

# Willingness to pay for advice: The role of rational and experiential processing <sup>☆</sup>

John Godek <sup>a,\*</sup>, Kyle B. Murray <sup>b,1</sup>

<sup>a</sup> Charles H. Lundquist College of Business, 1208 University of Oregon, Eugene, OR 97403, USA

<sup>b</sup> Richard Ivey School of Business, University of Western Ontario, London, Ont., Canada N6A 3K7

Received 12 August 2005

Available online 15 February 2008

Accepted by Robyn Dawes

## Abstract

Everyday, millions of decision makers receive advice from one or more sources. Although research has addressed some of the issues concerning how people take and use advice that they are given, less is known about the psychological processes that underlie decision makers' willingness to pay for advice. In the present research, we explore the important role that mode of information processing and decision-specific knowledge have on willingness to pay for advice. In a pretest and two experiments, we use a priming procedure to induce either a rational or experiential mode of processing. We find that people processing information rationally are willing to pay substantially more for advice than those who are processing information experientially, and that this effect is moderated by the individual's decision-specific knowledge.

© 2007 Elsevier Inc. All rights reserved.

**Keywords:** Rational; Experiential; Expertise; Advice; Recommendations

Modern service economies feature a vast array of advisors in diverse fields that range from professional services (lawyers, accountants, bankers, consultants, etc.) to leisure and entertainment (travel agents, sommeliers, astrologists, etc.), and from healthcare (doctors, personal trainers, herbalists, diet gurus, etc.) to real estate and construction (architects, real estate agents, home renovators, interior designers, etc.). As such, many individuals and organizations must regularly decide whether or not they are willing to pay

for advice, and if so, how much they are willing to pay for it. Take, for example, an investor who wants to buy a mutual fund. The marketplace for personal financial planning has become especially well segmented by how much people are willing to pay for advice. Options range from full-service financial planning firms that provide a broad range of advisory services for a substantial fee to discount brokers that offer basic securities trading for a minimal fee. Investors must decide whether or not they want to hire an advisor and how much they are willing to pay for advice from such an expert.

Substantial progress has been made in advancing our understanding of what people want from advisors, what factors influence the willingness of individuals to take advice, and how advisees make use of advice that is available to them (e.g., Harvey & Fischer, 1997; Harvey, Harries, & Fischer, 2000; Sniezek & Buckley, 1995;

<sup>☆</sup> The authors wish to thank J. Frank Yates, Robert Fisher, the editors, and three anonymous reviewers for their valuable comments on earlier versions of this article. Order of authorship is alphabetical as each author equally contributed to this research.

\* Corresponding author. Fax: +1 541 346 3341.

E-mail addresses: [jgodek@uoregon.edu](mailto:jgodek@uoregon.edu) (J. Godek), [kmurray@ivey.uwo.ca](mailto:kmurray@ivey.uwo.ca) (K.B. Murray).

<sup>1</sup> Fax: +1 591 661 3959.

Yaniv, 2004; Yaniv & Kleinberger, 2000; Yates, Price, Lee, & Ramirez, 1996). However, in general, willingness to pay (WTP) for advice has received much less attention, even though WTP must usually be decided (and payment made) prior to the receipt and use of any advice. For example, an investor is unable to assess how much better (or worse) an investment chosen by an advisor will perform, relative to the choice that the individual would make on her own, until after she has paid for the advice and received recommendations on what to invest in. Similarly, organizations that hire external consultants generally pay for the advice they receive many months or even years before the value of that advice can be accurately assessed. Given this uncertainty surrounding the value of advice that decision makers receive, understanding the factors that affect WTP for advice is especially important.

In the present research, we examine the effects that mode of information processing and decision-specific knowledge have on WTP for advice. We develop a priming procedure and use it in a pretest and two experiments to induce either a rational or experiential mode of processing in decision makers. Our results show that people who are processing information rationally are willing to pay substantially more for advice than those who are processing information experientially, and that this effect is moderated by decision-specific knowledge. The next section outlines our hypotheses, followed by a description of the experimental methods and results. We conclude with a general discussion of our findings, including theoretical and practical implications of the work, as well as limitations and directions for future research.

