The Relationship Between Expertise and Evaluative Extremity: The Moderating Role of Experts' Task Characteristics

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Past research has yielded contradictory results with regard to the relationship between expertise and evaluative extremity. The authors suggest that this apparent contradiction is due to the task characteristics of the expert activity. The primary task of certain experts is to formulate overall (configural) judgments and to generate clear, unambiguous answers. These experts tend to give relatively extreme evaluations. Other experts generally communicate the implications of the different choice alternatives and explain featural aspects of the stimuli. These experts are characterized by relatively moderate evaluations. The research reported in this article shows that experts whose expert activity involves configural judgments tend to make more extreme evaluations than experts who generally provide others with featural explanations. It also demonstrates that experts' task characteristics affect the way they store stimulus-relevant attributes in memory.

Expertise has been actively researched in the cognitive sciences for many years. Typically, the purpose of this research has been to determine the characteristics that distinguish experts from nonexperts. How do knowledgeable individuals encode, store, and act on stimuli in their domain of competence differently than less knowledgeable individuals? It has been shown that experts can store more information in short-term memory (Ericsson & Chase, 1982), are better able to distinguish between relevant and irrelevant information (Biederman & Shiffrar, 1987), can process a larger amount of information at the same time (Chase & Simon, 1973; De Groot, 1965), are more flexible in the allocation of attentional resources (Akin, 1986), have more hierarchical representations of the stimuli in their domain of expertise (Chi, Glaser, & Farr, 1988), have more differentiated and more organized knowledge structures (Boster & Johnson, 1989; Weiser & Shertz, 1983), develop more abstract categories (Honeck, Fiment, & Chase, 1987), and tend to adopt a forward-thinking rather than a backward-thinking approach in problem solving (Larkin, McDermott, Simon, & Simon, 1980). What is common to all these studies is the underlying assumption that expertise can be treated as a unitary construct that is relatively independent of the domain under consideration and of the task constraints with which the experts operate (Van Lehn, 1989).

Social psychological research on the extremity of attitudes (or evaluations) challenges this assumption. Here, characteristics of experts in one domain are not necessarily generalizable to experts in other domains. Whereas some studies have shown that experts give less extreme evaluations and hold more moderate attitudes than nonexperts (e.g., Linville, 1982b), other studies have found that experts are characterized by relatively extreme evaluations (e.g., Lusk & Judd, 1988). As we argue below, we think that these differences are due to the different roles in which experts in different domains find themselves. The task of certain experts is to identify the best among various choice alternatives and to generate clear, unambiguous answers. In our view, their primary activity is to formulate overall (configural) judgments. These experts tend to give more extreme evaluations than nonexperts. Other experts primarily explain to others the advantages and disadvantages as

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well as the implications of each of the choice alternatives. This activity causes them to focus more on the featural aspects of the stimuli, which leads to relatively moderate evaluations. The studies reported in this article aimed to test this account. In what follows, we briefly review the literature on the relationship between expertise and evaluative extremity. We then outline the theoretical rationale for the hypothesis that experts' task characteristics—the activities they engage in and the roles they find themselves in—play a crucial role in the evaluative extremity of their judgments.

Different Approaches to the Relationship Between Expertise and Extremity

According to the *moderate experts approach* (Linville, 1982b; Linville & Jones, 1980), individuals formulate a judgment about a given stimulus (e.g., a political candidate, a painting, an idea) by considering the attributes that they associate with that stimulus. Experts are usually familiar with more information about the stimulus, and they represent this information in a more complex and differentiated manner than nonexperts. They also consider more attributes when evaluating a stimulus in their domain of expertise. With a large number of attributes being taken into consideration, it is likely that some attributes will be perceived as good and others will be perceived as bad. As a consequence, experts will end up with mixed evidence about the stimulus, resulting in relatively moderate evaluations. Nonexperts, in comparison, have less information, represent this information in an undifferentiated manner, and consider a small number of attributes when evaluating a stimulus. The resulting representation of the stimulus is less likely to be mixed, which leads to relatively extreme evaluations.

Support for the moderate experts approach has come from a series of studies conducted by Linville and her collaborators (Linville, 1982a, 1982b; Linville & Jones, 1980). Linville's basic idea was that individuals can be considered experts of their in-group—that is, they are familiar with many members of the in-group, they know a lot about the in-group, and they represent information about the in-group in a fairly complex manner. Individuals generally know less about the groups to which they do not belong and think in terms of black and white rather than shades of gray when evaluating them. This qualifies individuals as nonexperts with regard to out-groups. Linville showed that male college students had more complex representations of young men than of old men (Linville, 1982b, Study 1) and that White participants demonstrated greater complexity when thinking about Whites than about Blacks (Linville & Jones, 1980, Study 3). She also showed that greater complexity resulted in less extreme judgments, independent of whether complexity was measured (Linville, 1982b, Study 2) or manipulated (Linville, 1982b, Study 3; Linville & Jones, 1980, Study 4). For example, participants who were instructed to think about six characteristics when thinking about an essay from a hypothetical law school applicant evaluated the essay less extremely than participants who were instructed to think only about two characteristics. Finally, Linville demonstrated that individuals make less extreme judgments about members of the in-group than about members of the out-group (Linville, 1982b, Study 2; Linville & Jones, 1980, Studies 1 and 2).

Other studies have provided indirect support for the moderate experts approach. Fiske, Kinder, and Larter (1983) showed that political experts recalled information about a fictitious country that was equally consistent and inconsistent with their prior knowledge, whereas political nonexperts recalled largely consistent information. They also showed that when making judgments, experts took more inconsistent information into account and made more moderate inferences than nonexperts. Borgida and DeBono (1989) examined the extent to which experts and nonexperts used a hypothesis-confirming strategy. Whereas nonexperts focused on information that was consistent with the hypothesis to be tested, experts gave equal amounts of attention to both confirming and disconfirming information (or, if anything, focused more on disconfirming information). Taken together, these studies suggest that experts develop a rich, complex, and evaluatively mixed representation of the stimulus domain that allows them to appreciate the strong and weak points of an object that they are asked to evaluate. As a result, according to this account, experts generate more moderate evaluations than nonexperts (for additional evidence, see McClosky & Chong, 1985; Tetlock, 1984).

According to the *extreme experts approach* (Converse, 1964; Lusk & Judd, 1988; Sidanius, 1988), experts are not only familiar with a lot of information about the stimulus domain but they also have more constrained and internally consistent representations than nonexperts. Experts generally read and hear a lot about their domain of expertise. In most cases, they are experts because they process domain-related information all day long: They read about it, they think about it, they make inferences, they establish analogies, they voice their opinions, and they try to distinguish good objects from bad ones. These processes cause experts to perceive the underlying attribute dimensions as being highly correlated with each other (Judd & Brauer, 1995; Tesser, 1978). Also, according to almost all linear integrative models (e.g., Anderson, 1971; Fishbein & Ajzen, 1975), the consideration of many attributes that are all located on highly intercorrelated dimensions results in extreme evaluations (Judd & Lusk, 1984). Nonexperts generally consider fewer attributes, and their representations are based on a few relatively orthogonal attribute dimensions. When overall evaluations are made on the basis of these attributes, the judgments are moderate, at least more moderate than those of experts (Nidorf & Argabrite, 1970; Tetlock, 1984).

The extreme experts approach was developed with political experts in mind. Indeed, politically sophisticated individuals generally evaluate political candidates and political measurers more extremely than individuals who are not so well informed about politics (Brauer, Niedenthal, & Chambres, 2000; Lusk & Judd, 1988; Sidanius, 1988; Sidanius & Lau, 1989; Stone, 1980). Lusk and Judd (1988) showed that this relationship was mediated by the number and intercorrelation of attribute dimensions that participants considered at the time of judgment. Participants were asked to generate attribute dimensions by grouping political candidates together on the basis of common characteristics. They then evaluated each of the candidates on each of the attribute dimensions, which allowed the researchers to calculate the extent to which the attribute dimensions were seen as intercorrelated. Lusk and Judd found that in comparison with nonexperts, experts generated a larger number of attribute dimensions, and these attribute dimensions were more highly intercorrelated. Furthermore, the degree of

intercorrelation of the attribute dimensions was related to the extremity of the judgments made about the political candidates.

