Predicting Attitude Extremity: The Interactive Effects of Schema Development and the Need to Evaluate and Their Mediation by Evaluative Integration

Christopher M. Federico
University of Minnesota, Twin Cities

Research on attitude extremity suggests that schemas containing more information about a particular attitude domain are more likely to be associated with extreme attitudes toward objects in that domain when perceivers' responses toward features of the domain are evaluatively integrated. The present study argues that a high need to evaluate may play an important role in determining when schema development will be associated with the integrated responses to different domain features necessary for extremity. Consistent with this argument, data from a nationally representative survey of political attitudes indicated that the need to evaluate was associated with increased extremity across two different indices of the latter; that it moderated the relationships between schema development (in the form of political expertise), on one hand, and increased extremity and integration, on the other; and that the moderating effects of the need to evaluate vis-à-vis extremity were mediated by integration.

Keywords: *attitude extremity; need to evaluate; political expertise; attitude structure*

Social and political psychologists have long shown an interest in factors that may lead people to adopt extreme attitudes (see Abelson, 1995; Judd & Brauer, 1995; Myers & Lamm, 1976; Tesser, Martin, & Mendolia, 1995; Sidanius, 1988). In this respect, one variable that has repeatedly received attention from researchers is the degree to which people possess well-developed stores of knowledge about a given attitude domain. More precisely, it often has been argued that individuals whose attitude-related schemas contain information about a greater number of domain features may express more extreme attitudes toward objects in that domain (e.g., Judd & Lusk, 1984; Millar & Tesser, 1986). Evidence consistent with this argument has come from a number of

different sources. For example, in the context of political attitudes, a number of studies have demonstrated that political experts (who tend to have more well-developed schemas for the political domain; see Fiske, Lau, & Smith, 1990; Lodge & Hamill, 1986) tend to express attitudes that deviate more extremely from neutral or centrist positions (Lusk & Judd, 1988; Sidanius, 1988; Sidanius & Lau, 1989). Moreover, a variety of studies suggest that domain-relevant thought results in increased attitude polarization, but only among individuals who possess more extensive stores of knowledge about the domain in question (for reviews, see Judd & Brauer, 1995; Tesser et al., 1995).

Effects of this sort are typically explained in terms of the constraining effects of schema development[1] (e.g., Millar & Tesser, 1986). Rather than being amorphous clusters of attitude-relevant information, well-developed schemas provide perceivers with a structured representation of social reality and their prior evaluative responses to it. As a result, information processing that is guided by well-developed schemas tends to interpret new, evaluatively relevant information in terms of prior evaluations. Over time, information that is consistent

with one's initial evaluation of objects in the relevant domain is more likely to be added to existing stores of knowledge, leading to increased extremity (see Judd & Brauer, 1995). Thus, schema development appears to promote extremity by virtue of the fact that schema-guided thought is more likely to be systematic and directed.

Despite the cogency of this basic account, other studies have suggested that the possession of well-developed schemas may not always be associated with attitude extremity. For example, Patricia Linville and her colleagues (e.g., Linville, 1982; Linville & Jones, 1980) have argued that well-developed schemas may actually militate against the formation of extreme attitudes. According to this account, the fact that individuals with well-developed schemas characterize objects in a given domain in terms of information about a greater number of features should increase the likelihood that their representation of that domain and objects in it will consist of both positively and negatively evaluated features. As such, the positives and negatives should cancel one another out, resulting in a less extreme evaluation. Consistent with this argument, Linville and Jones (1980) found that the same set of characteristics was less likely to produce an extreme evaluative response when attributed to ingroup members rather than outgroup members, a difference that was mediated by the fact that participants' ingroup schemas were better developed than their outgroup schemas.

Although these two perspectives would seem to be at odds with one another, subsequent work has converged on a useful synthesis. More specifically, a great deal of research now suggests that the nature of the relationship between schema development—that is, the possession of knowledge structures containing information about a greater number of domain features—and attitude extremity depends on the degree to which the represented features are evaluatively integrated or redundant (Judd & Lusk, 1984; Millar & Tesser, 1986; Tesser et al., 1995; see also Judd & Brauer, 1995; Liberman & Chaiken, 1991; Sidanius, 1988). When responses to different features of an attitude domain and objects in it are similar or highly correlated with one another, knowledge structures containing information about a greater number of features tend to be associated with increased extremity. However, when responses to different features are relatively orthogonal, schema development is associated with reduced extremity. This has been frequently demonstrated in studies that have measured individual differences in integration (e.g., Millar & Tesser, 1986; see also Tesser et al., 1995). However, studies that have manipulated the perceived redundancy of the different dimensions used to organize a given attitude domain have produced the same result (e.g., Judd & Lusk, 1984),

providing evidence for the suggested causal role for integration.

Put another way, these findings suggest that the possession of knowledge structures incorporating a greater number of features is more likely to be associated with extreme attitudes when perceivers are not ambivalent about the relevant domain and objects in it, that is, when their evaluative responses to differently valenced domain features are not in conflict with one another (e.g., Lavine, Borgida, & Sullivan, 2000; Liberman & Chaiken, 1991; Priester & Petty, 1996; Thompson, Zanna, & Griffin, 1995). For example, in the domain of politics, we might expect experts to display increased extremity along the liberal-conservative dimension as long as they respond to liberal and conservative features of the political domain (e.g., major political figures) in an integrated, univalent fashion, that is, evaluating liberal features positively if they evaluate conservative features negatively, and vice versa.

MOTIVATIONAL INFLUENCES ON ATTITUDE EXTREMITY: A MODERATING ROLE FOR THE NEED TO EVALUATE?

Research thus suggests that the possession of schemas that represent a greater number of domain features are more likely to be associated with extreme attitudes toward objects in that domain when perceivers' responses to different features of the domain are evaluatively integrated. However, existing work offers far less insight into when these two conditions should co-occur, leading the possession of well-developed schemas to be associated with attitude extremity. Although various studies suggest that individuals whose schemas contain information about a greater number of features are also more likely to evaluate those features in an integrated fashion (e.g., Zaller, 1992; see also Hamill, Lodge, & Blake, 1985; Judd & Krosnick, 1989; Sidanius, 1988), the correlation is far from perfect. For example, to return to the political case, it is increasingly clear that schema development in the form of political expertise does not always explain variance in evaluative redundancy among different political objects (such as political figures; see Federico, 2003; Goren, 2001). In other words, it is not fully clear when the conditions necessary for a relationship between schema development and integration should obtain. By extension, it is also unclear when conditions conducive to the emergence of a relationship between schema development and extremity should be present.

