantly greater attitude-belief and attitude-intention consistency for the high than for the low thinking group. The attitude-intention difference was significant when comparing HNCs with LNCs.

In order to examine additional hypotheses about attitude change, 289 randomly selected individuals from the pretest sample were sent a persuasive message in the mail and asked to respond to an “immediate” posttest interview several days later. The message came from either a high credibility (university expert) or a low credibility (industry authority) source and a 94 percent response rate was obtained. The persuasive message advocated the use of coal for generating electricity in the Netherlands. Credibility had a greater impact on the attitudes of the low than the high thinking subjects and the same pattern held for HNCs versus LNCs. In addition, the attitudes of HNCs were predicted by their ratings of message quality \( r = .47 \) to a greater extent than were the attitudes of LNCs \( r = .23, p < .05 \). One year later, a second posttest was mailed to the initial respondents and a 77 percent response rate was obtained. Greater attitude change persistence was observed for the high than for the low thinking group and this effect was also significant for HNCs versus LNCs.

Thus, by using just five items from the need for cognition scale Verplanken (1991) was able to replicate many of the laboratory findings. This suggests that need for cognition can be used successfully in surveys.

Objectivity Versus Bias in Thinking

The research we have reviewed so far might make it appear as if HNCs are more accurate in reporting their attitudes than LNCs. That is, when people think carefully before forming or changing their attitudes and before reporting their opinions to a survey taker, it might be expected that the attitudes they express are a more accurate representation of true feelings than those expressed by people who engage in little thinking. Is the news all good regarding HNCs or is there evidence for biases or irrationality in their judgments and attitudes? It is to these questions that we now turn. In particular, we review evidence that although HNCs are expected to be less susceptible to various low effort cognitive biases, such as relying on simple heuristics and peripheral cues, they can be more susceptible to various high effort cognitive biases.

Primacy Effects in Judgment

Recall the finding that after changing attitudes in response to an initial communication, HNCs were more resistant than LNCs to a subsequent message taking the opposite position (Haugvedt and
Petty, 1992). This is presumably because HNCs have thought about the first message more diligently than LNCs and if this message is compelling, careful processing of it better enables them to counter-argue the subsequent message. This finding implies that if two equally strong messages are presented in sequence, HNCs will be more influenced by the first message than the second one because their thoughts about the first will be used to counterargue the second. Rationality, however, is implied by the absence of primacy or recency effects if both messages are equally persuasive.

A primacy effect for high thinking individuals is interesting because primacy has typically been considered a sign of low effort information processing. For example in Kruglanski’s (1989) lay-epistemic theory (LET), primacy effects are thought to result from freezing on the early information and failing to consider the second information (see, for example, Kruglanski and Freund, 1983). However, the research on resistance to persuasion suggests that primacy effects can result from high amounts of cognitive effort (Haugtvedt and Petty, 1992).

In a test of the high effort primacy hypothesis, Haugtvedt and Wegener (1993) presented undergraduate HNCs and LNCs with two opposing messages on the topic of requiring seniors to pass a comprehensive exam in their major as a prerequisite to graduation. One message favored the exams and the other opposed them. The messages were carefully pretested to be equal in strength and subjects received the messages in either a pro-con or a con-pro order. The participants read first one message and then the other, and then reported their attitudes. The important result from this study was a need for cognition by message order interaction. Specifically, HNCs showed primacy effects in judgment, being more influenced by whichever message came first. LNCs showed recency effects; they were more influenced by whichever message came last. Because LNCs presumably didn’t engage in much thinking about either message, when asked for their opinion they relied on whichever they could remember better and it was the most recently presented communication (see also Kassin, Reddy, and Tulloch, 1990; see Haugtvedt and Wegener, 1994, for a replication with a situational manipulation of motivation to think).

**Priming Effects**

The research on primacy effects provides strong evidence that the high amount of thinking engaged in by HNCs does not always result in unbiased attitudinal outcomes. A second source of bias to which high thinking individuals might be susceptible is termed priming. Priming occurs when previously activated material in memory influences the processing and interpretation of subsequent information (see Bargh, 1994).

A number of recent studies have examined the implications of priming for behavior. For example, Carver, Ganellen, Froming, and Chambers (1983) used a scrambled sentence task as a priming manipulation, where subjects in the “hostile” prime condition unscrambled a majority of sentences with hostile content and subjects in the neutral condition unscrambled a majority of neutral sentences. Subjects primed with hostile sentences chose higher shock levels to punish a confederate in a subsequent learning task than subjects primed with neutral sentences. This behavior is irrational, of course, because the confederate did not actually act in a more hostile manner. Rather, the perceiver may have interpreted the confederate’s behavior in a more hostile manner because of the primed material in memory (see also Neuberg, 1988).

In order for a primed category to influence behavior at least three steps must occur. First, the category must be activated from the memory store. Second, the activated category should influence interpretations of the target information. Third, in order for a judgment to influence behavior, the individual must act on the judgment rendered. A consideration of these factors suggests that need for cognition could moderate priming effects on behavior because this individual difference should be related to each of the steps in the priming to behavior sequence.
First, because of their chronic tendency to engage in cognitive activity, HNCs may have easier access to stored categories than LNCs. Second, because need for cognition facilitates thinking, it might therefore lead to an enhanced impact of primed information on judgments. That is, even if category activation is equally quick for HNCs and LNCs, HNCs are likely to have more thoughts to bias and thus the effect on judgments will be stronger (Tesser, 1978). Finally, even if the extent of bias on judgment is comparable for HNCs and LNCs, HNCs are more likely to act on whatever judgments they have rendered (Cacioppo, Petty, Kao, and Rodriguez, 1986).