### Processing mode and willingness to pay for advice

Everyday, millions of decision makers receive advice from one or more sources. Although research has addressed the issue of how people take and use advice that they are given (Harvey & Fischer, 1997; Harvey et al., 2000; Sniezek & Buckley, 1995; Yaniv & Kleinberger, 2000), the process through which decision makers decide how much to pay for advice has received less attention. One approach to making a WTP decision is to assess the value that external advice can add, over and above what could be accomplished without such advice. Following this “*value-added*” approach, a decision maker should be willing to pay for advice up to the value that it is expected to add, calculated as the difference between what one could achieve on one’s own versus what one could achieve with advice. For example, if on her own a decision maker can choose an investment that yields a \$500 gain, but with counsel from an investment advisor a gain of \$1000 can be achieved, then the decision maker should be willing to pay up to \$500 to the advisor in order to realize the greater gain.

Such a value-added approach to deciding WTP presumes a deliberative and analytical process. However, a number of models of human decision making argue that there are two modes of information processing: one that is more rational, deliberative and analytical and another that is more experiential, affective and intuitive (e.g., Epstein, 1991, 1994; Kahneman, 2003; Lieberman, 2000; Nisbett, Peng, Choi, & Norezayan, 2001; Petty & Cacioppo, 1986; Sloman, 1996; Smith & DeCoester, 2000). Although a comprehensive review of research in this area is beyond the scope of the current article, the extant literature indicates that the dominant mode of information processing is experiential—i.e., human behavior is primarily determined by rapid, holistic, and affective information processing (e.g., Donovan & Epstein, 1997; Gilbert, 1989a, 1989b; Epstein, 2003; Kahneman, 2003; Lieberman, Gaunt, Gilbert, & Trope, 2002; Schul & Mayo, 2003; Wilson, 2002).

In this article, we adopt the cognitive-experiential self-theory (CEST) proposed by Epstein and colleagues that defines one mode as *rational* the other as *experiential* (e.g., Epstein, 1997; Epstein, Lipson, Holstein, & Huh, 1992; Kirkpatrick & Epstein, 1992). This model proposes that, in general, experiential processing tends to be more affect driven, with rapid processing and a “what feels good” orientation. In contrast, the model suggests that rational processing tends to be slower, more analytical and reason oriented, with decisions requiring justification via logic and evidence (see Table 1).

The CEST framework is particularly relevant to the present question of WTP for external advice, because previous work suggests the two systems may weigh information from the self versus others differently. Specifically, three pieces of evidence lead us to predict that the people processing information experientially will be less WTP for advice, relative to those engaged in the rational mode. First, the experiential system is self centric—i.e., it organizes information in terms of implicit theories of the self, it is focused on personal experience, and relies on self-evident validity (Epstein 1991, 1994).

Table 1  
Comparison of experiential and rational processing modes

Experiential system	Rational system
Holistic	Analytic
Automatic	Intentional
Affective	Logical: reason oriented (what is sensible)
More rapid processing: action oriented	Slower processing
Self-evidently valid: “Experiencing is believing”	Requires justification via logic and evidence
Behavior mediated by “vibes” from past events	Behavior mediated by conscious appraisal of events
Encodes reality in concrete images, metaphors and narratives	Encodes reality in abstract symbols, words and numbers

Adapted from Epstein (1991).