Numerous studies have provided evidence for specific aspects of the extreme experts approach. According to work by Tesser and his colleagues (Tesser, 1978; Tesser & Conway, 1975; Tesser & Leone, 1977), thinking about one's evaluation leads to greater evaluative consistency in representation and, as a consequence, to more extreme judgments. Downing, Judd, and Brauer (1992) showed that repeatedly stating one's opinions polarizes evaluative judgments (see also Brauer, Judd, & Gliner, 1995). Judd and Brauer (1995) argued that the repeated processing of domain-relevant information—be it extended thought, mere exposure, or repeated expression—causes attitudes to become more extreme. Given the frequency with which experts handle domain-relevant information, it is not surprising that they also give more extreme evaluations. A number of researchers have shown that the attitudes of political experts are more constrained, more consistent, and more highly intercorrelated than those of nonexperts (Converse, 1964; Judd & Downing, 1990; Judd & Krosnick, 1989; Nie, Verba, & Petrocik, 1979). Taken together, these studies demonstrate that at least in the political domain, there is a positive relationship between expertise and evaluative extremity and that this relationship is due to the highly consistent representations that experts develop with regard to the stimulus domain.

Judd and Lusk (1984) suggested a way to reconcile the moderate expert approach and the extreme expert approach. They argued that the perceived intercorrelation of the underlying attribute dimensions plays a crucial role. When the dimensions are perceived as orthogonal, the consideration of a larger number of attributes leads to more moderate evaluations. However, when the dimensions are perceived as highly intercorrelated, taking into account a larger number of attributes leads to more extreme evaluations. Linville's (1982b) participants generated more independent (orthogonal) attributes for the in-group than for the out-group. As a consequence, their evaluations about in-group members tended to be more moderate than their evaluations about out-group members. Lusk and Judd (1988) have shown that the attribute dimensions generated by political experts are more highly intercorrelated than those generated by nonexperts. This high degree of intercorrelatedness was associated with more extreme evaluations, thus producing a positive relationship between expertise and extremity.

The Task Characteristics of Experts in Different Domains

Although the degree of intercorrelation is undoubtedly associated with evaluative extremity, it does not explain why the relationship between expertise and evaluative extremity is positive in some domains and negative in others. Why do experts in certain domains perceive attribute dimensions of the object of their expertise to be highly intercorrelated whereas experts in other domains see attribute dimensions as relatively orthogonal? We argue that the particular tasks of experts in different domains and the cognitive processes that support these tasks are responsible for the observed variations in the relationship between expertise and evaluative extremity. Although experts from different domains share many important characteristics (such as training, knowledge, experience, etc.), they do not necessarily engage in the same cognitive tasks when using their expertise (Stewart, Roebber, & Bosart, 1997).

Experts can be roughly classified in two categories that refer to the way that their expertise is used and, ultimately, the cognitive operations that support them. One category of experts provides analyses of the topic of their expertise. The product of their expertise is this analysis. We call the task of such experts an *advisory task.* An (American) example of this kind of expert is an estate planner. Such experts evaluate investment strategies for their current value, their risk level, and their utility for the needs of the particular consumer. The consumer decides how to use this analysis to plan his or her estate. We argue that the activity of verbalizing the nature of the topic of their expertise causes advisory experts to engage in *featural processing* of the domain-relevant objects (Halberstadt & Niedenthal, 2001; Wilson & Schooler, 1991). This processing style is characterized by a breaking down of the gestalt of the stimulus into its component features. As Schooler and his colleagues (Fallshore & Schooler, 1995; Melcher & Schooler, 1996) have shown, verbal descriptions are particularly likely to cause participants to engage in featural processing. The focus on featural aspects goes hand in hand with moderate evaluations because the stimulus has less of a gestalt that can be assigned a clear good or bad label. Experts in this role primarily explain the strong and weak points of choice alternatives to others, and their expertise helps them come up with a more detailed, feature-oriented analysis of the stimuli.

A second category of experts forms opinions and takes action accordingly, with little or no necessity to explicitly analyze the topic of their expertise. The product of their expertise is their use of these opinions. We call the task of such experts a *performance task.* A typical (American) example of this type of expert is a fly fisherman. He or she, as an expert, knows where and when to go fishing, uses particular flies for particular conditions, and has a specific casting style. It is not necessary for the fly fisherman to explicitly analyze his or her knowledge. The product of the expertise is success in the river. The cognitive concomitant of this type of performance experts, we argue, is *configural processing* of the domain-relevant objects (Foard & Kemler-Nelson, 1984; Macrae & Lewis, 2002).[1] This style of processing is characterized by gestaltlike, holistic appraisal in which the topic of expertise is seen as an entity and is evaluated in a general way (Halberstadt & Niedenthal, 2001). If individual features are noted, they are used mainly in a post hoc fashion to justify the previously made judgment. This processing style generally leads to extreme evaluations. The primary task of experts in this role is to state that they favor Alternative A over Alternative B, and their expertise helps them generate arguments that support their choice.

To summarize, our hypothesis is that the relationship between expertise and evaluative extremity depends on the fundamental task of the expert. Advisory experts explicitly analyze the implications of objects within their domain of expertise and let the consumer use this analysis. This task leads them to favor featural processing, and so for these experts, expertise and evaluative extremity should be negatively related such that greater expertise should be associated with more moderate evaluations. Performance experts do something in an expert way. Their task is not to

[1] *Configural processing* and *featural processing* are sometimes referred to as *global processing orientation* and *local processing orientation* (Macrae & Lewis, 2002).

explicitly verbalize their knowledge or analyze the topic of their expertise. In performing their task, they typically engage in configural processing, and so for these experts, expertise and evaluative extremity should be positively related.

The studies reported below were designed to address this hypothesis. To choose experts who have advisory versus performance tasks, we first conducted a pilot study in which we assessed laypeople's demands on experts in different domains. On the basis of the results, we conducted a study in which we focused on two domains, one associated with performance experts (chess) and one associated with advisory experts (antique furniture). In each of these two domains, we asked individuals with varying levels of expertise to evaluate domain-relevant stimuli. In the second study, we collected participants' evaluations about stimuli from a single domain (politics), but this time we tested two expert groups, one performance (politicians) and one advisory (political journalists).

Pilot Study

Although the two classes of experts just defined differ in the use of their expertise in very real ways, their tasks are also shaped by social interaction and expectations. Experts do not operate in a social vacuum; they are expert relative to individuals who are considerably less expert than they (Chambres, 1995; Chambres & Marescaux, 1998; Chambres, Versace, & Auxiette, 2001). Still, the less expert individuals have expectations about what they want to see from experts, and the expectations for advisory and performance experts are very different. Specifically, advisory experts are expected to evaluate knowledgeably without being passionate. In contrast, performance experts are expected to be single-minded and passionate. President Clinton, for example, was criticized for analyzing and being uncertain when the populace wanted to see passionate and consistent endorsement of a single position. The American people see the President's cabinet as his advisory experts. The President himself is supposed to be a performance expert.

Rather than selecting experts for our analysis whom we merely believed, a priori, to be advisory experts and performance experts, we began the program of research by measuring laypeople's expectations about experts in different domains. Specifically, we measured individuals' expectations about experts whom we suspected to be advisory experts (antique dealers, salespersons, art critics) as well as experts whom we suspected to be performance experts (chess players, professional photographers, and computer programmers). The results of this pilot study served as the basis for the choice of the experts who were actually tested in Study 1.

Method

Participants. We recruited 102 adult men and women at various places in a medium-sized city in France. Approximately 40 participants were approached in a large concert hall while waiting for a jazz concert to begin. Another 30 participants were recruited in a park, either on the terrace of an outdoor café or at a playground for children. The remaining participants were travelers who were approached at the airport and at the train station while waiting for their plane or train. We recruited only individuals who appeared to be over 30 years of age. This restriction was necessary to make sure that we would measure the expectations of those people who were likely to deal with the different experts that were tested in our study. Participants were informed that the questionnaire concerned their expectations about experts in different domains, but they were not given information about what expectations were being assessed. Approximately 60% of the individuals complied with our request to fill out a short questionnaire. Participants volunteered to take part in the study and were not paid for their participation.