In order to examine the ability of priming to affect a consequential and personally relevant behavior, Petty, Jarvis, Strathman, and Bozolo (1995) provided HNC and LNC undergraduates with one dollar and asked them to place a bet on a roulette wheel. Before the bet, participants were primed with the notion of winning or losing. The critical hypothesis was that the betting behavior of HNCs would be more influenced by the priming manipulation than the betting behavior of LNCs. The roulette wheel was composed half by black and half by red markers, which were arranged in such a way that the exact percentage of black and red, although 50-50, appeared ambiguous. Each subject could bet as much or as little of the dollar as they wanted in favor of the ball landing on black. It was explained to them that the amount of money they bet would be doubled if the ball landed on black but returned to the experimenter if it landed on red. In order to prime winning or losing, the experimenter used the term win or the term lose six times in summarizing the game instructions, as follows:

Remember, if you win (lose), you win (lose) whatever you bet. Therefore, if you bet one cent, you win (lose) one cent; if you bet forty-eight cents, you win (lose) forty-eight cents; if you bet one dollar, you win (lose) a whole dollar. So, if the ball lands on black (red), you will

The primary result of this study was a significant need for cognition by priming interaction. HNCs bet about eighty cents in the win prime condition and only fifty-five cents in the lose prime condition. In contrast, LNCs bet about sixty-three cents regardless of the priming manipulation.

In a series of follow-up studies, Petty, Jarvis, Strathman, and Bozolo (1995) demonstrated that the enhanced priming effect of HNCs over LNCs requires the priming to be relatively subtle. For example, if the experimenter explicitly indicated that she expected the subject to win rather than simply mentioning the word “win” in the instructions, the enhanced priming effect for HNCs was eliminated. In fact, when biasing contextual factors are made salient, HNCs would be expected to be more likely to exert the effort necessary to decontaminate their judgments (Martin, Seta, and Crelia, 1990).

According to this three-step priming to behavior model, need for cognition might moderate the priming to behavior sequence at three different stages. Specifically, need for cognition could influence the accessibility of the win or lose categories, the amount of bias the category exerts on the judgment rendered (for example, how likely the subjects thought they were to win the bet), and the consistency between the judgment rendered and subsequent behavior. Because it was already clear from prior research that HNCs are more likely to act on their judgments than are LNCs (Cacioppo, Petty, Kao, and Rodriguez, 1986), to eliminate the possibility that the effect of the win/lose prime on the amount bet resided solely in the last step (judgment-behavior consistency) Petty, Jarvis, Strathman, and Bozolo (1995) conducted another study. In it HNCs and LNCs were placed in a more traditional priming paradigm. Participants were asked to judge the hostility of a target person who engaged in ambiguous behaviors after being primed with hostile or
nonhostile content (see Stull and Wyer, 1979). As hypothesized, ratings of the target's hostility by HNCs were significantly more influenced by the prime than were the ratings of LNCs.

Thus, a primed category can exert a stronger impact on the judgments and behavior of HNCs than LNCs. Similar effects have been observed for the effects of mood on the judgments of HNCs and LNCs. For example, in one study Petty, Schumann, Richman, and Strathman (1993) exposed HNC and LNC individuals who had been placed in a positive or a neutral mood to a persuasive message. Although both HNCs and LNCs had more favorable attitudes toward the topic when in a positive mood than when in a neutral mood, mood influenced the thoughts of HNCs but not LNCs. Furthermore, path analyses indicated that mood had a direct effect on the judgments of LNCs but influenced the attitude judgments of HNCs indirectly by making their thoughts about the message more positive.

In the 1993 study, the persuasive message focused on the benefits that would accrue if the advocacy was adopted. Petty and Wegener (1991) suggested that one reason why positive mood would render the evaluation of arguments more favorable for people thinking about the arguments is that people in a positive mood would view the benefits mentioned as more likely to occur than people in neutral or negative moods (Johnson and Tversky, 1983). However, people in a positive mood would be less likely to think that negative things would happen. Thus, if a persuasive message focused on the harm that would occur if the advocacy was not adopted, thoughtful people in a positive mood should be less influenced than thoughtful people in neutral or negative moods.

To test this hypothesis, Wegener, Petty, and Klein (1994) placed HNCs and LNCs in a positive or negative mood and exposed them to a message that emphasized the benefits of adopting the speaker's recommendation (positive frame message) or the costs of not adopting the speaker's recommendation (negative frame). For HNCs, frame interacted with mood on both likelihood and attitude judgments. That is, HNCs rated the benefits in the positively framed message as more likely to occur when they were in a positive mood and rated the costs in the negatively framed message as more likely to occur when they were in a negative mood. Also as expected, when the message was positively framed HNCs were more likely to be persuaded when in a positive than in a negative mood, but when the message was negatively framed they were more likely to be persuaded when in a negative than in a positive mood. Path analyses indicated that likelihood judgments mediated the effect of mood on attitudes for HNCs. Low need for cognition subjects showed no effect of mood on likelihood judgments or attitudes.