However, research in other domains increasingly suggests that a variety of motivational factors may determine how individuals organize and apply attitude-relevant information (see Cacioppo, Petty, Feinstein, & Jarvis, 1996; Federico, 2003; Jarvis & Petty, 1996; Kruglanski, 1996; Lavine, 2002). According to work of this sort, the information contained in attitude-relevant knowledge struc-

tures may serve as a kind of raw material in processes of attitude formation, whereas motivational variables determine how this raw material is used to construct evaluations. Although this interactive perspective has not received a great deal of attention in the attitude-extremity literature, some of its insights suggest that a consideration of these motivational variables may tell us something about the set of conditions under which schema development is likely to be associated with attitude extremity.

In this vein, one motivational factor that has received a great deal of recent attention is the need to evaluate (Jarvis & Petty, 1996), which refers to the extent to which an individual is motivated to spontaneously form evaluations of various objects as either "good" or "bad." Persons with a high need to evaluate think more frequently in evaluative terms and are more likely to have formed opinions about a variety of objects in a greater number of attitude domains, whereas those with a low need to evaluate tend to have fewer evaluative thoughts across objects and domains. In other words, those with a high need to evaluate derive enjoyment from the process of assessing the good and bad features of the things they encounter. Consistent with this conceptual definition, research suggests that individuals with a high need to evaluate are more likely to spontaneously evaluate various objects, even unfamiliar ones that are difficult to assess in any straightforward fashion (see Jarvis & Petty, 1996). Moreover, in the political domain, other analyses suggest that those with a high need to evaluate are more likely to engage in behaviors indicative of well-formed preferences, such as voting and news media use (Bizer et al., 2003).

In addition, other studies have suggested that those with a high need to evaluate are more likely to represent their opinions in an "on-line" fashion (Tormala & Petty, 2001); that is, individuals who are strongly motivated to evaluate objects are also more likely to establish standing decisions about those objects in memory, which can then be easily accessed when offering an opinion. As a result, they respond more quickly when asked to provide an opinion. In contrast, individuals with a low need to evaluate are less likely to have established standing attitudinal decisions, which means they must construct their opinions in "memory-based" fashion on the basis of whatever attitude-relevant information is accessible at a given time. Consequently, those with a low need to evaluate take longer to express an attitude (see Tormala & Petty, 2001, for a more comprehensive statement).

So, what implications might this variable have for the development of extreme attitudes? As noted above, the relationship between schema development and attitude extremity appears to be contingent on the degree to which the contents of attitude-relevant schemas are evaluatively integrated. Thus, variables that encourage per-

ceivers to use attitude-relevant information in a univalent, integrated fashion also should strengthen the relationship between schema development and extremity. Given its effects in other domains, the need to evaluate may be one of these variables. As we have seen, a number of studies suggest that it is generally associated with a tendency to engage in thought aimed at the formation of standing evaluative decisions (Jarvis & Petty, 1996). However, research also suggests that the need to evaluate may be very specifically associated with a tendency to use existing stores of information in an evaluative fashion. For example, in the political domain, Bizer and his colleagues (2003) have shown that individuals with a high need to evaluate are more likely to evaluate candidates with regard to how well the candidates' issue positions accord with their own. Moreover, Federico (2003) has shown that individuals with highly developed political schemas (i.e., political experts) are more likely to align their positions on specific political issues with their overall ideological orientation if they have a higher need to evaluate.

These results suggest that a high need to evaluate may play an important role in emergence of attitude extremity. In particular, it may do so by determining when schema development will be associated with the evaluative integration necessary for the expression of extreme attitudes. This general claim leads to a number of specific hypotheses. At the simplest level, it suggests that the need to evaluate may be associated with increased extremity and evaluative integration because the need to evaluate has been linked to both a propensity for evaluation in general and evaluatively integrated response patterns.

However, it also suggests a number of more complex relationships. Most important, it implies that the association between the possession of well-developed schemas and increased attitude extremity in a given domain may be strongest among those with a high need to evaluate. Moreover, if the need to evaluate strengthens the relationship between schema development and extremity by encouraging univalence in the relevant attitude domain, then this moderating effect of the need to evaluate should itself be mediated by evaluative integration. In turn, the perspective developed here suggests that evaluative integration may mediate the key interaction between schema development and the need to evaluate in two ways (Baron & Kenny, 1986; Lance, 1988; Wegener & Fabrigar, 2000). On one hand, schema development and the need to evaluate may have an interactive effect on evaluative integration, which in turn has a direct effect on extremity. This suggests that the interactive effect of schema development and the need to evaluate on extremity is due to the interactive effect of schema development and the need to evaluate on a key antecedent

of extremity, that is, evaluative integration. This hypothesis is tested by looking at whether the addition of evaluative integration to a model already containing schema development, the need to evaluate, and the interaction between the two reduces the predictive power of the interaction between schema development and the need to evaluate. On the other hand, the need to evaluate may be directly associated with increased evaluative integration, which in turn moderates the relationship between schema development and extremity. This suggests that the interactive effect of schema development and the need to evaluate on extremity is actually accounted for by the interactive effect of schema development and evaluative integration on extremity. This hypothesis is tested by looking at whether the addition of the interaction between schema development and evaluative integration to a model already containing schema development, the need to evaluate, the interaction between schema development and the need to evaluate, and the main effect of integration reduces the predictive power of the interaction between schema development and the need to evaluate. In the analyses that follow, both of these "mediated moderation" hypotheses are examined.

OVERVIEW OF THE ANALYSES

The purpose of this study was to examine the preceding hypotheses in the context of political attitudes. To do this, data from a large, nationally representative sample of adults were analyzed. Consistent with the aforementioned hypotheses, four specific predictions were examined: (a) that the need to evaluate would be associated with more extreme attitudes toward objects in the political domain, even after other antecedents of extremity were considered; (b) that political expertise—perhaps the best indicator of political schema development (e.g., Fiske et al., 1990)—would be more strongly associated with extremity among those with a high need to evaluate; (c) that expertise would be more strongly associated with evaluatively integrated responses toward features of the political attitude domain (i.e., responses to liberal and conservative political figures) among those with a high need to evaluate; and (d) that this evaluative integration would mediate the moderating effects of the need to evaluate vis-à-vis the relationship between expertise and extremity.

METHOD

Data

The data were taken from the 2000 National Election Study (NES), conducted by the Center for Political Studies at the University of Michigan ($N = 1,807$). This survey contained measures of attitudes, political expertise, and most important, the short form of the Need to Evaluate scale (see Bizer et al., 2003). The 2000 NES interviewed respondents both before and after the 2000 election using a nationally representative sample. Respondents were randomly assigned to be interviewed either face to face or via telephone. The preelection interviews were conducted between September 5 and November 6, producing a response rate of 64.3% in the face-to-face mode and 56.5% via telephone. In the postelection panel, 1,555 of the preelection respondents were interviewed again between November 8 and December 21. The response rate for this wave was 86% in the face-to-face mode and 85.9% via telephone.