Stimulus material. Participants were asked about six types of experts: antique dealers, art critics, salespersons, chess players, professional photographers, and computer programmers. These expert groups were chosen on the basis of our knowledge about the tasks that these experts engage in. The first three experts were expected to be evaluated as advisory experts and the second three as performance experts.

For each expert group, participants were asked to imagine talking at a cocktail party to two individuals who both happened to be experts in the domain under consideration. In the scenario, they asked the experts for their opinions about various objects related to the domain of expertise. For example, in the antique dealer scenario, participants imagined showing pictures of antique furniture to the two antique dealers and then asking them for their opinions on how to furnish their apartment. In the chess scenario, participants' task was to imagine a conversation with two high-level chess players about various chess openings. In each of the scenarios, one of the experts (called "A") mentioned strengths and weaknesses of each object under deliberation and provided the participant with more information. The other expert (called "B") had quite clear-cut opinions. He or she made overall, global judgments and evaluated certain objects very positively and other objects very negatively.

Participants answered two questions after reading each scenario. The first question asked which of the two individuals had the greater level of expertise (on a scale from 1 = *definitely A* to 7 = *definitely B*). Participants then indicated which expert they would consult if they actually needed an expert in a real-life situation (on a scale from 1 = *definitely A* to 7 = *definitely B*). For example, they were asked which antique dealer they would go to if they actually wanted to buy antiques, or which of the two high-level chess players they would send to an international chess competition. Each participant read all six scenarios and evaluated pairs of experts in six different domains. The scenarios were presented in one of two random orders.

Results and Discussion

Order of presentation did not affect any of the dependent variables, either alone or in interaction with other variables. For this reason, it was not included in the analyses reported below.

For each expert group, we calculated the average of the two responses provided by each of the participants (for the six expert groups, average Cronbach's $\alpha = .71$). The results show that laypersons had different expectations about the reactions of the experts in the six domains. As anticipated, antique dealers, art critics, and salespersons were perceived as more knowledgeable when they provided explanations about the objects in their domain of expertise than when they stated definite positive and negative evaluations of the objects. The ratings for these three expert types were all below the scale midpoint, that is, closer to Expert A than to Expert B (*M*s = 3.13, 3.62, and 3.79 for antique dealers, art critics, and salespersons, respectively). Also as anticipated, the opposite was true for computer programmers, professional photographers, and chess players. The ratings for these expert groups were all above the scale midpoint, that is, closer to Expert B than to Expert A (*M*s = 4.01, 4.14, and 4.33, for computer programmers, professional photographers, and chess players, respectively). A planned contrast that compared the experts in the first three domains with the experts in the last three domains was highly significant, $F(1, 101) = 37.70$, $p < .0001$.

An antique dealer who mentioned strengths and weaknesses of each piece of furniture he or she talked about was considered more expert than an antique dealer who voiced definite evaluations. The average rating for antique dealers was reliably smaller than 4, the scale midpoint, $t(101) = 6.34$, $p < .0001$. The same was true for art critics, who were also expected to abstain from extreme and strong evaluations, $t(101) = 2.58$, $p < .02$. The average ratings for salespersons, computer programmers, and photographers were not reliably different from the scale midpoint. Participants had specific expectations toward chess experts, however. They expected chess experts to voice definite opinions about which openings would be good and which ones would be bad. The average rating for chess experts was reliably greater than the scale midpoint, $t(101) = 2.01$, $p < .05$. Finally, we compared the expectations toward the two groups with the highest and the lowest ratings, the antique dealers and the chess players. A paired-samples t test revealed that the difference was statistically significant, $t(101) = 5.83$, $p < .001$.

In sum, respondents expected certain experts to provide detailed analyses of the advantages and disadvantages of different objects within their expertise. Experts in other domains were expected to clearly distinguish between good and bad choice alternatives and to hold definite opinions. The first category was best represented by antique dealers, the second by chess players. These two groups of experts were therefore examined in the first study.

Study 1

The primary hypothesis of this research was that the relationship between expertise and evaluative extremity depends on the task characteristics of the experts. According to our analysis, performance experts should make more extreme evaluations of the objects within their domain of expertise than nonexperts, and advisory experts should make less extreme evaluations. The goal of Study 1 was to test this hypothesis by examining experts and nonexperts in the domains of chess (performance expertise) and antique furniture (advisory expertise).

Method

Participants and procedure. Fifty-nine individuals were recruited for participation in the study. Of these, 27 were either experts in the area of antique furniture (i.e., owners of antique furniture stores) or nonexperts in this area but similar in many other respects (i.e., owners of modern furniture or interior decoration stores). These experts and nonexperts in antique furniture were predominantly men between the ages of 40 and 60 who worked alone and who had been in business for 15 to 20 years. The participants we recruited for the chess domain ($n = 32$) were either expert chess players (i.e., members of a local chess club) or nonexpert chess players (i.e., members of a local bridge club). These individuals were also predominantly men, they had a high capacity to concentrate, and they habitually spent a large amount of time at the club. Most of the chess players had participated in regional or national chess competitions. Among the bridge players, only individuals who indicated that they had played chess at some point in their lives were asked to participate in the study.

Participants were approached by a female experimenter in their store (antique domain) or at their club (chess domain). She explained that they had been contacted because they were owners of an antique or modern furniture store or members of a chess or bridge club, and she asked whether they would be willing to participate in a study on how people perceive, evaluate, and reason about different categories of objects. No details were given about the objects under study, but the experimenter promised participants an explanation of the purpose of the study once they had completed the questionnaire. In both domains, between 70% and 80% of the individuals agreed to take part in the study. They were not paid for their participation.

Stimulus material. The questionnaire was composed of three parts. In the first part, 10 stimuli were presented on index cards. In the antiques condition, these were photos of antique furniture (dressers, tables, armoires, etc.) that varied in value and aesthetic appeal. In the chess condition, these were pictures of chessboards on which the White player had made an opening move (e.g., the pawn had been moved from e2 to e4). Participants rated the stimuli on continuous ratings scales (14 cm), with endpoints labeled *don't like at all* and *like very much*. The continuous rating scales were later divided into 28 intervals of equal size, and numbers from 1 to 28 were attributed to participants' ratings.

The second part of the questionnaire consisted of questions aimed at measuring participants' self-perceptions. Two questions concerned the role of their affective reactions in their evaluations (e.g., "When you evaluate a piece of antique furniture, to what extent do you have a strong affective reaction that influences your judgment?"), two questions measured participants' tendency to focus on strong and weak aspects of objects under evaluation (e.g., "When you evaluate a piece of antique furniture, to what extent do you consider the characteristics you like about it?"), and one question assessed participants' self-perceived level of expertise (e.g., "To what extent do you think you are knowledgeable in the domain of antique furniture?"). All ratings were made on continuous rating scales with appropriate endpoints (e.g., *not at all* and *very much so*, or *not at all knowledgeable* and *very knowledgeable*). These ratings were later assigned scores from 1 to 28. The second part of the questionnaire also elicited information about the participants' gender, age, and education level.

The third part of the questionnaire was a knowledge test. The knowledge test in the antique domain consisted of 14 open questions (e.g., "In which era [under which king] was the 'mazarin desk' created?") and 14 multiple choice questions (e.g., "The François I^{er} style borrows most of its decorative aspects from . . . [a] Italy, [b] Spain, [c] the Ecole Lyonnaise, or [d] the Ecole de Touraine"). The knowledge test of the chess domain consisted of 10 open questions (e.g., "Which move is described by the symbol '0–0–0'?") and 10 multiple choice questions (e.g., "What is an 'open line'? [a] A line on which there is no piece, [b] a line on which there is no pawn, [c] a line on which there is only the queen, or [d] a line on which there is only the king").

Results and Discussion

On the basis of their answers on the knowledge test, we calculated for each of the participants a single objective expertise score. On the open questions, participants received 1 point for a correct answer and 0 points for an incorrect answer or no answer. In order to adjust for guessing, they were given 1 point for a correct answer, −.33 point for an incorrect answer, and 0 points for no answer on the multiple choice questions. The reliability of both the antique test (Cronbach's $\alpha = .94$) and the chess test (Cronbach's $\alpha = .90$) was satisfactory. Additional analyses showed that for both the antique domain and the chess domain, objective expertise scores were unrelated to the demographic variables of gender, age, and level of education. Participants' scores were standardized within each experimental condition.