In sum, this research strongly supports the moderating role of need for cognition in priming effects on judgment and behavior. These effects are somewhat ironic in that it is the most thoughtful people who are the most susceptible to the subtle influence of primes on their judgments and behavior.

Need for Cognition and Survey Effects

Now that we have reviewed some of the basic research on need for cognition, what implications are there for understanding survey responses? The differences expected between LNCs and HNCs should be those that are expected based on differential amounts of thought about the survey.

Attitude-Behavior Consistency

One of the most important practical findings from the research we reviewed is that the measured attitudes of HNCs are more likely to predict their subsequent behavior than are the measured attitudes of LNCs (Cacioppo, Petty, Kao, and Rodriguez, 1986). Thus, when predicting voting outcomes, consumer purchases, and so forth from poll results, the accuracy of behavioral prediction might be improved if high versus low need for cognition respondents were identified.
Likelihood of Selecting a “No Opinion” Response

Why don’t the measured attitudes of LNCs responding to surveys predict behavior as well as those of HNCs? One possible factor is that the underlying attitudes are not measured as accurately for these individuals. That is, LNCs would be expected to devote less cognitive effort to their answers than HNCs and thus report less reliable or valid attitudes. Krohnick (1991) noted that since providing optimal responses to surveys often requires considerable cognitive effort, LNCs might be more likely to engage in lower effort satisficing strategies than HNCs (Krohnick, 1991). One such satisficing strategy would be to select a “don’t know” or “no opinion” response rather than engage in the effort necessary to retrieve an accurate response.

Consistent with this notion, Sadowski (1993) found that LNCs were more likely to select a “no opinion” response when it was offered than were HNCs. In one survey, subjects were given a questionnaire that listed nineteen national problems. Respondents were asked to indicate whether each was a major problem, a moderate problem, a small problem, or no problem at all. A second survey dealt with the perceived level of honesty and ethical standards of people in each of twenty-five occupations. In each survey, a “no opinion” response was also offered and in each case, low need for cognition subjects selected this option more frequently than did high need for cognition subjects.

If LNCs responded with no opinion because they were unmotivated to engage in the effort necessary to retrieve their opinions, then the no opinion responses represent an error of sorts on the part of LNCs. That is, the satisficing interpretation suggests that HNCs are more accurately reporting their opinions and that LNCs actually have opinions but are too lazy to retrieve them. However, another possibility exists: HNCs may be more willing to construct an opinion even when they did not have one previously. This interpretation suggests that the effect is located in what HNCs are doing (effortfully constructing opinions where none previously existed) rather than in what LNCs are failing to do (exerting the effort to retrieve the opinions that they already have formed). We return to this issue after describing the need to evaluate construct validity.

Attitude Polarization and Accessibility

If HNCs think more about the items in a survey than do LNCs, then the mere act of completing a survey could produce an effect on their attitudes. Specifically, thinking about an attitude issue can lead to polarization of the attitude if that thinking is guided by a coherent attitude schema (see Tesser, 1978; Tesser, Martin, and Mendolia, 1995; for reviews). In addition, the more one thinks about one’s attitude, the more accessible the attitude becomes (Petty, Haugtvedt, and Rennier, 1995).

Smith, Haugtvedt, and Petty (1994) examined the notion that completing a survey could produce more polarized and more accessible attitudes for HNCs than LNCs by having undergraduates respond on a computer keyboard to four semantic differential items on recycling (for example, “recycling is good” where 1 = strongly disagree and 9 = strongly agree) right after the completion of a lengthy computerized survey on the topic of environmentalism. Half the fifty-eight questions about environmentalism (for example, “the goal of saving the environment is reachable”) were responded to on nine-point strongly disagree/strongly agree scales and half on dichotomous yes/no scales. Also, half the items expressed a proenvironmental position and half an antienvironmental one. Although both HNC (M = 6.70) and LNC (M = 6.66) individuals began with virtually identical proenvironmental attitudes prior to completing the survey, following survey completion, HNCs (M = 7.71) had polarized their attitudes relative to LNCs (M = 6.89), p < .05. The computer also recorded how many seconds it took subjects to report their attitudes. Again, although HNCs (M = 4.10 seconds) and LNCs (M = 4.32) took the same amount of time to report their initial attitudes, following comple-
tion of the survey, HNCs \(M = 2.87\) expressed their attitudes more quickly than LNCs \(M = 3.47\), \(p < .01\). Thus, completing a lengthy survey on environmentalism led to more polarized and more accessible attitudes on the part of HNCs than LNCs.

**Responses to Cues in Survey Questions**

If HNCs think more about survey questions, retrieving relevant information and attempting to provide thoughtful responses, they should be less influenced by any peripheral cues embedded in the questions that favor one response over another. In contrast, individuals who don't like to think should be more susceptible to such cues (Hagtvedt, Petty, and Cacioppo, 1992). Furthermore, this difference between HNCs and LNCs should be especially true when the survey questions are on a topic of low knowledge and importance. If the questions are on a topic of high knowledge and importance, even LNCs would be expected to think carefully about the questions and be relatively resistant to simple cues (Axsom, Yates, and Chaiken, 1987).