Independent Variables

Political expertise. In this study, expertise was used as a proxy for the possession of well-developed political schemas. It was measured using several factual-knowledge items, consistent with work suggesting that the latter are the most valid indicators of the differences in political cognition that should go along with varying levels of schema development (see Delli Carpini & Keeter, 1996). In this vein, Fiske and her colleagues (1990) looked at the relationship between five expertise measures (i.e., political knowledge, political activity, electronic media use, print media use, and political self-schematicity) and a series of cognitive measures and found that political knowledge was the most useful in predicting information-processing benefits suggested by theoretical models of political schematicity. These included reduced reading time for political materials, quicker decision making, and improved recall for relevant stimulus items. Other analyses indicate that knowledge may be the best available index of the degree to which survey respondents are able to perceive implicational links among related political ideas and use ideological considerations to structure their policy attitudes. For example, a number of studies have indicated that factual political knowledge is a stronger predictor of attitude constraint and response stability than education (Judd, Krosnick, & Milburn 1981; Zaller 1990, 1992).[2]

Eight items were included in the actual scale. These asked respondents to indicate (a) which party controlled the House of Representatives prior to the 2000 election, (b) which party controlled the Senate prior to the election, (c) the office held by Trent Lott, (d) the office held by William Rehnquist, (e) the office held by Tony Blair, (f) the office held by Janet Reno, (g) which state George W. Bush lived in at the time of the 2000 election, and (h) which state Al Gore was from. These items formed a reliable scale (with a KR-20 coefficient of .88, $M = .40$, $SD = .29$).

Need to evaluate. This was measured using a shorter version of the original scale developed by Jarvis and Petty (1996). The 2000 NES asked two questions about the degree to which a person was prone to evaluative thought. The first question asked, "Some people have opinions about almost everything; other people have opinions about just some things; and still other people have very few opinions. What about you?" Responses included *almost everything, about many things, about some things*, or *about very few things*. The second question asked, "Compared to the average person, do you have fewer opinions about whether things are good or bad, about the same number of opinions, or more opinions?" Those who responded that they had *fewer* or *more* opinions than average were asked a follow-up question where they were asked if they had "a lot" or "somewhat" fewer or more opinions. Respondents' scores in both samples were recoded on a 0 to 1 scale, where 1 indicated a *high need to evaluate* and a 0 indicated a *low need to evaluate*. The scores on the individual items were averaged to form the need to evaluate scale. Together, the items formed a reliable scale ($\alpha = .70$, $M = .56$, $SD = .23$).

Need for cognition. To provide a control for respondents' general tendency to exert cognitive effort—as opposed to cognitive effort aimed specifically at evaluation—we also included a short-form measure of the need for cognition (Bizer et al., 2003; Cacioppo et al., 1996). Because a general tendency to engage in cognitive elaboration—as opposed to specifically evaluative forms of elaboration—also may be associated with attitude extremity (Cacioppo et al., 1996), both the main effect of the need for cognition and its interaction with expertise also were considered in the analyses that follow. The measure was based on two NES questions. The first question asked, "Some people like to have responsibility for handling situations that require a lot of thinking, and other people don't like to have responsibility for situations like that. What about you?" Respondents were given the option to say that they neither liked nor disliked thinking situations. However, those who responded that they did *like* or *dislike* thinking situations were asked a follow-up question where they were asked if they liked or disliked thinking situations *a lot* or *somewhat*. The second question asked, "Some people prefer to solve simple problems instead of complex ones, whereas other people prefer to solve more complex problems. Which type of problem do you prefer to solve: simple or complex?" Again, responses to these questions were recoded on a 0 to 1 scale, where a 1 denotes a *high need for cognition* and 0 denotes a *low need for cognition*. These items also formed a reliable scale ($\alpha = .67$, $M = .60$, $SD = .35$).[3]

Evaluative integration. To assess evaluative integration, some index of the degree to which respondents' assessment of different features of the political attitude domain had evaluatively consistent implications was needed (see Judd & Brauer, 1995; Tesser et al., 1995). Previous studies have typically measured this characteristic in terms of within-subject correlations between ratings of domain features on different attributes (e.g., Judd & Lusk, 1984) or the level of ambivalence in people's evaluative responses to various domain features (e.g., Liberman & Chaiken, 1991). For the present study, the latter strategy was chosen: integration was measured in terms of the absence of ambivalence in people's responses to differently valenced political figures, that is, a tendency to evaluate liberal and conservative figures differently and oppositely (Priester & Petty, 1996; Thompson et al., 1995; Zaller, 1992). To this end, the following modified index based on Thompson et al.'s (1995) similarity-intensity model of ambivalence was used:

$$\text{Integration} = -\,[\,[\,(C + L)\,/\,2\,] - |C - L|\,],$$

where C is the respondent's rating of conservative figures and L is the respondent's rating of liberal figures. Scores on this index increase as respondents' ratings of liberal and conservative attitude objects become less ambivalent and more evaluatively integrated (Lavine et al., 2000; Thompson et al., 1995).[4] This choice of rating targets and indices had a number of advantages. First, although the ratings used to construct the index clearly tap into the same overall domain as the extremity measures, they do not rely on responses to the same stimuli (i.e., the left-right continuum and specific issues; see below). This reduced the risk of obtaining estimates of the relationship between integration and extremity that were inflated by shared method variance. Second, unlike correlation-based measures, which look at relationships among dimensions that place oppositely valenced domain features at different ends of the same continuum, the measure used here allows oppositely valenced features to be evaluated separately. This makes it easier to clearly assess the tendency to evaluate oppositely valenced features differently, which is central to the concept of evaluative integration (see Judd & Brauer, 1995; Liberman & Chaiken, 1991; Priester & Petty, 1996).[5] Finally, more so than correlation-based measures, the ambivalence-based measure used here assesses similarity in the intensity as well as the valence of evaluations (see Thompson et al., 1995; see also Craig, Kane, & Martinez, 2002; Lavine et al., 2000), thereby avoiding underestimation of the amount of integration present in a given domain.

Raw data for this index was obtained by looking at respondents' ratings of eight political figures. Four of the figures were associated with relative liberalism (i.e., Bill Clinton, Al Gore, Joe Lieberman, and Hillary Clinton) and the other four were associated with relative conservatism (i.e., George W. Bush, Pat Buchanan, John McCain, and Dick Cheney). Respondents rated each figure on a 100-point feeling thermometer, with 0 indicating *negative affect* and 100 indicating *positive affect*. These scores were recoded to run from 0 to 1. Composite measures of respondents' feelings about liberal and conservative features of the attitude domain were then created by averaging ratings of each set of four figures (α =.87, M = .56, SD = .23, for the liberal figures; α =.66, M = .53, SD = .17, for the conservative figures). These indices were then used as the conservative (C) and liberal (L) terms in the above formula. For each subject, the resulting scores were recoded to run from 0 to 1; higher scores indicated greater evaluative integration (or a relative lack of ambivalence; M = .48, SD = .17).