Participants' evaluations of the 10 pieces of antique furniture or chess openings were transformed into deviation scores. This was done by calculating the absolute value of the difference between the rating and the scale midpoint (i.e., 14.5). We then averaged across the 10 deviation scores to obtain a single evaluative ex-

tremity score per participant. In order to test our main hypothesis, we regressed participants' extremity scores on the standardized knowledge scores (centered around 0), experimental condition (coded as −1 and +1), and the product of these two variables. The regression coefficient associated with the knowledge scores was not reliably different from zero, indicating that across conditions there was no relationship between participants' level of expertise and the extremity of their evaluations, $F(1, 55) = 1.86$, *ns*. The regression coefficient associated with experimental condition was also not reliably different from zero, $F(1, 55) = 1.31$, *ns*. This result indicates that there was no difference in evaluative extremity between participants with an average level of expertise in the antique condition and participants with an average level of expertise in the chess condition.

Most importantly for our hypothesis, the interaction between knowledge scores and experimental condition was statistically significant, $F(1, 55) = 8.70$, $p < .005$. Figure 1 illustrates this result with the knowledge scores in their original metric. As can be seen in the figure, the relationship between level of expertise and evaluative extremity was negative in the antique domain, whereas the same relationship was positive in the chess domain. As predicted, antique experts, whom laypeople consider to be advisory experts, tended to give more moderate evaluations than individuals less knowledgeable about antiques, and chess experts, whom laypeople consider to be performance experts, tended to evaluate the chess openings more extremely than less advanced chess players. As such, the experts conform to the task characteristics we measured in the pilot study.

The answers to the two questions related to participants' use of affect in judgment ($r = .66$) were combined into a single affect score. We conducted separate analyses for each of the expertise domains. In the antique domain, higher levels of expertise were associated with less use of affect, $r(25) = -.47$, $p < .02$. In the chess domain, higher levels of expertise were associated with greater use of affect, $r(30) = .43$, $p < .01$. Level of expertise was not correlated, in either of the two domains, with self-reported focus on liked characteristics of the stimuli (both ps $> .56$) or with self-reported focus on disliked characteristics of the stimuli (both ps $> .18$). However, participants were quite aware of their knowledge, or the lack thereof, in both domains. Expertise, as determined by the knowledge test, was highly related to participants' estimations of their level of expertise, both in the antique domain, $r(25) = .71$, $p < .0001$, and in the chess domain, $r(30) = .62$, $p < .0002$.

In sum, the results of Study 1 are quite consistent with the task characteristics hypothesis. The findings show that antique dealers, whom we call advisory experts and whom we consider to be individuals who engage in featural processing of the objects in their domain of expertise, evaluated antique furniture moderately compared with nonexperts. Furthermore, they reported that their evaluations were not strongly influenced by their affective reactions.[2] The situation was quite different in the chess domain. Study 1 revealed that chess experts, whom we consider performance experts who generally engage in configural processing of objects in their domain of expertise, evaluated chess openings in a more extreme manner compared with nonexperts. In addition, chess experts reported that their evaluations were influenced to a greater extent by affective reactions.

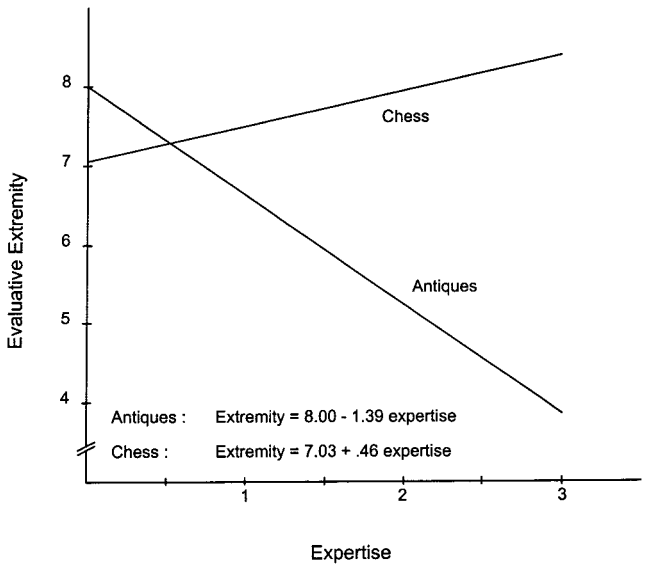

Figure 1. Evaluative extremity as a function of domain and expertise in Study 1.

Study 2

Our primary hypothesis was that the relationship between expertise and evaluative extremity depends on the task characteristics of different experts because these tasks require different types of processing. Although the findings of Study 1 confirm this hypothesis, we provided no measures of the underlying cognitive processes. The primary objective of Study 2 was to address this issue. We argued initially that task characteristics are associated with different styles of processing objects in a particular domain of expertise. If this is true, we should find that performance experts

[2] Readers should know that we failed to replicate the negative relationship between expertise and evaluative extremity in the antique domain in a later (unpublished) study (Chatard-Pannetier, Brauer, Chambres, & Niedenthal, 2002). Among the numerous modifications we made in this later study, the most important are as follows: (a) Expert participants were antique dealers who owned stores in the country rather than in the city. (b) Participants were owners of antique bookstores in Lyon (rather than owners of modern furniture or interior decoration stores in Clermont-Ferrand). (c) Participants evaluated 15 antique armchairs (rather than a varied sample of 10 pieces of antique furniture, as in the present study). (d) Participants received a letter prior to participation in which they were told that they had been contacted for a study on "the cognitive processes of experts." Unlike in the present study, it was made clear that they had been contacted because of their roles as experts or nonexperts. (e) The study included an experimental manipulation such that half of the participants were attributed to a salesperson condition and the other half to a buyer condition. Participants read a scenario that described the role of a salesperson or a buyer of antique furniture, and they were instructed to imagine themselves in this situation while filling out the questionnaire. (f) The study was run 2 years after the present study. We have no ready theoretical explanation for why these modifications may have resulted in a positive relationship between expertise and extremity in the later study, $r(35) = .11$. All that can be said is that the present study is consistent with the task characteristics hypothesis, whereas the later study is not.

engage in configural processing and represent stimuli as coherent gestalts. As a result, they should consider few attribute dimensions when making judgments about stimuli in their domain of expertise, and these attribute dimensions should be relatively general in nature. Furthermore, the attribute dimensions should be perceived as being highly correlated with the predominant underlying dimension, and the degree of perceived intercorrelation among the attribute dimensions should be high. If our reasoning above is true, we should also find that advisory experts, who often analyze the advantages and disadvantages of objects in their domains of expertise, engage in more featural processing and encode stimuli in a more complex manner. These experts examine how a weakness of a stimulus on one evaluative dimension can be made up for by a strength on one or more other dimensions. In addition, there is no salient underlying good–bad dimension. As a result, these experts should use many attribute dimensions when making judgments. Also, the attribute dimensions should be specific and should be perceived to be relatively orthogonal to each other.

Although the results of Study 1 are consistent with our hypothesis, a number of alternative explanations are also plausible. First, the observed differences between antique experts and chess experts might have been due to the fact that they are experts about different things. Perhaps there is a fundamental difference between antique furniture and chess openings. One could argue, for example, that there is a somewhat greater objectivity in evaluations of chess openings, because analyses of past games and computer simulations suggest that some openings have resulted in more losses than others, and greater objectivity might lead to greater certainty and perhaps more extreme evaluations. It might also be the case that the attribute dimensions relevant to chess openings are objectively more highly intercorrelated than those relevant to antique furniture (Judd & Lusk, 1984). Second, the results of Study 1 may be due to the individuals we recruited as nonexperts. In order to obtain high variability on the expertise dimension, we recruited owners of modern furniture stores and members of local bridge clubs to compare with antique and chess experts, respectively. We do not have a ready explanation of why these two groups might be fundamentally different from each other, but one may nevertheless not exclude the possibility that owners of modern furniture stores tend to make extreme evaluations whereas members of a bridge club tend toward very moderate evaluations.