To examine this hypothesis, Hagtvedt, Petty, and Cacioppo (1986) conducted a pilot study in which HNC and LNC undergraduates gave their opinions about various issues and rated the extent to which the issues were important to them and they had knowledge about them. Two issues for which HNCs and LNCs had the same initial attitudes were selected. However, one issue was one that HNCs and LNCs both saw as high in importance and knowledge while the other was low in importance and knowledge. The low importance/knowledge issue on which high and low NCs had the same attitudes concerned the safety of nuclear power plants and the high importance/knowledge issue concerned penalties for drunk driving. To manipulate a simple agreement/disagreement cue within the survey item itself, the question indicated that "over 80 percent of college students completely agreed with" or "completely disagreed with" stiffer penalties for drunk driving or the dangers of nuclear power plants. Respondents gave their own level of agreement on a five-point agree/disagree scale. Analyses indicated that neither HNCs nor LNCs were influenced by the agreement cue when the issue was of high importance and knowledge. However, on the low importance/knowledge issue, LNCs were influenced by the agreement cue while HNCs were not. That is, high need for cognition subjects presumably gave their true opinions uninfluenced by salient peripheral cues.

**Order Effects in Survey Responding**

In an interesting attempt to link the research on survey responding with the research on processing persuasive messages, Schwarz, Hippler, and Noelle-Neumann (1992) noted that each of the response alternatives in a survey can be considered to be a message argument. Thus, if the response alternative is plausible it will be endorsed, but if not it will be rejected. Furthermore, the greater the thought devoted to a compelling alternative the greater the likely extent of agreement with it, and the greater the thought devoted to an implausible alternative the greater the likely extent of disagreement with it. Thus, plausibility of alternatives in a survey question should make a greater difference for HNC than for LNC individuals, just as the cogency of the arguments in a message typically makes a larger difference for HNCs than LNCs (Cacioppo, Petty, and Morris, 1983; Hagtvedt, Petty, and Cacioppo, 1992).

Based on this analysis, Schwarz, Hippler, and Noelle-Neumann (1992) hypothesized that if response alternatives were presented visually, a primacy effect would be obtained because a visual format encourages thinking about the initial items. And if the initial response alternatives were considered deeply these thoughts would interfere with extensive consideration of the later alternatives, causing the early plausible items to have an advantage over later ones (see also, Krosnick and Alwin, 1987). However, a second reason for primacy if initial alternatives are processed deeply is that careful processing and acceptance of the initial responses could lead to counterarguing and thoughtful rejection of the later responses.
(Haugtvedt and Wegener, 1994; Haugtvedt and Petty, 1992). Since high need for cognition subjects would be more likely to think about the initial alternatives, they could show a primacy effect if their reactions to the later alternatives were influenced by their reactions to the earlier ones. Thus, in contrast to some suggestions that primacy effects are typically caused by low effort satisficing strategies (Krosnick, 1991; Kruglanski and Freund, 1983), primacy effects might also be obtained in surveys as a result of high effort analyses.

When might recency effects be expected? Schwarz and Sudman (1992) hypothesized that if a message was presented in oral rather than written form, recency effects would be encouraged because respondents would have the most time to think about the last alternatives (that is, after the interviewer paused for the answer). LNCs should be most susceptible to these recency effects because they would be least likely to be thinking about the early alternatives and most likely to base their responses on the information most recently presented (Haugtvedt and Wegener, 1994; Kassin, Reddy, and Tulloch, 1990).

**Priming Effects in Survey Responding**

Another phenomenon in surveys to which need for cognition might be applicable is that of priming. As we noted earlier, HNCs are more susceptible to the impact of primes than are LNCs, at least if the primes are subtle and the judgment target is ambiguous (Petty, Jarvis, Strathman, and Bozzolo, 1995). We argued that this was presumably because HNCs either had a more accessible attitude structure that was easier to prime than LNCs or because the effect of the primed construct biased more thoughts for HNCs than for LNCs. Research on priming and surveys supports the view that high elaboration contexts are more likely to produce priming effects than are low elaboration contexts.

In one study, for example, Tourangeau, Rasinski, Bradburn, and D'Andrade (1989) examined moderators of priming effects in surveys. In this research, before responding to a particular survey item, respondents were asked four context questions that could influence their response to the target item. For example, one target question was, “Do you think the Supreme Court has gone too far in protecting the rights of people accused of crimes or do you think it has done what is necessary to see that the accused are fairly treated?” One set of context items dealt with fear of crime (“Is there any area around your house where you would be afraid to walk alone at night?”), whereas the other dealt with civil liberties (“In the American court system, a rich person usually gets treated better than a poor person. Do you agree or disagree?”). The fear of crime items would presumably tend to trigger thoughts that would lead people to believe that the Supreme Court had gone too far in protecting the rights of criminals. However, the civil liberties questions would trigger thoughts and ideas that were more compatible with protecting the rights of criminals. Across six quite different target items, evidence for priming was obtained. More interestingly, consistent with the notion that high elaboration contexts facilitate priming, Tourangeau, Rasinski, Bradburn, and D'Andrade (1989) found that the priming effect was greater for people who believed the target issue was important but had ambivalent attitudes toward it. Ambivalence is presumably critical because it is necessary to be able to prime thoughts and ideas on either side of the issue. Importance could be a factor for two reasons. The study focused on the fact that important attitudes would have the elaborated structure necessary to obtain priming. Another possibility, however, is that people are more motivated to think about important issues than unimportant ones (see Boninger, Krosnick, Berent, and Fabrigar, 1995; Petty, Cacioppo, and Haugtvedt, 1992), and thus the prior primed thoughts would have a greater likelihood of influencing the evaluation of the target issue.