Demographics and education. Several demographics also were considered: age (in years), income (in thousands of dollars per year), race (0 = non-White, 1 = White), and gender (0 = female, 1 = male). Finally, because both expertise (Delli Carpini & Keeter, 1996) and the need to evaluate (Bizer et al., 2003) correlate with higher levels of educational attainment, an index of educational attainment also was included in the analyses. Because earlier work on the role of education has focused on the completion of a college degree as the critical experience responsible for the development of complex attitude structures in the domain of politics (e.g., Judd & Milburn, 1980; Sniderman, Brody, & Tetlock, 1991), a dummy variable indicating whether the respondents had completed a college degree (0 = no, n = 1,251; 1 = yes, n = 556) was used.[6]

The Dependent Variable: Attitude Extremity

The overall extremity of respondents' attitudes toward objects in the political domain served as the dependent variable in this study. This was operationalized in two ways. First, an index of ideological extremity was constructed by looking at respondents' deviation from the center of ideological space on the left-right continuum. This continuum is typically conceptualized as the most general evaluative dimension in the political domain, and it is thought to organize responses to particular objects within that domain (e.g., specific policies; see Converse, 1964). As such, this index served as a useful summary measure of respondents' tendency to hold relatively extreme political opinions (for a similar use of this measure, see Sidanius, 1988; Sidanius & Lau, 1989). Respondents' self-placements on the 7-point NES ideol-

TABLE 1:   Intercorrelations for Study Variables (2000 NES)

Variable	1	2	3	4	5
1. Political expertise	—				
2. Need to evaluate	.23***	—			
3. Need for cognition	.23***	.33***	—		
4. Evaluative integration	.17***	.14***	.07**	—	
.5. Ideological extremity	.14**	.18***	.05*	.25***	—
6. Issue extremity	.04	.08***	.03	.19***	.17***

NOTE: All coefficients are Pearson correlations. 2000 NES = 2000 National Election Study.
*p < .05. **p < .01. ***p < .001.

ogy scale were used as the raw data for this index. Responses were recoded to run from 0 to 1, with higher scores indicating greater conservatism (M = .55, SD = .27). The measure of extremity was created by taking the absolute value of the difference between each respondent's scale score and the midpoint of .5, indicating moderate self-placement (M = .49, SD = .27).[7]

However, for the purposes of the present study, an extremity index based on responses to a variety of specific objects in the relevant domain also was desirable (see Judd & Lusk, 1984; Millar & Tesser, 1986). Thus, an index of issue extremity was constructed by looking at respondents' deviation from the midpoint across 13 issue-attitude items. The items were government services and spending, defense spending, national health insurance, government-guaranteed jobs, aid to Blacks, affirmative action, women's rights, abortion, gays in the military, school vouchers, environmental protection versus job preservation, support for laws protecting gays from job discrimination, and gun control. Respondents answered each item on a 5-point scale. Responses to these items scaled reliably (α = .70) so they were averaged. Scores on this composite were recoded to run from 0 to 1 (with higher scores indicating greater conservatism). The scale was created by taking the absolute value of the difference between each respondent's scale score and .5 (M = .14, SD = .11).

RESULTS

Intercorrelations between the five key variables are presented in Table 1. As these coefficients indicate, expertise, the extremity indices, and the proposed moderators and mediators of the relationship between them were all reliably associated with one another (all ps at least < .05).

Schema Development and the Need to Evaluate as Predictors of Attitude Extremity

The hypotheses that the need to evaluate would predict attitude extremity on its own and moderate the rela-

TABLE 2:   Expertise and Need to Evaluate as Predictors of Attitude Extremity (2000 NES)

| | Ideological Extremity | | | | Issue Extremity | | | |
| | Model 1 | | Model 2 | | Model 1 | | Model 2 | |
Predictor	b	SE b	b	SE b	b	SE b	B	SE b
Age	.0004	(.0004)	.0003	(.0004)	−.0004	(.0002)	−.0004	(.0002)
Income	−.002	(.002)	−.002	(.002)	.001	(.001)	.001	(.001)
Race	.03	(.02)	.03	(.02)	−.04***	(.01)	−.03***	(.01)
Gender	.02	(.02)	.02	(.02)	−.02***	(.01)	−.02***	(.01)
College degree	.003	(.01)	.01	(.01)	.001	(.003)	.0004	(.003)
Political expertise	.09***	(.03)	.10***	(.03)	.03**	(.01)	.03**	(.01)
Need to evaluate	.19***	(.03)	.18***	(.04)	.03*	(.01)	.03†	(.01)
Need for cognition	−.01	(.02)	−.01	(.02)	−.003	(.01)	−.002	(.01)
Expertise × Need to Evaluate	—	—	.27*	(.12)	—	—	.14**	(.05)
Expertise × Need for Cognition	—	—	−.16*	(.09)	—	—	.03	(.03)
Need to Evaluate × Need for Cognition	—	—	−.17†	(.10)	—	—	.02	(.04)
College Degree × Need to Evaluate	—	—	−.05	(.04)	—	—	−.02	(.01)
Constant	.45***	(.03)	.46***	(.03)	.19***	(.01)	.19***	(.01)
F (degrees of freedom)	9.06 (8, 1,431)***		7.48 (12, 1,427)***		7.01 (8, 1,583)***		5.93 (12, 1,579)***	
R^2	.048		.057		.037		.046	
N	1,440		1,440		1,592		1,592	

NOTE: Entries are unstandardized ordinary least squares (OLS) regression coefficients and HC3 robust standard errors. 2000 NES = 2000 National Election Study.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

tionship between schema development and extremity were tested using a series of hierarchical ordinary least-squares regression models. In these models, each extremity index was regressed on expertise (i.e., as a proxy for schema development), the need to evaluate, need for cognition, and the three two-way interactions between these variables. Age, income, race, gender, and the college-degree indicator were included in each model as well. Because education is typically associated with expertise (e.g., Delli Carpini & Keeter, 1996) and may function in similar ways, the interaction between education and the need to evaluate was included as well. To guard against possible effects of heteroskedasticity, HC3 robust standard errors were used in these analyses (as recommended by Long & Ervin, 2000). Finally, in accordance with Aiken and West's (1991) suggestions for interactive models, all predictors were centered prior to this analysis.[8]

The results of this analysis are shown in Table 2. For each extremity index, Model 1 simply examined the main effects of expertise, need to evaluate, and need for cognition in a multivariate context. As expected, the estimates for this step indicated that the need to evaluate was independently related to ideological extremity ($b = .19, p < .001$) and issue extremity ($b = .03, p < .01$), even after the effects of expertise, a generalized propensity for cognitive elaboration (i.e., the need for cognition), the college-degree variable, and the demographics were considered. Moreover, expertise was related to both

ideological extremity ($b = .09, p < .001$) and issue extremity ($b = .03, p < .01$).