The second objective of Study 2 was to address the drawbacks just mentioned. In order to eliminate alternative explanations due to characteristics of the stimuli or characteristics of the control group, we examined two expert groups who were knowledgeable in the same domain, politics, but engaged in different types of tasks that corresponded to our distinction between advisory and performance experts. One group was local politicians who were members of the municipal or regional council, and the other was political journalists who worked for the regional newspaper. We considered the politicians to be performance experts. Their task is to represent their party's viewpoint and to take definite stands. Furthermore, as mentioned above, people expect politicians to clearly favor or oppose political ideas. Political journalists, at least of the regional newspaper for which the recruited journalists work, analyze political situations. The primary task of the political journalists of this newspaper is to analyze the advantages and disadvantages of ideas and projects. They do not voice their personal opinions, and they are not involved in the political decision process. Members of these two expert groups were asked to evaluate national politicians and political attitude statements. Their evaluations were compared with those of sports journalists who a priori were less well informed about politics. Thus, all participants evaluated the same set of political stimuli, and expert groups were compared with the same nonexpert control group. This way, we could exclude alternative explanations due to idiosyncrasies of the control group or of the stimulus material. We also assessed participants' perceptions of the task characteristics of political journalists and local politicians in order to confirm our a priori analysis of their tasks. Finally, participants generated a list of attribute dimensions and evaluated national politicians on these dimensions, which allowed us to calculate several indicators related to the processing styles that these experts use when evaluating stimuli in their domain of expertise.

To summarize, we expected the two expert groups (local politicians and political journalists) to be more knowledgeable about current political events than the nonexpert control group (sports journalists). In addition, we predicted that the local politicians would give more extreme evaluations, would generate fewer and more general attribute dimensions, and would perceive the attribute dimensions to be more highly correlated than control group participants. We also predicted that political journalists would make moderate evaluations, would generate a large number of specific attribute dimensions, and would be characterized by a low degree of perceived intercorrelatedness of attribute dimensions relative to the control group.

Method

Participants and procedure. We recruited local politicians, political journalists, and sports journalists for participation in the study. The local politicians were all members of either the municipal or the regional council. We recruited only politicians of mainstream parties with large factions in the councils and avoided politicians from the extreme left or extreme right. The politicians were contacted by letter in which we explained that we were interested in the way politicians reasoned about, stored, and evaluated political stimuli. No details about the questionnaire and our interest in evaluative extremity were provided. Several weeks after receiving the letter, the local politicians were then contacted by telephone, and approximately 30% of them agreed to participate in our study.

The political journalists and the sports journalists all worked for a regional newspaper (*La Montagne*) published in a medium-sized French city. In a typical edition, the national and international news take up only two pages. Unlike the national newspapers in France, no particular political philosophy is associated with the newspaper at which our participants were employed. Like the local politicians, the political journalists and the sports journalists were contacted first by letter and then by telephone, and 90% of the individuals volunteered to participate in our study. In total, 20 local politicians, 20 political journalists, and 20 sports journalists participated.

One of two female experimenters met with the participants at their place of work. After having explained once more the purpose of the study, and after having assured the participants of the anonymity of their responses, she gave them a questionnaire that took about 45 min to complete. None of the participants received payment for their participation. The experimenter fully debriefed the participants.

Stimulus material. Participants filled out three questionnaires that resembled to some extent the three parts of the questionnaire used in Study 1. In the first questionnaire, participants were asked to evaluate 10 national politicians (e.g., Jacques Chirac) on continuous rating scales with endpoints labeled *I don't like him/her at all* and *I like him/her a lot*. They also expressed their agreement or disagreement with 10 political attitude state-

ments (e.g., "We should reduce the social charges that employers pay for their employees") on continuous rating scales with endpoints labeled *totally disagree* and *totally agree*. Ratings were later assigned scores from 1 to 28. Finally, participants performed a grouping task designed to assess the underlying attribute dimensions that they used when they reasoned about politicians. The task was originally developed by Scott (1969; Scott, Osgood, & Peterson, 1979) and has been used in other work on attitude extremity and the intercorrelation of attribute dimensions (Judd & Lusk, 1984; Lusk & Judd, 1988).

In our version of the task, participants grouped national politicians together according to criteria of their own choice. Below the list of the 10 national politicians (the same 10 as the ones that participants had evaluated earlier), there were a series of pairs of lines. Participants were asked to write on the first line the names of the politicians that shared some characteristic that they considered at least somewhat important. On the second line, participants were asked to write down this characteristic. Participants were instructed to repeat this procedure as many times as they wished, using as many pairs of lines as they wished. They were free to put any particular politician in as many groups as they wished.

The second questionnaire consisted of a variety of questions aimed at measuring participants' self-perceptions. Four questions asked about the task characteristics of the political experts, two questions about politicians, and two about political journalists (e.g., "A good politician [political journalist] should have clear-cut opinions"). One question measured the ease with which participants evaluated political ideas ("It is very easy to know if a political idea is good or bad"), and one measured their affective attachment to political organizations ("It is quite possible to be affectively attached to a political organization"). As in Study 1, two questions concerned the role of affect in the evaluation process, and two questions measured participants' focus on strong and weak aspects of the to-be-evaluated stimulus. Participants' self-perceived level of expertise was measured with three questions (e.g., "How do you situate yourself in relationship to those who are very poorly and those who are very well informed about politics?"). Participants also indicated the amount of time they typically spent in contact with political stimuli ("How many hours per week on average are you engaged in activities that are directly or indirectly related to politics?") and provided us with information about their gender, age, and level of education. Except for the demographic questions, participants responded on continuous rating scales with appropriate endpoints, and their responses were later transformed into scores from 1 to 28.

The third questionnaire consisted of two parts. First, participants performed a rating task that allowed us to calculate the degree of perceived intercorrelation among the underlying attribute dimensions. While the participants filled out the second questionnaire, the experimenter had copied into a large matrix the criteria that participants had used to form groups of politicians. The columns of the matrix contained the names of the 10 politicians (in print), and the lines corresponded to the criteria that the experimenter had just copied (by hand). Participants' task was to evaluate each of the 10 politicians on each of the criteria they had generated themselves during the grouping task at the end of the first questionnaire. They were instructed to use a 9-point scale with 1 corresponding to *not at all* and 9 to *very much so*. Participants simply wrote the numbers that corresponded to their responses in the boxes of the matrix.[3] The second part of the third questionnaire was a knowledge questionnaire similar to that used in Study 1 and in earlier work (Brauer et al., 2000). There were 24 open questions (e.g., "Who is currently the president of the Senate?") and 11 multiple-choice questions ("Among the following politicians, who has *not* been member of the French Constitutional Council? [a] Robert Badinter, [b] Pierre Mazeaud, [c] Roland Dumas, and [d] Simone Weil"). As in Study 1, participants received 1 point for a correct answer and 0 points for an incorrect answer or no answer on the open questions; and 1 point for a correct answer, −.33 point for an incorrect answer, and 0 points for no answer on the multiple choice questions. The reliability of the political knowledge test was quite satisfactory (Cronbach's $\alpha = .92$). Later analyses showed that knowledge scores were unrelated to the sociodemographic variables gender, age, and level of education.

Results and Discussion

We first wanted to verify if the two expert groups, political journalists and local politicians, had a comparable level of expertise and were both more knowledgeable than the nonexpert group, which consisted of sports journalists. Statistical analyses revealed that this was indeed the case. On the basis of our 35-item knowledge test, political journalists ($M = 2.15$, $SD = 0.41$) and local politicians ($M = 2.19$, $SD = 0.49$) were better informed about current political events than sports journalists ($M = 1.14$, $SD = 0.49$). We conducted a multiple regression analysis in which we regressed the knowledge scores on two orthogonal contrasts. The first contrast compared the political journalists with the local politicians (political journalists = −1, sports journalists = 0, local politicians = 1), and the second contrast compared the two expert groups with the control group (political journalists = 1, sports journalists = −2, local politicians = 1). As predicted, the results revealed a highly significant effect of the second contrast, $F(1, 57) = 59.64$, $p < .0001$, indicating that the expert groups were more knowledgeable than the nonexpert control group. The first contrast was not significant, $F(1, 57) = .07$, *ns*, indicating that the knowledge scores of the two expert groups were not reliably different from each other. According to Abelson and Prentice (1997), the nonsignificant first contrast also shows that the second contrast is a satisfactory description of the means: Once the effects of the second contrast have been statistically removed, there is no more variance left to explain.