**Summary**

HNCs put more effort into responding to surveys than do LNCs. This means that LNCs should be more susceptible to various low effort biases in surveys. Thus, LNCs are more likely to be influenced
by simple cues in a survey that suggest that one response is better than another and may be more likely to respond "no opinion" when they do not want to engage in the cognitive work necessary to retrieve their attitudes. LNCs would also be expected to be more susceptible to other low effort biases such as (1) mental coin-flipping (choosing randomly from among the responses offered), (2) acquiescence (agreeing with almost any assertion regardless of its content), (3) nondifferentiation (giving all attitude objects the same rating when the same response scale is used for each), and (4) status quo responding (selecting the status quo option over change; see Krosnick, 1991). The latter biases have yet to be investigated with need for cognition, however.

In contrast to the greater susceptibility of LNCs to low effort biases in surveys, HNCs should be more susceptible to various high effort biases. In this regard, HNCs can be more susceptible to both primacy and priming effects, where thoughts about early questions influence responses to later ones and constructs that have been primed prior to survey completion influence survey responses. Finally, because HNCs think more when completing a survey than do LNCs, the opinions of HNCs can be changed by the very act of survey completion. Specifically, after completing a survey on a topic, their attitudes toward the topic may be more polarized and accessible than LNCs who complete the same survey.

Basic Research on the Need to Evaluate

An important assumption in work on attitudes has been that people both high and low in need for cognition evaluate the persuasive messages and objects in their environment even though the process of evaluation is different. That is, HNCs engage in considerable cognitive effort when evaluating objects and issues whereas LNCs tend to base their evaluations or attitudes on relatively simple cues in the persuasion environment that allow their attitudes to be formed with little cognitive effort. Similarly, it is often assumed that both HNCs and LNCs possess attitudes to the same degree but may differ in the extent to which they are willing to engage in the effort necessary to retrieve their attitudes when requested on a survey.

Interestingly, investigators have not raised the question of whether there are individual differences in the propensity to evaluate at all. Rather, it has been presumed that evaluation is pervasive—that is, everyone evaluates—although there may be differences in how this evaluation occurs. Typical of this view are the comments of Markus and Zajonc (1985) who wrote that "nearly all cognition and perception is evaluative. . . . It is not possible to view a social object or a social act without at the same time making an assessment on dimensions closely corresponding to good/bad, pleasant/unpleasant, etc." (p. 210, emphasis added). Thus, if individuals refuse to provide an evaluation of something, one might assume that they are hiding an undesirable opinion, didn't understand the question, were unfamiliar with the topic, or were not sufficiently motivated to retrieve their opinion. It has not been considered that some people just do not like to engage in evaluation whereas others do.

We reasoned that if there were differences in the propensity to evaluate, it should be possible to construct an assessment instrument to gauge these differences. Thus, in a series of studies, we set out to develop and refine an inventory that possessed high internal consistency, test-retest reliability, and convergent and discriminant validity (Jarvis and Petty, in press). After various investigations, we settled on a sixteen-item need to evaluate (NE) scale. Some of the items on this scale are presented in Table 10.1 and the relationship between the need to evaluate and other popular individual difference assessments that we have examined are presented in Table 10.2. The correlations in Table 10.2 suggest that the scale possesses both convergent and discriminant validity. That is, NE shows a modest correlation with other scales that one might expect would be related but does not correlate with irrelevant scales.

Following scale development, we conducted a number of studies to examine the predictive validity of the scale. Perhaps the most
important question is whether people act as might be expected if there are individual differences in the propensity to evaluate. To examine this, in one validation study people were simply asked to write about the events of their previous day. The subjects’ narratives were divided into thought segments and these segments were coded on whether they expressed evaluative content (for example, “Some of the songs at the concert were really good”) or did not (for example, “Woke up at 8 A.M. and took my dog out first thing”). The overall number of thoughts written did not differ for subjects who were high versus low in their need to evaluate (NE). However those high in need to evaluate (HNEs, \( M = 2.5 \)) wrote nearly twice as many evaluative thought segments as those low in the need to evaluate (LNEs, \( M = 1.28 \)), \( p < .05 \). For illustrative purposes, the responses of one high and one low NE individual are presented in Exhibit 10.1.