Thus, individuals who were more highly motivated to engage in evaluative thought were also more likely to display extreme attitudes. However, the potential moderating effects of this variable were of somewhat greater interest here. To test this critical interactive hypothesis for each extremity index, Model 2 added the critical two-way interaction between expertise and the need to evaluate as well as the Expertise × Need for Cognition, Need to Evaluate × Need for Cognition, and College Degree × Need to Evaluate interactions. For ideological extremity, this step revealed two significant interactions. The key interaction between expertise and the need to evaluate was significant and in the predicted positive direction ($b = .27, p < .05$), suggesting that the relationship between expertise and extremity was stronger among those high in the need to evaluate. There was also a significant negative interaction between expertise and the need for cognition ($b = −.16, p < .05$), suggesting that a general tendency to engage in cognitive elaboration may actually weaken the expertise-extremity relationship. The College Degree × Need to Evaluate interaction failed to reach significance ($p > .10$). For issue extremity, Model 2 revealed only the predicted significant interaction between expertise and the need to evaluate, which was again significant and positive ($b = .14, p < .01$).

To probe these interactions, simple slopes for the relationship between expertise and extremity were com-

puted at need-to-evaluate levels 1 standard deviation above and below the variable's mean, using Aiken and West's (1991) method. The relationship between expertise and ideological extremity was positive and significant at high levels of the need to evaluate ($b = .16$, $SE b = .04$, $p < .001$) but nonsignificant at low levels of the need to evaluate ($b = .03$, $SE b = .04$, $p > .10$). Similarly, the relationship between expertise and issue extremity was positive and significant at high levels of the need to evaluate ($b = .06$, $SE b = .02$, $p < .001$) but nonsignificant at low levels of the need to evaluate ($b = -.01$, $SE b = .02$, $p > .10$). Thus, as expected, the relationship between the possession of well-developed schemas—in the form of domain-relevant expertise—and attitude extremity was significantly stronger among those with a high need to evaluate.

Schema Development and the Need to Evaluate as Predictors of Evaluative Integration

The argument offered here also suggests that schema development in a given domain and the need to evaluate may be interactively related to attitude extremity via evaluatively integrated responses to features of the evaluative domain tapped by the attitudes in question. More concretely, this implies (a) that the need to evaluate may be associated with increased integration and (b) that it may moderate the relationship between schema development (i.e., expertise) and integration, such that schema development is positively related to integration primarily among those with a high need to evaluate. This question was examined by regressing integration on the same set of predictors used in the analysis summarized in Table 2. Again, all predictors were centered prior to the analysis. The results of this analysis are summarized in Table 3. Model 1 simply examined the key main effects, revealing that both expertise ($b = .07$, $p < .001$) and the need to evaluate ($b = .09$, $p < .001$) were associated with increased integration, as predicted. Model 2, on the other hand, examined the critical interaction. The estimates from this model revealed the predicted interaction between expertise and the need to evaluate ($b = .15$, $p < .05$); none of the other interactions were significant (all $ps > .10$). The significant interaction was probed by examining the simple slopes for the expertise-integration relationship 1 standard deviation below and above the mean for the need to evaluate. This analysis indicated that expertise was not significantly related to integration at low levels of the need to evaluate ($b = .03$, $p > .10$) but significantly associated with increased integration at high levels of the need to evaluate ($b = .10$, $p < .001$). Thus, as expected, the need to evaluate was associated with higher levels of evaluative integration on its own and also moderated with the relationship

TABLE 3: Expertise and Need to Evaluate as Predictors of Evaluative Integration (2000 NES)

| | Evaluative Integration | | | |
| | Model 1 | | Model 2 | |
Predictor	b	SE b	B	SE b
Age	.0004	(.0003)	.0004	(.0003)
Income	.003	(.002)	.003	(.002)
Race	.02	(.01)	.02	(.01)
Gender	.00003	(.01)	-.001	(.01)
College degree	-.003	(.01)	-.003	(.01)
Political expertise	.07***	(.02)	.07***	(.02)
Need to evaluate	.09***	(.02)	.09***	(.02)
Need for cognition	.01	(.01)	.01	(.01)
Expertise × Need to Evaluate	—	—	.15*	(.07)
Expertise × Need for Cognition	—	—	-.01	(.04)
Need to Evaluate × Need for Cognition	—	—	.01	(.06)
College Degree × Need to Evaluate	—	—	-.001	(.03)
Constant	.57***	(.02)	.57***	(.02)
F (degrees of freedom)	10.32 (8, 1,561)***		7.23 (12, 1,557)***	
R^2	.051		.055	
N	1,570		1,570	

NOTE: Entries are unstandardized ordinary least squares (OLS) regression coefficients and HC3 robust standard errors. 2000 NES = 2000 National Election Study.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

between schema development and integration in the predicted fashion.

Does Evaluative Integration Mediate the Moderating Effect of the Need to Evaluate?

The final part of the argument offered here is that the tendency for schema development to be more strongly associated with extremity among those high in the need to evaluate should be mediated by evaluative integration in the domain of interest. According to Baron and Kenny's (1986) well-known criteria, mediation is demonstrated when (a) the dependent variable is reliably associated with the independent variable, (b) the independent variable is significantly associated with the hypothesized mediator of the relationship between the dependent and independent variables, and (c) the net association between the dependent variable and independent variable is significantly reduced in a regression containing both the independent variable and the mediator, with the mediator remaining significant. In the present analysis, this basic procedure was modified slightly to test for the two forms of "mediated moderation" described earlier (cf. Baron & Kenny, 1986; Lance, 1988; Wegener & Fabrigar, 2000).

The findings presented in Table 2 satisfy Baron and Kenny's first criterion with regard to both forms of mediated moderation: the key interaction between expertise and the need to evaluate was significantly associated with each extremity index, net of the effects of all constituent lower-order terms. However, the tests needed to satisfy modified versions of Baron and Kenny's second and third criteria were slightly different for each form of mediated moderation. As noted earlier, the first mediated moderation hypothesis suggests that the interactive effect of schema development and the need to evaluate on extremity is due to the interactive effect of schema development and the need to evaluate on evaluative integration. In this case, satisfaction of Baron and Kenny's second criterion would require that the interaction between expertise and the need to evaluate significantly predict scores on the proposed mediator, that is, evaluative integration. This is demonstrated by the findings summarized in Table 3, which indicate that each of these terms had a significant net relationship with integration ($b = .15$, $p < .05$). In turn, the second mediated-moderation hypothesis suggests that the interactive effect of schema development and the need to evaluate on extremity is actually transmitted by the more proximal interactive effect of schema development and evaluative integration. In this case, satisfaction of Baron and Kenny's second criterion would require that the interaction between expertise and the need to evaluate significantly predict scores on the product term for the interaction between expertise and evaluative integration (Lance, 1988). Testing for the presence of this effect required a number of steps. First, the product term for this interaction was regressed on its two constituent main effects, that is, expertise and evaluative integration. The residuals for this regression were then computed to generate a product term representing only the unique variance associated with interaction itself (see Lance, 1988). This corrected term was then regressed on the same set of predictors used in the analysis summarized in Table 3. This analysis indicated that the Expertise × Need to Evaluate significantly predicted the corrected product term, $b = .10$, $p < .001$, satisfying the second criterion.