And, although prior work has not looked directly at the relationship between self-centricity and WTP for advice, we do know that self-centricity is positively correlated with a tendency to discount the value of advice from others (Yaniv & Kleinberger, 2000). Second, previous research has demonstrated that more rapid information processing—a defining feature of the experiential system—increases the probability that judgments will be biased towards the self (Epley, Keysar, Van Boven, & Gilovich, 2004). Third, according to the CEST model, the experiential system exhibits a “self-enhancing bias” that elevates an individual’s perceptions of his or her own abilities relative to others in an effort to augment self-esteem (Epstein, 2003). Based on these characteristic of the experiential system—i.e., rapid, self-centric and self-biased information processing—we predict that people who are processing information experientially will tend to discount the value of others’ advice. In contrast, we predict that individuals engaged in rational processing will make WTP decisions in a more deliberative and analytical manner that better incorporates the value added by external advice. Therefore,

H<sub>1</sub>: Willingness to pay for advice will be greater under rational information processing than under experiential information processing.

#### *The role of decision-specific knowledge*

Logically, and all else being equal, to the extent that advice can add value, people should be willing to pay for that advice. Consistent with this perspective, Yaniv and Kleinberger (2000, Experiment 4) found that as the perceived value of advice increases, the advisees’ WTP also increases. In that study, participants could pay a small fee for advice, and those who performed better than average were paid a bonus that was four times as large as the fee. Therefore, when the advice provided was helpful in improving performance above the average, people were willing to pay more for that advice. However, in many cases, the decision to pay for advice must be made *before* the advice is given and its value can be directly assessed. In such situations, the value of advice gained from an advisor is uncertain, and thus decision makers using the value-added approach to determine WTP may rely on an assessment of their own knowledge of the situation to determine the relative value of advice that might be received from an advisor. As a result, people who are completely unfamiliar with making a particular decision and, therefore, do not have any specifically relevant knowledge, should be willing to pay more for external advice. Conversely, as a decision maker’s own knowledge increases s/he should find the advice of others less valuable. For example, an individual who has a great deal of knowledge about investing and personal finance should be less willing to pay for advice from

an external advisor than a novice investor who lacks knowledge of financial markets.

This line of thought is consistent with previous research investigating the tendency of people to take and use external advice. Specifically, prior work indicates that as an individual’s decision-specific knowledge increases, the tendency to rely on external advice decreases (Harvey & Fischer, 1997; Yaniv, 2004; Yaniv and Kleinberger, 2000). Although this research has focused on taking and using advice, we expect a similar pattern of results when it comes to the role of decision-specific knowledge in WTP for advice. Therefore,

H<sub>2</sub>: As decision-specific knowledge increases, willingness to pay for advice decreases.

The idea that people consider the value-added by external advice when making a WTP decision about that advice should not be particularly controversial. It simply suggests that people tend to rely less (more) on external advice as their own decision-specific knowledge increases (decreases). Although this method of valuation is very consistent with rational information processing, it is not clear that those processing experientially would be as affected by perceived differences between their knowledge and the advisors. As discussed above, people processing information experientially tend to be more self-centric and, as a result, discount the advice of others. In addition, when people are engaged in an experiential mode of processing they tend to put less emphasis on tangible calculations or probabilities (e.g., Denes-Raj & Epstein, 1994; Kirkpatrick & Epstein, 1992). This suggests that when an individual is processing information experientially, s/he will be less prone to calculate the value that can be added by external advice. As a result, even when people processing information experientially lack decision-specific knowledge they should still be willing to pay less for advice than those processing rationally, who are more likely to see the value added by external advice. However, when the decision maker has decision-specific knowledge the difference between rational and experiential processors should be smaller, as experiential processors will continue to discount external advice and rational processors will see less value-added in external advice. In other words, our prediction is that the difference in WTP between the two modes of processing will be greater when decision-specific knowledge is low than when it is high. Therefore,

H<sub>3</sub>: The effect of mode of processing on willingness to pay will be moderated by decision-specific knowledge, such that as decision-specific knowledge increases, the difference in willingness to pay between the two modes of processing decreases.