In a second validity study, HNEs and LNEs were exposed to twenty-four slides of paintings and asked to write down the first three thoughts they had about each. The paintings represented a variety of styles and periods and were preselected to be pleasant, unpleasant, or neutral. Subjects, who were seated in a room, viewed each slide for about thirty seconds during which time they recorded on a sheet of paper whatever came to mind. As in the previous study, subjects’ thoughts were subsequently coded into those that expressed evaluative content (“I really like the colors”) and those that did not (“Used lots of color”). All scores were summed and divided by twenty-four to give each subject an average score for total thoughts per painting as well as for both evaluative and nonevaluative thoughts per painting. Replicating the previous study, NE did not influence the total number of thoughts generated but HNEs (\( M = 1.36 \)) generated significantly more evaluative thoughts per painting than LNEs (\( M = .61 \)), \( p < .001 \). Thus, regardless whether the task was self-relevant (that is, “Write about a day in your life”) or not (that is, “List thoughts about unfamiliar paintings”), the thoughts of HNEs contained more evaluative content than did the thoughts of LNEs.

Exhibit 10.1. Low Need to Evaluate and High Need to Evaluate Subjects: Description of Yesterday.

Low Need to Evaluate Subject
I woke up about 10:30 or so after the dog started barking at the neighbor. Pat (my boyfriend) called and we talked for a while before I started to study for my two tests today. I took a study break and went downstairs to talk to my dad and to get some hot tea when a friend of mine called from Kent. I hadn’t talked to her in a while. We caught up on the latest gossip. She is engaged to Tony (a Delta Chi). They are getting married in a year or so. After we hung up, the soaps were on. I finished my note cards and watched “The Young and the Restless” at the same time. During “The Bold and the Beautiful” I took my shower. My dad made me a steak for dinner/lunch. After I ate, I ran to Meijer’s for some food for Pat. I dropped it off at his apartment. Then went to work until 8. After work I went back to Pat’s and we had some dinner and while he was cleaning up I studied. Then we went to bed.

High Need to Evaluate Subject
Yesterday was a ‘blah’ day mainly. In class I pretty much screwed up a quiz because I couldn’t remember the exact terms but I really understood the concepts. I had a take-home quiz due yesterday also, but I’ll do well on that one I know. I was tired all day. Larry and I went to Bob Evans and had a bad waitress and it took us a long time to eat because we waited so long for our food. But we did have tasty deserts, so it wasn’t too terrible. We went and rented a movie that looked interesting, but neither of us enjoyed it very much—but it was the kind of movie that is so bad it’s sort of amusing. We just hung around then and I took a bath and relaxed. There wasn’t anything really awful that happened, but there wasn’t really anything exciting either so it was just a boring day. But I did get a really good night’s sleep and today is going well so far.

Need to Evaluate, Need for Cognition, and Survey Effects
Research is only beginning to examine the implications of the need to evaluate for survey responding but perhaps the most obvious predictions are that HNEs would have more opinions than LNEs and that these opinions would be more accessible. That is, if HNEs are continually evaluating everything in their environment they would be expected to form more opinions than LNEs about a variety of
issues. Furthermore, with continued evaluation the evaluations should become more accessible.

Interestingly, these same consequences might also be postulated for individuals who differ in their need for cognition. Recall that individuals high in need for cognition (NC) were found to express more opinions on a survey than individuals low in NC and that following completion of a survey on the environment the opinions of HNCs were more accessible than the opinions of LNCs (Smith, Haugtvedt, and Petty, 1994). Because the need to evaluate and the need for cognition are positively correlated, it is important to determine whether any effects of NE on opinion expression and accessibility are independent of effects of NC on these measures.

Attitude Accessibility
To examine the joint effects of NE and NC on attitude accessibility, in a series of studies we had undergraduates who had previously completed the NES and NCS report their attitudes toward nearly a hundred common objects (for example, butterflies, landlords, spinach; see Bargh, Chaiken, Govender, and Pratto, 1992). The names of these objects were flashed on a computer screen and the subjects provided their evaluations of these objects on a dichotomous good/bad scale. The computer recorded the time it took subjects to report their attitudes. Two significant effects were obtained. First, as expected, HNEs reported their evaluations more quickly than LNEs, p < .01. In addition, an NE X NC interaction appeared, p < .01. This interaction indicated that HNCs reported attitudes more quickly than LNCs only if they were also high in the need to evaluate. HNCs who were low in their need to evaluate actually took longer than LNCs to report their opinions. That is, when the prior thinking of HNCs was likely to have been highly evaluative it facilitated attitude retrieval. However, when the prior thinking of HNCs was not likely to have been evaluative, the evaluation task took longer for high than low thinking individuals.

If the need to evaluate had not been measured in our research then overall there would have been no accessibility differences observed between HNCs and LNCs. Recall that in the study mentioned earlier by Smith et al., (1994), there were no initial differences in accessibility of attitudes toward the environment between the two groups. However, after engaging in an evaluative task—completing a survey on the environment—the attitudes of HNCs became more accessible than the attitudes of LNCs.