A similar pattern emerged when we analyzed participants' perception of their knowledge of politics. The responses to the three questions regarding self-perceived knowledge were averaged. Sports journalists considered themselves less knowledgeable ($M = 11.5$, $SD = 5.6$) than did political journalists ($M = 15.3$, $SD = 5.7$) and local politicians ($M = 19.3$, $SD = 5.3$); for the second contrast, $F(1, 57) = 14.89$, $p < .0005$. It should be noted, however, that local politicians perceived themselves as more knowledgeable than political journalists; for the first contrast, $F(1, 57) = 5.40$, $p < .03$. Our objective knowledge test did not parallel these differences in self-perception (see above). Perhaps local politicians' self-perceptions were biased by the greater amount of time they invest in politics, because they indicated that they spent an average of 25.7 hr ($SD = 11.9$) per week engaged in activities that are directly or indirectly related to politics, much more than political journalists ($M = 11.9$, $SD = 6.7$) and sports journalists ($M = 3.0$, $SD = 4.9$).

[3] On the basis of earlier experience with the same task, the experimenter changed the wording of the criteria so that individuals rather than groups could be evaluated on them (e.g., "are good speakers" was changed into "is a good speaker"). She transformed categorical criteria into continuous ones if that modification could be done with relatively minor word changes (e.g., "are more than 70 years old" was changed into "is very old"). She did not copy a criterion if it was simply the opposite of an earlier criterion (e.g., "poor speakers" was not copied if the same participant had earlier formed a group labeled "good speakers"). In a similar vein, party membership, either as a single criterion or as multiple criteria, was transformed into a single dimension (e.g., "are members of the RPR party" was changed into "defends conservative viewpoints").

Our main interest was the level of evaluative extremity in each of the three groups. Following the analytic procedure used in Study 1, an extremity score was calculated for each participant on the basis of his or her evaluations of the 10 national politicians. As predicted, political journalists gave the least extreme evaluations ($M = 5.50$, $SD = 1.96$), followed by sports journalists ($M = 6.82$, $SD = 2.21$), who in turn were less extreme than local politicians ($M = 7.19$, $SD = 2.31$). The first contrast of participant group on evaluative extremity was significant, $F(1, 57) = 6.15$, $p < .02$, whereas the second contrast was not, $F(1, 57) = .64$, *ns*. These results suggest that the first contrast—the progressive increase in evaluative extremity from political journalists to sports journalists to local politicians—is a satisfactory description of the rank orderings of means. Once the variance explained by this first contrast is removed, there is no more between-groups variance left to explain (Abelson & Prentice, 1997).

A similar pattern of results emerged with the extremity scores based on participants' evaluations of the 10 political attitude statements. Political journalists gave the least extreme evaluations ($M = 8.10$, $SD = 2.48$), local politicians gave the most extreme evaluations ($M = 9.56$, $SD = 2.12$), and sports journalists were in between ($M = 8.15$, $SD = 2.57$). The first contrast fell just short of traditional levels of significance, $F(1, 57) = 3.72$, $p = .059$, whereas the second contrast was not statistically significant, $F(1, 57) = 1.06$, *ns*. An overall extremity score was calculated by averaging the standardized national politicians extremity scores and the standardized political attitudes extremity scores. As can be seen in Figure 2, the means correspond quite closely to our predictions. Compared with the nonexpert control group, the political journalists gave relatively moderate evaluations. The opposite is true for local politicians, who expressed more extreme evaluations. Again, the first contrast was statistically significant, $F(1, 57) = 5.97$, $p < .02$, whereas the second contrast was not, $F(1, 57) = .02$, *ns*. These findings strongly support our hypothesis that the relationship between expertise and evaluative extremity depends on task characteristics associated with different types of expertise.

However, are experts aware of these task characteristics? To address this question, we averaged participants' responses to the two questions about task characteristics of politicians ($r = .71$) and their responses to the two questions about task characteristics of political journalists ($r = .60$). The means of these combined scores are shown in Table 1. We then analyzed the scores as a function of participant group (political journalists vs. sports journalists vs. local politicians) and target group (political journalists vs. politicians), with repeated measures on the last factor. The only reliable effect was a main effect of target group, $F(1, 57) = 53.37$, $p < .0001$. All participants, regardless of their group membership, agreed that a good politician is characterized by relatively definite opinions ($M = 20.25$, $SD = 4.22$), whereas this was considerably less true for a good political journalist ($M = 14.86$, $SD = 5.70$). Obviously, all participants regardless of their activity were quite aware of the primary tasks of local politicians and political journalists and of the kinds of stances that are expected from them.

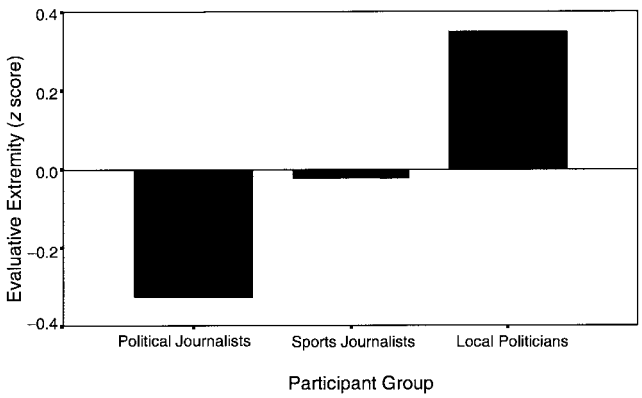

Figure 2. Evaluative extremity as a function of participant group in Study 2.

The self-perceptions of the two expert groups seemed to parallel these task characteristics. Although no statistically reliable differences emerged on the evaluations concerning how easy it is to know if a particular political idea is good or bad, the means were in the predicted direction: Political journalists had the lowest scores ($M = 7.55$, $SD = 5.60$), followed by sports journalists ($M = 8.90$, $SD = 7.07$), who in turn had lower scores than local politicians ($M = 10.40$, $SD = 7.34$); first contrast, $F(1, 57) = 1.80$, $p = .18$. The same rank ordering of means emerged with the affect scores (the average of the standardized responses to the two questions about affect). Political journalists reported that they were least influenced by their affective reactions when evaluating political stimuli ($M = 13.43$, $SD = 4.54$), sports journalists more so ($M = 15.15$, $SD = 6.58$), and politicians reported that they were very much influenced by their affective reactions ($M = 17.50$, $SD = 6.51$). These differences are statistically reliable: $F(1, 57) = 4.68$, $p < .04$, and $F(1, 57) = .04$, *ns*, for the first and the second contrast, respectively. Statistical analyses revealed no significant differences between participant groups with regard to their focus on weak points when evaluating political stimuli, $F(2, 56) = 1.54$, *ns*. There was a marginally significant effect of first contrast of participant group on the extent to which participants focused on strong points when evaluating political stimuli, $F(1, 56) = 3.43$, $p < .07$. Political journalists indicated that they focused less on strong points ($M = 15.30$, $SD = 5.44$) than sports journalists ($M = 18.32$, $SD = 6.56$) and local politicians ($M = 18.85$, $SD = 6.16$).

One of the objectives of Study 2 was to test if different task characteristics affect the way experts represent objects in their domain of expertise. First, if local politicians primarily engage in configural processing and political journalists primarily in featural processing, it could be expected that the former generate fewer attribute dimensions than the latter. This was indeed the case. Local politicians generated fewer attribute dimensions ($M = 3.30$, $SD = 1.92$) compared with sports journalists ($M = 5.45$, $SD = 3.12$) and political journalists ($M = 5.05$, $SD = 3.00$). The first contrast, which compared the political journalists with the local politicians (political journalists = −1, sports journalists = 0, local politicians = 1) was statistically significant, $F(1, 57) = 4.10$, $p < .05$. The second contrast, which compared the two expert groups to the control group (political journalists = 1, sports journalists = −2, local politicians = 1) was marginally significant, $F(1, 57) = 2.90$, $p = .094$.