Finally, a three-step hierarchical regression procedure was used to test Baron and Kenny's third criterion for each form of mediated moderation. This procedure was carried out separately for each extremity measure. These analyses are summarized in Table 4. For each extremity measure, the first step of this procedure used only the demographics, the college-degree indicator, expertise, the need to evaluate, the need for cognition, the Expertise × Need to Evaluate interaction, the Expertise × Need for Cognition interaction, the Need to Evaluate × Need for Cognition interaction, and the College Degree × Need to Evaluate interaction as predictors (Model 1).

This simply shows the total effect of the Expertise × Need to Evaluate interaction.

To examine Baron and Kenny's final criterion with regard to the first form of mediated moderation, Model 2 added evaluative integration to the predictors included in Model 1. In this case, significant mediation requires that the statistical effect of the interaction between expertise and the need to evaluate be significantly reduced once this is done. For ideological extremity, Model 2 indicated a highly significant effect of integration ($b = .35$, $p < .001$). In turn, the actual mediated effect—corresponding to the reduction in the magnitude of the interaction between expertise and the need to evaluate—is given by the product of this coefficient and the coefficient for the interactive effect of expertise and the need to evaluate on evaluative integration ($b = .15$; see Table 3), which yields an estimate of .050. A Sobel test indicated that this mediated effect was significant, $z = 2.01$, $p < .05$. For issue extremity, Model 2 also indicated a significant effect of integration ($b = .11$, $p < .001$). Multiplied by the coefficient for the interactive effect of expertise and the need to evaluate on evaluative integration ($b = .15$, again), this yielded a modest but significant mediated effect of .02, $z = 2.00$, $p < .05$.

To examine Baron and Kenny's final criterion with regard to the second form of mediated moderation, Model 3 added the mediating interaction between expertise and evaluative integration to the predictors included in Model 2. In this case, significant mediation requires that the statistical effect of the interaction between expertise and the need to evaluate be significantly reduced once this is done. For ideological extremity, Model 3 indicated a highly significant interaction between integration and expertise ($b = .85$, $p < .001$). The actual mediated effect is given by the product of this coefficient and the coefficient for the interactive effect of expertise and the need to evaluate on the corrected Expertise × Evaluative Integration product term (i.e., $b = .10$), yielding an estimate of .085. A Sobel test indicated that this mediated effect was significant, $z = 3.00$, $p < .01$. For issue extremity, Model 3 also indicated a significant effect of the interaction between integration and expertise ($b = .23$, $p < .001$). Multiplied by the coefficient for the interactive effect of expertise and the need to evaluate on the corrected Expertise × Evaluative Integration term (b = .10, again), this indicated a mediated effect of .023, $z = 2.65$, $p = .01$.[9]

Thus, for both dependent measures, both "mediated moderation" hypotheses were supported. Consistent with the pattern suggested by these individual effects, further analyses indicated that the total indirect effect (MacKinnon, 2000) of the interaction between expertise and the need to evaluate via integration and the Expertise × Integration interaction was significant for both ideological extremity ($IE = .135$, $z = 3.46$, $p < .001$) and

TABLE 4:   Mediated Moderation Analyses (2000 NES)

| | *Ideological Extremity* | | | | | |
| | *Model 1* | | *Model 2* | | *Model 3* | |
Predictor	*b*	*SE b*	*b*	*SE b*	*b*	*SE b*
Expertise × Need to Evaluate	.27*	(.12)	.22†	(.12)	.13	(.12)
Integration	—	—	.35***	(.05)	.34***	(.05)
Expertise × Integration	—	—	—	—	.85***	(.15)
F (degrees of freedom)	7.48 (12, 1,427)***		10.98 (13, 1,414)***		13.60 (14, 1,413)***	
R^2	.057		.099		.120	
N	1,440		1,428		1,428	

| | *Issue Extremity* | | | | | |
| | *Model 1* | | *Model 2* | | *Model 3* | |
Predictor	*b*	*SE b*	*b*	*SE b*	*b*	*SE b*
Expertise × Need to Evaluate	.14**	(.05)	.11*	(.05)	.09†	(.05)
Integration	—	—	.11***	(.02)	.11***	(.02)
Expertise × Integration	—	—	—	—	.23***	(.06)
F (degrees of freedom)	5.93 (12, 1,579)***		9.00 (13, 1,556)***		9.51 (14, 1,555)***	
R^2	.046		.076		.086	
N	1,592		1,570		1,570	

NOTE: Entries are unstandardized ordinary least squares (OLS) regression coefficients and HC3 robust standard errors. All models also include age, income, race, gender, college degree, expertise, need to evaluate, need for cognition, the Expertise × Need for Cognition interaction, the Need to Evaluate × Need for Cognition interaction, and the College Degree × Need to Evaluate interaction; estimates for these terms and the regression constant are not shown. For both dependent measures, both Step 2 and Step 3 produced a significant increase in R^2 (all ps < .001). 2000 NES = 2000 National Election Study.
†p < .10. *p < .05. **p < .01. ***p < .001.

issue extremity (*IE* = .043, *z* = 3.58, *p* < .001). Taken together, these results suggest that the tendency for schema development in a given domain to be more strongly associated with attitude extremity among those with a high need to evaluate may indeed be mediated by increased integration in one's evaluative responses to objects in that domain.