Attitude Expression
In a separate series of studies, we examined the joint effects of NE and NC on opinion expression. In one study, we asked 168 undergraduates who had previously completed the NES and NCS to complete an opinion survey containing thirty-four items. Thirty-two of the items asked for opinions on various national issues such as environmental protection, mandatory national service, legalized abortion, capital punishment, and so forth. These items were adapted from the 1990 American National Election Survey (ANES) conducted by the Center for Political Studies at the University of Michigan and only items referring to still-current issues were included. The response option formats were consistent with the ANES where possible with the important proviso that all questions included a "no opinion" option. In addition to these items, the survey also included two "bogus" issues adapted from Schuman and Presser (1981). These items asked subjects for their opinions on the "Monetary Control Bill" and the "Agricultural Trade Act."6

It was expected that on the real opinion items, HNCs and HNEs would be more likely to give opinions than LNCs and LNEs and that individual differences would account for significant and independent variance. The two bogus opinion issues were included in the survey for exploratory purposes. Specifically, we wished to examine whether HNEs and HNCs would be more likely than LNEs and LNCs to give opinions on obscure and unfamiliar items as well as on familiar ones. If so, it would suggest that some of the difference between HNCs and LNCs and HNEs and LNEs is due to differences
in the propensity to construct an opinion at the time of measurement rather than differences in the propensity to retrieve an opinion that previously existed.

To examine the relative prevalence of reporting attitudes as a function of individual differences, a 2 (NC: high/low) X 2 (NE: high/low) ANOVA was computed on the number of no opinion responses selected. This analysis revealed that both NC and NE influenced the number of times subjects reported having no opinion. Specifically, HNCs (M = 2.20) used the no opinion option less frequently than LNCs (M = 4.40), p < .01, and HNEs (M = 2.14) used the no opinion option less frequently than LNEs (M = 4.16), p < .01. These effects were not qualified by an NC X NE interaction, suggesting that the effects are additive. This additive nature is most apparent when one considers the number of no opinion responses given by subjects high in both needs (M = 1.41) compared with those low in both needs (M = 4.83).

Thus, both LNCs and LNEs were more likely to indicate that they had no opinion across a range of contemporary social issues than were HNCs and HNEs. If one looks only at individuals who do not like to think (LNCs), HNEs produced more opinions than LNEs. These opinions, however, were presumably relatively non-thoughtful ones. Similarly, if one looks only at individuals who do like to think, HNEs again produced more opinions than LNEs although these opinions were presumably relatively thoughtful. But were these opinions retrieved from memory or constructed at the time of judgment? An analysis of the bogus items might provide some insight into this issue.

Consistent with the notion that the need to evaluate effect is retrieval based, HNEs were not more likely to report having opinions on the bogus issues than were LNEs, F < 1. However, consistent with the possibility that the need for cognition effect could be at least in part construction based, HNCs (M = .68) were more likely to report having opinions on the bogus issues than were LNCs (M = .40), p < .05. But why did HNCs construct opinions on these bogus issues? One possibility is that they simply do not like to acknowledge that they don’t have opinions because this could conflict with their self or public image of being a thoughtful person. In contrast, given the vague nature of the bogus items, perhaps HNCs retrieved information relevant to the general issue and formed an opinion based on their assumption of what the issue was. For example, when HNCs were asked to support or oppose the Agricultural Trade Act, they may have retrieved general information relevant to free trade and responded based on this (see also Schumann and Presser, 1981).

The latter argument assumes that the vagueness of the bogus items allowed HNCs to assume that they knew what the issue was about and therefore think about it and respond. If this is the case, then eliminating this vagueness should prevent HNCs from thinking they have relevant knowledge and the NC effect should consequently disappear. But if HNCs are simply less willing to report that they have no opinion for reasons of image, then the NC difference should emerge even on issues that are unambiguously unfamiliar to subjects and thus unrelated to any knowledge that they could retrieve. To compare these two possibilities, we conducted a follow-up study in which we manipulated the specificity of the bogus items. For half the subjects, this study was essentially a replication of the first study. Embedded within these subjects’ questionnaires were the same two general bogus issues used in the previous study. The other half received the identical questionnaires with the exception that the same bogus items were made more clearly unfamiliar. Specifically, these subjects were asked for their opinions regarding the “Hubert-Dawes Agricultural Trade Act of 1931” and the “1952 Jon Kinrock Monetary Control Bill.” For all subjects, a “no-opinion” response alternative was provided with each of the thirty-four items.

Thus, HNC and LNC subjects responded to two bogus issues embedded within a questionnaire of thirty-two real issues. We analyzed the number of times subjects indicated a response option other
than "no opinion" on the critical items in a 2 (NC: high/low) X 2 (NE: high/low) X 2 (Item type: familiar/unfamiliar) ANOVA. Subjects scores, of course, could range from 0 to 2 for each item type. This analysis first revealed a main effect for familiarity. When the bogus items were clearly unfamiliar (M = .26), subjects were less likely to report having attitudes toward them than when they were potentially familiar (M = .68), p < .05. Importantly though, this analysis also produced a two-way interaction (p < .001). Planned comparisons revealed that the NC effect did in fact depend on the familiarity of the items. When the bogus items were potentially familiar (replication condition), HNCs (M = 1.00) were much more likely to report having an opinion than were LNCs (M = .29), p < .01. However, when potential familiarity with the issues was eliminated, this effect disappeared. In fact, when the bogus items were clearly unfamiliar, HNCs (M = .13) tended to be less likely to indicate that they had an opinion than were LNCs (M = .39). Viewed somewhat differently, HNCs' likelihood of giving opinions to the bogus items was highly contingent on whether the issue was potentially familiar and thus potentially related to knowledge they could possess. For LNCs, the familiarity of the issue had no effect on their propensity to report having opinions.