### Priming modes of processing

In general, the tendency to process information more rationally or more experientially has been studied as an individual difference between people (e.g., Epstein, Pacini, Denes-Raj, & Heier, 1996). However, recent research suggests that it is also possible to induce different processing modes within people. Specifically, Schul and Mayo (2003, Experiment 2) proposed that orienting individuals toward the future in their decision making induces a rational mode, while directing them to the past reinforces the experiential mode. In particular, these researchers suggested that having individuals explain what they would do in order to obtain the best possible outcomes in the future would lead decision makers to engage in more rational thinking, while asking participants to explain why they believed their past decisions were correct would lead to more experiential processing. It is worth noting that although Schul and Mayo (2003) suggested that a difference in processing was induced by their manipulations, they were unable to confirm that this was indeed the case. We have adapted their method and developed a priming procedure that was used in the pretest and experiments reported below. We twice confirm the effectiveness of this procedure in priming distinct modes of processing (Pretest and Experiment 2) with manipulation checks that demonstrate such primes can affect the tendency of people to process either rationally or experientially.

### Pretest

To test the efficacy of the priming procedure we recruited 90 undergraduate business school students who completed the study via computer as part of a course requirement and received partial course credit for their participation. The manipulation check was conducted separately from Experiment 1 to avoid contaminating either the WTP question with the manipulation check, if the manipulation check was conducted before WTP was elicited, or the manipulation check with the WTP question, if the manipulation check was conducted after WTP was elicited.

The priming procedure involved having participants come to the lab and complete a questionnaire via computer. After completing a consent form, participants were presented with a questionnaire that contained one of the open ended questions listed below followed by a text box for them to fill in their response. Following Schul and Mayo (2003), we asked participants to elaborate on a prior decision to prime an experiential mode of processing and on a future decision to prime rational processing. In the experiential condition the question was:

“When you made a purchase in the past, what things led you to believe that your choice was the correct one?”

In the rational processing condition the question was:

“When you are planning a purchase in the future, what things should you do in order to make sure that your choice is the correct one?”

To ensure that the dependent variable was consistent with the priming procedure, participants in the rational condition were asked about a purchase decision in the future, while experientially primed participants were asked about a purchase decision in the past. In particular, participants were asked to respond to the following question (using a 1–9 scale):

How would you describe your decision process when you are planning a purchase in the future [when you made a purchase in the past]?

I would base my decision on [I based my decision on]:  
(How I Felt) 1 2 3 4 5 6 7 8 9 (What I Calculated)

Consistent with Epstein’s (1991) distinction between the two modes of processing, we expected that those participants who were exposed to the rational prime would report that their decisions were based more on what they calculated (i.e., the upper half of the scale), while those exposed to the experiential prime were expected to report that their decisions were based more on how they felt (i.e., the lower half of the scale). The results of the manipulation check supported the efficacy of the priming procedure. The mean rating for participants that were primed to process rationally was 5.224 ( $SD = 1.636$ ) and the mean rating for participants primed to process experientially was 4.366 ( $SD = 1.577$ ); these means are significantly different ( $ANOVA F_{(1,88)} = 6.351, p = .014$ ), suggesting that participants in the two primed conditions did engage in modes of processing in a manner consistent with the desire to prime the rational and experiential systems.

### Experiment 1

The first experiment investigated how much people were willing to pay for expert advice, in an unfamiliar product category, depending on whether they were primed to process information rationally or experientially.

#### Procedure and design

Sixty-six undergraduate business school students, sampled from the same population as in the pretest, completed the study via computer as part of a course requirement and received partial course credit for their participation. In a between-subjects design we used the priming manipulation described above to induce either

an experiential or rational mode of information processing. In this study we held decision-specific knowledge constant at a low level by informing participants that the WTP decision was to be made in an unfamiliar product category. Participants' WTP for advice (our dependent measure) was elicited as follows:

“If it costs \$10 for a product for which you select the various features to be included, in a new product category that you are unfamiliar with, what would you pay for a product that an expert had selected to meet your specific needs?”