DISCUSSION

The question of when the possession of well-developed schemas should be associated with extreme attitudes has occupied researchers for some time (see Judd & Brauer, 1995; Tesser et al., 1995, for reviews). As noted earlier, a number of well-known studies have indicated that this relationship may be stronger when perceivers' responses to various features of an attitude domain are evaluatively integrated or lacking in ambivalence (e.g., Judd & Lusk, 1984; Millar & Tesser, 1986; see also Tesser et al., 1995). However, relatively little attention has been devoted to the issue of when schema development and integration should co-occur, producing a positive relationship between the possession of information-rich schemas and attitude extremity. Drawing on recent studies of a relatively new construct—the need to evaluate (Jarvis & Petty, 1996; see also Bizer et al., 2003; Federico, 2003)—the perspective developed here

suggests that individual differences in evaluative motivation may shed some light on this issue. More precisely, it was hypothesized (a) that the need to evaluate, that is, a strong motivation to engage in evaluative thought, would be associated with both attitude extremity and increased integration; (b) that the possession of schemas containing information about a greater number of domain features would be more strongly associated with extreme attitudes toward objects in that domain among individuals with a high need to evaluate; (c) that the possession of well-developed schemas would be more strongly associated with higher levels of evaluative integration among those with a high need to evaluate; and (d) that this increased integration would mediate the moderating effects of the need to evaluate.

Data from a nationally representative sample of adults provided a clear pattern of support for these hypotheses in the context of people's political attitudes. At the most basic level, the data indicated that the need to evaluate was associated with increased extremity across two aspects of respondents' attitudes toward objects in the political domain (i.e., ideology and issues) and with higher levels of integration in responses to oppositely valenced features of the political domain (i.e., conservative and liberal political figures). However, of more interest, they also indicated that the possession of well-developed political schemas—measured in terms of

political expertise—was more strongly associated with both attitude extremity and integration among those with a high need to evaluate. Putting the last piece of the puzzle in place, a final set of analyses provided evidence for both of the "mediated moderation" hypotheses outlined earlier, indicating that the critical interaction between expertise and the need to evaluate was indeed mediated by integration.

Implications

So, what do these results tell us? In addition to providing evidence for a main effect of the need to evaluate on attitude extremity, they suggest that the need to evaluate may help determine when attitude-relevant schemas develop features essential for the emergence of extremity. Previous work on the relationship between schema development and extremity has focused largely on how this relationship might be moderated by structural characteristics of the schemas themselves, such as evaluative integration (Judd & Brauer, 1995; Judd & Lusk, 1984; Tesser et al., 1995). However, this body of research has had little to say about why attitude-relevant schemas may develop these structural characteristics in the first place. The perspective developed here attempts to address this question by situating the critical interface between knowledge structures and attitude extremity in the context of a broader motivational model anchored by the need to evaluate. In particular, it builds on previous work by suggesting that one of the structural moderators highlighted by earlier work—integration—may in fact mediate the moderating effects of a more distal moderator of the relationship between schema development and extremity, namely, the motivation to engage in evaluative thought. According to this perspective, the motivational impact of the need to evaluate plays the lead role, serving as the ultimate moderator of the relationship between schema development and attitude extremity. Nevertheless, as the notion of mediated moderation suggests, integration plays an essential role in the unfolding of this effect. More precisely, the need to evaluate may moderate the relationship between schema development and extremity by determining when schema development is associated with the integrated, univalent response pattern necessary for the emergence of extreme attitudes toward objects in a domain. In other words, the need to evaluate may motivate perceivers to use the conceptual information embedded in well-developed schemas to evaluatively integrate their responses, giving their representations of a given attitude domain the structure necessary for the expression of extreme attitudes.

More broadly, however, the findings reported here provide evidence for the importance of general motivational constructs in our understanding of attitude extremity. As noted in the introduction, work on motivated social cognition increasingly suggests that informational factors—including the number of domain features represented by relevant schemas and structural characteristics of these schemas, such as the degree to which they are evaluatively integrated—may interact with various motivational factors to determine how preexisting knowledge is used to construct beliefs and preferences (Jarvis & Petty, 1996; Kruglanski, 1996; Lavine, 2002). Although this general perspective has been useful in making sense of the cognitive processes behind stereotyping (e.g., Kruglanski, 1996), impression formation (Fiske & Neuberg, 1990), and the development of inter-attitudinal structure (Federico, 2003), its relevance to the social psychology of extreme attitudes has not been considered in any great detail. Instead, most analyses have focused on informational bases of extremity, namely, the possession of attitude-relevant knowledge structures, the degree to which these structures are integratively organized, and so on. Moving away from this somewhat one-dimensional mode of analysis, the perspective developed here strongly suggests that attitude extremity is not merely a matter of having certain kinds of attitude-relevant cognitive structures. Rather, it is also a matter of having the motivation to use preexisting knowledge in a broadly evaluative fashion.

However, in addition to highlighting the general relevance of motivational factors in the expression of extreme attitudes, these findings also provide further evidence for the particular motivational significance of the need to evaluate. As noted earlier, previous research on the need to evaluate suggests that it is reliably associated with evaluatively directed thought and opinion formation, as well as a stronger tendency to engage in behaviors indicative of well-formed preferences (Bizer et al., 2003; Jarvis & Petty, 1996). The present study extends these findings in a number of ways. At the simplest level, it provides further evidence for an association between the need to evaluate and the expression of definite, well-formed opinions. Although previous studies have suggested that individuals with a high need to evaluate are likely to have opinions about a greater number of objects (Jarvis & Petty, 1996), none of these analyses have provided evidence of a relationship between the need to evaluate and the extremity of these opinions, even though the conceptual definition of the construct would appear to strongly predict a relationship of this sort. The results reported here fill this gap, suggesting that the need to evaluate is reliably associated with extremity, even after other predictors are considered.

At a more complex level, though, the results presented here suggest that the need to evaluate also may condition the evaluatively oriented use of information made available by the possession of certain knowledge structures. More precisely, these findings suggest that

the possession of well-developed schemas about various attitude domains may not be associated with extreme evaluations of objects in those domains unless perceivers are particularly motivated to form opinions about the social world. In this regard, these results suggest that the need to evaluate—similar to other cognitive-motivational variables—may have some of its most important effects in interaction with other knowledge-constitutive variables (Cacioppo et al., 1996; Federico, 2003; Kruglanski, 1996). Previous work has provided clear evidence for a "main effect" of the need to evaluate with respect to attitude formation and expression in a number of domains (Jarvis & Petty, 1996). In contrast, researchers have paid little or no attention to how the need to evaluate may interact with other factors to affect the construction of preferences and perceptions. The findings presented here provide a step in this direction and point toward a fruitful avenue for future work.

Conclusions and Caveats

In sum, the findings reported here contribute both to our understanding of the conditions under which attitude-relevant schema development is associated with attitude extremity and to our understanding of the need-to-evaluate construct. Nevertheless, certain limitations of the data are worth considering. Most obviously, the correlational nature of the data used in these analyses makes it difficult to draw causal conclusions. Although these findings are clearly consistent with the hypothesis that the need to evaluate—in conjunction with schema development—has a causal impact on the expression of extreme attitudes, we cannot firmly draw this conclusion in the absence of experimental control. Moreover, the fixed format of the NES data precluded the consideration of an issue central to many analyses of attitude extremity, namely, the effects of attitude-relevant thought. As noted in the Introduction, a number of studies have shown that mere thought can lead to extremity, especially if it is guided by well-developed, evaluatively integrated schemas (Tesser et al., 1995). Although the effects of thought could not be considered in the NES data, future studies may want to examine its effects in the context of the model developed here. For example, if it is true that the need to evaluate determines when attitude-relevant schemas are likely to acquire the high level of integration necessary for the emergence of extreme attitudes, then the tendency for schema-directed thought to be associated with increased extremity may be moderated by the need to evaluate. Future work should consider this possibility.