Conclusions

In this chapter we reviewed work on a well-established individual differences construct—the need for cognition (Cacioppo and Petty, 1982)—and on a much more recent construct—the need to evaluate (Jarvis and Petty, in press). The research clearly suggests that people differ in the extent to which they think about and evaluate issues. We suggested that need for cognition should be associated with a number of survey effects. Specifically, LNCs are expected to be more susceptible to various low effort biases than HNCs, such as being influenced by cues in a survey that suggest one response over another. In contrast, HNCs are expected to be more susceptible to various high effort biases such as primacy effects and priming effects.

Individuals low in NC are also more likely to select a no opinion option than those high in NC, but it is not clear if this is because they are too lazy to retrieve their opinions or if HNCs are simply more active in constructing their opinions when requested. The fact that HNCs are more likely to give responses than LNCs only to certain types of bogus opinion items (that is, those that are somewhat familiar), suggests that the effect is partly based on attitude construction. The retrieval versus construction issue might also be influenced by an interaction between need for cognition and need to evaluate. Specifically, when the need to evaluate is low and thus the people involved have relatively few opinions, we suspect the effect (HNCs giving more opinions than LNCs) is more likely to be driven by the fact that HNCs are constructing opinions at the time of survey assessment. But when the need to evaluate is high and thus the people have relatively many opinions, we suspect that the effect is more likely to be driven by the fact that LNCs are unmotivated to exert an effort to retrieve the opinions they have. These speculations, of course, await additional research.

At the present time, differences in need to evaluate have been associated with differences in propensity to express opinions in surveys and in the accessibility of attitudes. We believe these differences between HNCs and LNCs come primarily from the fact that HNCs and LNCs differ in the extent to which they have engaged in evaluation and therefore really have opinions. In contrast, we suspect that the difference between HNCs and LNCs in opinion expression comes mostly from differences in their willingness to exert effort in retrieving an opinion or constructing an opinion at the time of measurement. As noted, whether the difference is mostly one of opinion retrieval or construction may depend on whether the HNCs and LNCs are high or low in their need to evaluate.

Because recent research indicates that the NC and NE constructs account for independent variance in survey responding, it is reasonable to consider that four groups of individuals respond to surveys. The first group consists of those who are relatively low in
both their propensity to think and their propensity to evaluate. They are the least likely to hold opinions. Thus, to the extent that they report opinions, their opinions could be subject to various low effort biases. A person who has few opinions to give and doesn't like to think would be most likely to engage in “mental coin flipping” or “status quo responding,” for example. A second group consists of individuals who don't like to think but do like to evaluate. These people would likely form opinions about a variety of issues but by relatively nonthoughtful, peripheral means (for example, identifying with admired sources; Petty, Cacioppo, and Goldman, 1981). Nevertheless, these individuals would likely have real opinions to express on a survey. A third group of individuals are those who don't like to evaluate but do like to think. These people would likewise express opinions on surveys but a concern is that these opinions would be thoughtfully constructed at the time of the survey administration rather than retrieved from memory. Finally, a fourth group of individuals are those who are relatively high in their propensity to think and to evaluate. These people would be most likely to express opinions on surveys, opinions that would be a combination of those that were thoughtfully retrieved and those that were thoughtfully constructed.

Notes

1. We do not conclude that primacy effects are invariably the result of high effort processes. Rather, we suspect that when only two distinct sides of an issue are presented in sequence by different sources, high effort will lead to primacy because a distinct judgment will be rendered after the first side is heard and this well-reasoned judgment will bias processing of the second side. However, if participants are exposed to a lengthy list of contradictory information from a single source, low effort processing is more likely to lead to primacy because low effort processors will be more likely to render a judgment before all of the information is processed (Ahlering and Parker, 1989).

2. Narayan (1993) examined whether HNCs were more likely than LNCs to endorse a no opinion response option when it was offered than when it was not. This was tested by embedding one target survey item in ninety-five others. Half of the subjects were explicitly provided with the option of saying that they didn't have enough information to judge. Both HNC and LNC subjects were equally more likely to increase “don't know” responding when this response was explicitly offered than when it was not. However, it was not reported whether HNC and LNC subjects differed in their baseline levels of don't know responding. Also, since only one opinion item was used, no aggregation was possible and thus the study provides a relatively insensitive test of the hypothesis.

3. This polarization effect should be most likely to occur when HNCs are not explicitly instructed to think about some issue, that is, the thinking occurs naturally (Lassiter, Apple, and Leach, 1994).

4. Although HNCs are more likely to show biasing effects of subtle primes, they are less likely to show effects for more blatant primes. In fact, HNCs are more likely to “correct” their judgments for perceived biasing factors (Martin, Seta, and Crella, 1990). Corrections are made for both the perceived magnitude and direction of the perceived bias (Petty and Wegener, 1993; Wegener and Petty, 1995).

5. The subjects were participating in research using an automatic attitude activation paradigm (see Fazio, Sanbonmatsu, Powell, and Kardes, 1986).

6. The Agricultural Trade Act and Monetary Control Bill were actually real issues at one time but are now very obscure, and thus we refer to them as bogus for convenience.