### Results

The results from Study 1 indicate that participants processing experientially were willing to pay \$10.94 ( $SD = \$5.24$ ) for a product selected based on expert advice, while those participants processing rationally were willing to pay \$13.19 ( $SD = \$4.63$ ). We found that those participants processing rationally were willing to pay significantly more than the “do-it-yourself” price of \$10 (one sample  $t$ -test null hypothesis;  $t_{(31)} = 3.894$ ,  $p < .001$ ) for expert advice, while those participants processing experientially were not willing to pay significantly more than \$10 (one sample  $t$ -test null hypothesis;  $t_{(33)} = 1.047$ ,  $p = .151$ ). Based on an ANOVA test of the difference between the two experimental conditions ( $F_{(1,64)} = 3.389$ ,  $p = .070$ ,  $\eta^2 = .050$ ), the results provide marginal support for  $H_1$ .

### Discussion

The results of Experiment 1 provide preliminary evidence that mode of processing can influence WTP for advice. When decision makers are processing rationally, they value the advice of an expert over and above the \$10 do-it-yourself option. In contrast, decision makers who were processing experientially found negligible value was added by the advice of an expert. In addition, we found a marginally significant difference in WTP between those people who were processing rationally and those who were processing experientially.

However, there are aspects of the design of this first study that may have inadvertently affected participants' WTP responses and, possibly, weakened the effect of the priming manipulation. First, the wording of the question may have biased responses by setting an artificial reference point. In particular, a reference point of \$10 for doing-it-yourself was established in the scenario, and then participants were asked how much they would pay for expert advice. Participants may have taken this wording to imply that advice should cost more than the reference amount of \$10, and reflected this implication in their WTP responses. In order to avoid this bias

in Experiment 2, participants were given \$10 with which they could bid anywhere from \$0 to \$10 for advice and no explicit reference point was provided. Second, the scenario used in the first experiment held decision-specific knowledge constant at a low level by making it clear that the product category was an unfamiliar one. In Experiment 2, decision-specific knowledge was manipulated in order to test the hypotheses that it has a direct effect on WTP ( $H_2$ ) and that it moderates the effect of mode of processing on WTP ( $H_3$ ). Finally, the scenario approach used in the first experiment only required a self-report of WTP under the described conditions, raising the question of whether or not participants would respond in a similar manner if they were spending real money. In the second study we employed a design that required participants to bid real money for advice pertinent to a consequential decision.

### Experiment 2

In this experiment we examined the effects of mode of processing and decision-specific knowledge on WTP for expert advice. As in the previous experiments, we manipulated participants' mode of information processing with a priming procedure. In Experiment 2, we also manipulated decision-specific knowledge (see below). Participants were given \$10 for participating and they were told that if they made a poor decision or took too much time deciding it would reduce the amount of money that they would be paid after the study was complete. Our dependent variable is the amount of money that participants bid for expert advice to assist them in their decision making.

### Procedure

Experiment 2 was completed by 98 participants sampled from the same population as the previous experiment. The data from one of the participants was incomplete and therefore removed from further analyses. The study was conducted via computer in a laboratory setting and participants received a variable cash payment for their participation based on their performance on the experimental task. Participants were given task instructions (see [Appendix A](#)), which informed them that they were going to be asked to choose a hedge fund from a large selection of potential investments and that these products are often complex and are generally purchased with the help of an expert in the area. They were also told that they would be given \$10, and that some of this amount could be used to bid for expert advice to help with the decision task. On the computer screen that elicited their bids, participants were presented with the following instructions, which were designed to elicit their maximum WTP.

The choice that you are going to make on the next page can be a difficult one if you do not have experience with hedge funds. Moreover, you will only have 5 min to make your decision. To help you, we are offering all participants an opportunity to bid on expert advice that will simplify the decision. Whether or not you receive expert advice depends on how much you bid relative to other participants in the study. Therefore, it is in your best interest to bid the maximum amount that you are willing to pay to receive this advice.