Second, if local politicians are characterized by configural processing, one would expect the perceived intercorrelation among attribute dimensions to be relatively high. If political journalists tend to engage in featural processing, the perceived intercorrelation among attribute dimensions should be relatively low (Judd &

Lusk, 1984). We tested this prediction by examining participants' ratings of the 10 candidates on each of the attribute dimensions that they had spontaneously used in the grouping task. Given that the number of attribute dimensions influences the degree of intercorrelation—the more dimensions one has already generated, the more difficult it is to come up with a new dimension that is orthogonal to all previous dimensions—we considered the first four attribute dimensions generated by each participant. The choice of four attribute dimensions was made because few participants generated five or more attribute dimensions.[4] Following Lusk and Judd (1988), whose participants also evaluated 10 candidates on each of several attribute dimensions, within-participant correlations were computed across candidates between pairs of attribute dimensions. More precisely, we calculated six correlations with $N = 10$ for each participant. The absolute values of these correlations were then averaged for each participant, yielding an average absolute correlation between all pairs of the first four attribute dimensions used by the participant. These values were then analyzed as a function of participant group.

The mean values of the average intercorrelations are shown in Figure 3. Local politicians, the performance experts, represented political stimuli in a constrained manner such that the attribute dimensions were relatively redundant. Political journalists, the advisory experts, were characterized by a low degree of intercorrelation among attribute dimensions. The sports journalists whom we recruited as nonexperts in political matters tended to see the attribute dimensions as moderately intercorrelated. Quite consistent with our hypothesis, the first contrast of participant group was statistically significant, $F(1, 27) = 5.73$, $p < .03$, whereas the second contrast was not, $F(1, 27) = .07$, *ns*.

We further examined whether the attribute dimensions generated by the three participant groups differed not only in number and average intercorrelation but also in kind. We made a list of all attribute dimensions that were mentioned by at least 1 participant (there were 63 in total). Ten participants who had not taken part in the main study evaluated how specific these attribute dimensions were. They used a 9-point scale anchored at 1 (*very general*) and 9 (*very specific*). Attribute dimensions such as "marginalized" and "anti-French" were considered quite general, whereas dimensions such as "fat" or "speaks too fast" were considered quite specific. Ten additional participants rated the extent to which these dimensions were rational versus affective in nature (the endpoints were

Table 1
Perceived Task Characteristics of Political Journalists and Politicians as a Function of Participant Group in Study 2

	Participant group		
Target group	Political journalists	Sports journalists	Local politicians
Political journalists			
M	15.83	16.50	12.25
SD	3.85	5.04	7.06
Politicians			
M	19.86	21.42	19.65
SD	3.69	4.22	4.66

Note. Higher values mean that this target group is expected to have clear-cut opinions about the different choice alternatives.

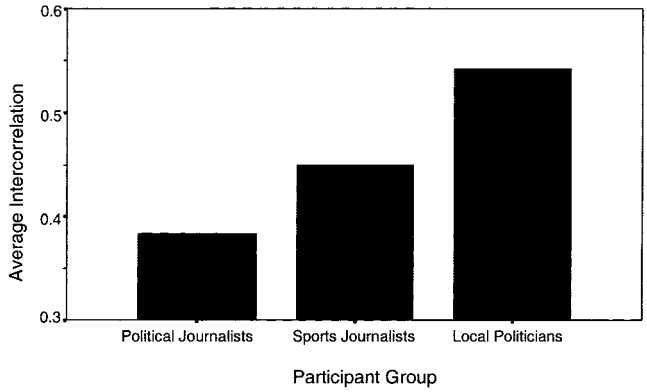

Figure 3. Perceived intercorrelation among the underlying attribute dimensions as a function of participant group in Study 2.

1 = *very affective* and 9 = *very rational*). Attribute dimensions such as "likeable" and "sympathetic" were considered quite affective, whereas dimensions such as "was minister of Education" or "speaks with a southern accent" were considered quite rational. This procedure allowed us to attribute two scores to each dimension, a specificness score and a rationality score. We then simply calculated the average specificness and the average rationality for the dimensions generated by each participant. The results showed that political journalists generated more specific dimensions ($M = 5.58$, $SD = 1.73$) than sports journalists ($M = 5.23$, $SD = 1.61$), who in turn generated more specific dimensions than local politicians ($M = 4.35$, $SD = 1.57$). The first contrast is statistically significant, $F(1, 52) = 5.20$, $p < .03$, whereas the second contrast is not, $F(1, 52) = .34$, *ns*. The attribute dimensions generated by the three participant groups did not differ reliably in affectiveness (both Fs < 1).

The correlation between the average absolute correlation of the attribute dimensions and the extremity of evaluations of national politicians is .40 ($p < .03$). This suggests that the more someone engages in configural processing about national politicians, the more extremely he or she tends to evaluate these politicians (see Lusk & Judd, 1988). However, there was no statistically significant relationship between the extremity of evaluations and the number of attribute dimensions and between the extremity of evaluations and the specificness of the attribute dimensions.

General Discussion

The two studies reported in this article were designed to examine why some experts tend to evaluate objects in their domain of

[4] Some readers may wonder why we used the first four attribute dimensions (and not the first three or the first five). If three attribute dimensions are used, the average intercorrelation is based on only three correlation coefficients, and the resulting indicator is relatively unstable. With four attribute dimensions, the average intercorrelation is based on 10 correlation coefficients and thus is considerably more stable. With five attribute dimensions, the indicator of the average intercorrelation is highly stable, but there were only 20 participants (out of 60) in our sample who had generated five or more attribute dimensions. Readers should know that independent of whether the first three, the first four, or the first five attribute dimensions were considered, the average intercorrelation was always highest for local politicians and lowest for political journalists.

expertise more extremely than nonexperts whereas other experts tend to evaluate objects in their domain of expertise less extremely than nonexperts. We had hypothesized that this difference was due to the task characteristics of the activities that are associated with the roles in which the experts find themselves. Some experts have the task of accepting certain choice alternatives and rejecting others in order to articulate definite evaluations, which, we argue, results in relatively extreme evaluations. Other experts explicitly analyze different choice alternatives. These experts tend to consider both positive and negative characteristics of the different choice alternatives and verbalize them explicitly, and this results, we argue, in relatively moderate evaluations.

The pilot study examined the expectations that nonexperts have for the tasks of experts. Nonexpert adults had the expectation that antique dealers engage in the task of advising customers about the strengths and weaknesses of antiques and give rather moderate evaluations. The same nonexpert adults had different expectations, however, toward chess experts. Specifically, they expected these performance experts to use their evaluations to inform their own actions and to possess definite and strong evaluations of, for example, chess openings.

To see whether the task characteristics actually affected the evaluative extremity of experts, in Study 1 we asked antique dealers and competition chess players to evaluate stimuli in their domain of expertise and compared their responses to those of comparable nonexpert control participants. As predicted, the relationship between expertise and evaluative extremity depended on the domain under consideration. Whereas greater expertise in the antique domain tended to go hand in hand with more moderate evaluations of pieces of antique furniture, a higher level of expertise in the chess domain was associated with more extreme evaluations of chess openings. There were also important differences with regard to self-reported affect. Chess experts reported that their evaluations were based to a large extent on the affective reactions they had to the different chess openings, whereas antique experts claimed that their evaluations were not based on affect at all.

Study 2 was designed to examine whether the task characteristics were related to distinct processing styles of experts and to exclude several alternative explanations of the results of Study 1. Performance experts (local politicians) and advisory experts (political journalists) were asked to evaluate the same objects of expertise (national politicians and political positions). The results showed that as expected, politicians tended to evaluate these objects more extremely than the nonexperts, whereas political journalists generally had more moderate attitudes toward the political stimuli than nonexperts. Given that all participants evaluated the same objects and given that both expert groups were compared with the same control group, one can be more certain that this result is not due to idiosyncrasies of either the control groups or of the stimuli to be evaluated. The analyses of participants' perceptions of the task characteristics of politicians and political journalists revealed that all participants thought that politicians should defend definite opinions, whereas political journalists are expected to abstain from evaluating political candidates and measures too extremely.