Finally, some readers may be concerned about the present study's focus on extremity in a single domain, that is, politics. Despite this choice of contexts, there is no reason to believe the model of attitude extremity developed here is any less applicable to other domains; it simply suggests that the need to evaluate may motivate perceivers to structure the information embedded in well-developed schemas in ways that facilitate expression of extreme attitudes. In the present study, this information came from political schemas, but other types of attitude-relevant information should do so in the same fashion. Put another way, regardless of the context, the key argument is that attitude extremity depends on both the possession of relevant knowledge structures and the motivation to use the information embedded in them in an evaluative fashion. Although the model developed here may be of particular interest to political psychologists—who have long been interested in the psychology of extreme attitudes (see Sidanius, 1988; Sidanius & Lau, 1989)—it should be of equal relevance to researchers interested in other domains. Hopefully, future research will conceptually replicate the present study's findings in these other domains.

NOTES

1. Throughout this article, the terms *schema development* and *well-developed schemas* will be used interchangeably to refer to the same thing, namely, the possession of attitude-relevant schemas containing information about a larger number of object features or features of a given attitude domain.

2. Consistent with these earlier findings, an ordinary least squares (OLS) regression analysis in which knowledge, need to evaluate, need for cognition, interest in the interview, interest in politics, political participation, and a dummy variable indicating completion of a college degree were used to predict attitude constraint indicated that knowledge was by far the strongest predictor of the latter ($\beta = .13$, $p < .0001$). The next most powerful predictor, completion of a college degree, had only half the predictive power ($\beta = .06$, $p < .05$). The two other "political" predictors, interest in politics and political participation, did not have significant net relationships with constraint (both $ps > .15$).

3. Further information on the validation and psychometric properties of the National Election Study (NES) Need to Evaluate and Need for Cognition scales can be found in Bizer et al. (2003). Confirmatory factor analyses using the data examined here have shown that the need to evaluate and need for cognition items do in fact measure two distinct dimensions (Bizer et al., 2003). In these analyses, covariance among the full set of items was best explained by an oblique two-factor structure.

4. This index simply reverses the Thompson, Zanna, and Griffin (1995) ambivalence index by taking its negative. Its use can be illustrate by imagining two hypothetical respondents who have rated a liberal figure and a conservative figure on a scale ranging from 0 (*very negative*) to 100 (*very positive*). Say one of them has provided integrated responses as defined here, giving the conservative figure at 100 and the liberal figure a 0, whereas the other has provided poorly integrated responses, giving both figures a 100. Using the integration formula given above, the first respondent would get a higher raw score (i.e., 50) than the second 'poorly integrated' respondent (i.e., –100). Note that these raw scores were normalized to run from 0 to 1 for ease of analysis, as noted below.

5. This is one of the reasons why evaluative responses to issues were not used to construct the integration measure: the NES issue items force respondents to choose between options with opposite ideological valence rather than rating them separately. As noted above, the other is that this would contribute to an overlap in method variance with the dependent measures. In principle, however, there is no reason why

integration has to be indexed in terms of evaluations of political figures: this is simply what is most convenient given the available measures.

6. Although dichotomous indices of this sort are commonly used to assess (and control for) education in studies of political attitude structure (see Federico & Sidanius, 2002; Judd, Krosnick, & Milburn, 1981; Judd & Milburn, 1980; Sniderman, Brody, & Tetlock, 1991), the analyses reported below also were repeated using the full seven-category NES education variable in place of the college-degree indicator. These analyses produced results that were virtually identical to those reported below. The need to evaluate had a significant main-effect relationship with ideological extremity ($b = .19$, $p < .001$), issue extremity ($b = .03$, $p < .05$), and integration ($b = .09$, $p < .001$) and the critical Expertise × Need to Evaluate interaction was significant vis-à-vis ideological extremity ($b = .29$, $p < .05$), issue extremity ($b = .12$, $p < .01$), and integration ($b = .14$, $p < .06$). Moreover, the indirect effects corresponding to each form of "mediated moderation" remained significant for ideological extremity ($IE = .049$, $p = .06$; $IE = .085$, $p < .01$) and issue extremity ($IE = .015$, $p = .06$; $IE = .023$, $p < .01$). The total indirect effect of the interaction between expertise and the need to evaluate via both forms of mediated moderation also was significant for both dependent variables (total $IE = .134$, $p < .01$, for ideological extremity; total $IE = .038$, $p < .01$, for issue extremity). Finally, none of the effects involving the full education measure were significant in any of the models (all ps > .10).

7. This is only one of the ways in which ideological extremity might be operationalized (see Sidanius, 1988). Therefore, the analyses were repeated using a variety of extremity indices, including (a) deviation from the midpoint of .5 on a composite measure of ideology (based on the 7-point scale and the difference between their thermometer ratings of conservatives and liberals), (b) deviation from the sample mean on the ideology composite, (c) deviation from the sample median on the ideology composite, (d) a dummy variable indicating whether they classified themselves as conservatives or liberals on the 7-point ideology scale rather than classifying themselves as moderates, and (e) the extent to which the difference between their thermometer ratings of conservatives and liberals deviated from zero. Although some of these analyses required forms of estimation other than OLS (e.g., logit regression for the dummy indicator), all of them produced virtually the same pattern of results reported below.

8. Note that the ideological extremity index has only four categories. Given this relative lack of continuity, OLS may not produce efficient estimates (Borooah, 2002). As such, the Table 2 analyses using this measure as a dependent variable were repeated using ordered probit instead of OLS. This analysis produced identical results. As such, only the original OLS estimates for this dependent measure are reported to maintain consistency across models.

9. To break this result down even further, simple slopes for the relationship between expertise and each extremity index at low and high levels of integration also were computed (based on the terms included in Model 3 for each dependent variable). Consistent with earlier work on the role of evaluative integration (Judd & Lusk, 1984; Tesser, Martin, & Mendolia, 1995), these analyses indicated that expertise was associated with increased ideological extremity among those high in integration ($b = .21$, $p < .001$) and decreased ideological extremity among those low in integration ($b = -.08$, $p < .05$). Similarly, expertise was associated with increased issue extremity among those high in integration ($b = .05$, $p < .001$) and decreased issue extremity among those low in integration ($b = -.02$, $p < .10$).

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