Study 2 also showed that task (performance vs. advisory) was related to the type of processing that experts engage in and the way experts mentally represent stimuli in their domain of expertise. Results revealed that local politicians considered relatively few attribute dimensions when evaluating political stimuli, and these attribute dimensions tended to be general. Political journalists, however, considered a relatively large number of specific attribute dimensions. Also, the attribute dimensions of local politicians were relatively highly intercorrelated, whereas those of political journalists were relatively orthogonal. Task characteristics appear not only to affect the extremity of evaluations but also the style with which domain-relevant stimuli are processed. This finding is quite consistent with our general hypothesis: Performance experts process the objects in their domain of expertise in a configural way and tend to classify them according to an overall good–bad judgment. Other attribute dimensions—generally few in number and general in nature—are taken into account but are seen as quite redundant with the single underlying good–bad dimension. One might suggest that these additional dimensions are considered primarily to support the experts' opinions about why some stimuli are good and others are bad. The situation is quite different for advisory experts, who have to explain the implications of the different choice alternatives (e.g., political journalists). The attribute dimensions that are taken into account—generally numerous and specific in nature—serve the purpose of understanding under which conditions different attributes are particularly beneficial or harmful. As such, these dimensions are relatively orthogonal, and stimuli are represented in a more complex, multidimensional space in which features play a more important role. The additional attributes are considered primarily to understand the strong and weak points of the different choice alternatives.

Support for these suggestions comes from participants' self-reports of the extent to which their evaluations were influenced by affective reactions to the stimuli. Those who have an advisory role (antique dealers in Study 1 and political journalists in Study 2) reported that their evaluations were quite independent of affective responses they had when encountering the stimuli. In contrast, those who primarily have a decision-making role (chess players in Study 1 and local politicians in Study 2) indicated that their evaluations are to a greater extent influenced by their affective reactions. These self-reports are consistent with the idea that the latter experts classify stimuli according to a good–bad criterion whereas the former experts represent stimuli in a more complex, multifaceted manner.

In all previous studies on political expertise, findings revealed a positive relationship between expertise and evaluative extremity (Lusk & Judd, 1988; Sidanius, 1988; Sidanius & Lau, 1989). One might wonder why the experts in those past studies, who were generally students, behaved more like the local politicians than like the political journalists in our Study 2. We suggest that this is due to the fact that the political experts in earlier studies were more like performance experts than advisory experts. Indeed, experts in earlier studies were often recruited from political groups on campus (such as Campus Democrats or Campus Republicans). These junior politicians face many of the same task characteristics as the local politicians in Study 2: They are expected to identify political measures they want to support and to make decisions in student governments, and they often evaluate political candidates for primaries and national elections. No wonder then, we argue, that past studies on political expertise found a positive relationship between expertise and evaluative extremity.

One major weakness of the present studies is that they are correlational in nature. We did not manipulate level of expertise.

Traditionally, the expertise literature examines real experts who are very knowledgeable and who have been experts in the domain under consideration for a long time (Ericsson & Lehmann, 1996). Typically, individuals are considered experts only if they have had at least 20,000 hr of practice in their domain of expertise (Ericsson, Krampe, & Tesch-Römer, 1993; Hayes, 1981; Van Lehn, 1989). We wanted to continue with this tradition not only because we wanted our findings to be comparable with past work, but also because we think it is difficult to convincingly manipulate expertise in the laboratory. The price we had to pay for this high level of construct validity and external validity was a lower level of internal validity (compared with a randomized experiment in which participants would be randomly assigned to either an expert group or a nonexpert group). The present studies, therefore, did not allow us to determine whether the task characteristics shape experts' way of processing and evaluating stimuli in their domain of expertise—as we hypothesize—or whether individuals with certain personality traits (e.g., the tendency to engage in featural processing) tend to become experts with certain types of task characteristics (e.g., advisory tasks).

An alternative account would be that experts are highly flexible in their use of processing styles. It might be that experts engage in configural processing and generate extreme evaluations when doing performance tasks but engage in featural processing and generate moderate evaluations when performing advisory tasks. Although our results could be interpreted as being consistent with this alternative account,[5] we consider it unlikely that experts radically change from one processing style to the next in everyday life. This is simply because experts tend to do the same kinds of tasks in their roles as experts. Master chess players spend most of their time in chess competitions, that is, engaged in a performance task. Only a small minority of them sometimes perform advisory tasks (e.g., provide comments on a chess match between Kasparov and the Big Blue, write a book on chess). Likewise, political journalists generally spend their time analyzing political events as expressed in their published articles. Only a minority of them also engage in performance tasks (speak at a political party meeting, win an election). We therefore consider the observed responses to reflect relatively stable characteristics of the experts who participated in our studies. However, it may be interesting in future research to examine how flexibly experts can adopt the one or the other processing style.

The present findings have some important implications for the research on expertise. In cognitive psychology, there is a tradition of studying memory recall in performance experts such as chess players, sports professionals, and computer programmers (see Ericsson, Patel, & Kintsch, 2000; Simon & Gobet, 2000; Vicente & Wang, 1998). Although this work has made important contributions and has advanced understanding of skill acquisition, we would suggest that a more comprehensive account of expertise should include both performance and advisory experts and should address a larger range of cognitive processes that these experts engage in. The present research has focused on one kind of process, namely, on the evaluation of stimuli in the domain of expertise. We think it would be fruitful to examine the difference between performance and advisory experts in other processes as well. Certain researchers have started to compare different kinds of experts with regard to how they perceive typicality in categories (Lynch, Coley, & Medin, 2000), draw inferences and represent category members hierarchically (Medin, Lynch, Coley, & Atran, 1997), identify stimuli in their domain of expertise (Tanaka & Taylor, 1991), and solve problems (Chambres et al., 2001). Although most of these studies have lacked detailed task analysis in terms of social expectations and task-related constraints, our theoretical framework may nevertheless provide useful insights for the interpretation of the observed results. For example, Medin et al. (1997) asked different types of tree experts to hierarchically sort a large number of trees into categories and subcategories. The results showed that the landscapers (who advise others on design, aesthetic, and utilitarian aspects of trees) tended to have narrow and deep representations, whereas the park maintenance workers (who plant, prune, and remove dead or dying trees) generally had broad and shallow taxonomies. We would suggest that landscapers are advisory experts who generally engage in a featural processing style and that maintenance workers are performance experts who generally engage in a configural processing style. The observed results regarding the breadth and depth of the hierarchical representations were the direct consequences of the task and the processing style these experts habitually engage in.

Our theoretical model can also explain why sometimes no expertise effects are found or why sometime novices surpass experts in some domain-relevant task (many studies on this topic are probably unpublished, but see Ericsson et al., 2000; Johnson, 1988). First, defining expertise as having completed an advanced course in a particular subject (vs. not) or having a better than average score on some knowledge test is not only an unconvincing way to distinguish experts from novices, it also fails to assess the performance versus advisory aspect of expertise (Schneider, Körkel, & Weinert, 1989; Vicente, 1992). Indeed, students who have taken advanced classes in some subject have merely acquired a body of knowledge, but they have never had to apply the knowledge in any way. Second, expert samples that consist of both performance experts (e.g., advanced basketball players) and advisory experts (e.g., knowledgeable basketball spectators) may sometimes appear no different from novice samples because the responses of the two types of experts cancel each other out. Third, advisory experts may develop very different skills compared with performance experts, and these skills may not include the memorization of domain-relevant stimulus material in a short amount of time. For example, Vicente and Wang (1998) reviewed a series of studies in which there was a "lack of expertise effects in several memory recall studies in the domain of medicine" (p. 46). From our theoretical viewpoint, it is not surprising that medical practitioners—who engage in more advisory tasks than the other performance experts usually studied by cognitive psychologists—provide responses that are difficult to explain by current theories of expertise effects in memory recall (for a discussion, see Ericsson et al., 2000; Vicente & Wang, 1998).

Ericsson and Lehmann (1996) recently showed that experts are maximally adapted to domain-specific constraints (see also Ericsson et al., 2000). In their theoretical analysis, they focused primarily on cognitive and perceptual–motor skills that mediate the effects of expertise on performance. We suggest that the results of

[5] One would have to assume that all experts in a given participant group (antique dealers, chess players, local politicians, political journalists) filled out the questionnaire with the same task orientation in mind.

the present studies fit this framework quite well, as long as one defines *domain-specific constraints* sufficiently broadly to include task characteristics as well. As we outline in the introduction, experts perform different tasks and manifest their expertise differently. These different manifestations require different cognitive processes. Extremity of evaluation varies accordingly. Given the experts' high capacity to adapt (Ericsson & Lehmann, 1996), it is only natural that they also adapt to the task characteristics of their expert role. Experts with performance tasks engage in configural processing and tend to give relatively extreme evaluations. Experts with advisory tasks generally engage in featural processing and give relatively moderate evaluations.

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