In fact, everyone who placed a bid greater than zero did receive the expert advice. Participants were also told that they would have 5 min to make a decision and that if they failed to choose a fund within that time frame, they would be subject to a penalty that would be subtracted from the \$10. In addition, they were informed that making a poor choice would result in a penalty that would also be subtracted from the \$10. Although the instructions encouraged everyone to bid for expert advice, it is important to note that we were not interested in the absolute amount of the bid, only the differences between conditions.

### Design

This experiment employed a 2 (mode of processing prime: rational vs. experiential) by 2 (decision-specific knowledge: high vs. low) between subjects full factorial design. Decision-specific knowledge was manipulated as follows. Those participants who were assigned to the *high decision-specific knowledge* condition were told that the first two choices they made were “practice” decisions (see instructions [Appendix B](#)). After each of the practice decisions, they were given feedback and then the opportunity to make another choice from the same set of options. They were also informed that the third time they made this decision, it would be consequential and would affect the amount of money that they would be paid after the study was complete. They were then provided with a list of 30 hedge funds, including information on the risk, return, and fees charged for each fund (see [Appendix C](#)). They were reminded that their goal was to choose a fund with a superior return for the amount of risk taken and that they had 5 min to make their decision. Assuming they made a choice within the 5 min time limit (which all participants did) they were provided with feedback on the choice that they made. Of the funds available, three were dominant choices (i.e., they provided superior returns for less risk at a lower fee), three were moderately good choices (i.e., they provided good returns for a reasonable amount of risk at a lower fee) and the remaining 24 were poor choices (i.e., they provided poor returns for the amount of risk taken and/or they charged a higher fee). Participants were told which of these three categories their

choice fell into. When they made a moderate or poor choice, they were told that there were better options available. When they chose a dominant product, they were told that they had made an excellent choice and no better funds were available. After the two practice trials participants in the *high decision-specific knowledge* condition were directed to the choice task instructions (see [Appendix A](#)), which explained that the next time they completed the task they would be provided with an opportunity to bid for expert advice to assist them in making a choice. Those participants who were randomly assigned to the *low decision-specific knowledge* condition began the study with the same choice task instructions as those in the *high* condition, but were not afforded the same two practice trials. From the choice task instructions forward, the study proceeded in the same way for both of the decision-specific knowledge conditions.

Mode of processing was manipulated with a priming procedure that was very similar to what was used in Experiment 1. In the *rational* condition, participants were presented with the following open-ended question immediately after they were given the task instructions and immediately before they were asked to bid for the expert advice. Their response was to be typed into a text box that followed just below the question:

We would like to know a little more about how you plan to make financial decisions in the future. Specifically, we want to know when you are planning a financial decision for the future, what things should you do in order to make sure that your choice is the correct one?”

In the *experiential* condition, participants were presented with the following open-ended question immediately after they were given the task instructions and immediately before they were asked to bid for the expert advice. Their response was to be typed into a text box that followed just below the question:

We would like to know a little more about how you have made financial decisions in the past. Specifically, we want to know when you made a financial decision in the past, what things led you to believe that your choice was the correct one?”

After the priming procedure all participants proceeded to the bid elicitation screen.

Participants were told that they could bid up to the \$10 that they were being paid to participate in exchange for expert advice, before making their selection. They were also told that the bids were to be made in increments of 25 cents and that if they did not wish to pay for expert advice they could enter a bid of zero. Those who did not bid for expert advice were provided with

the list of 30 hedge funds (see Appendix C), including information on the risk, return, and fees charged for each fund. Instructions on the screen reminded participants that their goal was to choose a fund with a superior return for the amount of risk taken and that they had 5 min to make their decision.

For those participants who did bid for expert advice, they were presented with the same list of funds; however, the three funds that provided superior returns for the amount of risk taken (i.e., those recommended by the expert) were displayed separately at the top of the page. Whether or not they bid for expert advice, after they chose a fund they were directed to the post-experiment survey. Participants were asked to complete the Rational-Experiential Inventory (REI; Epstein et al., 1996), which measures individual differences in the two modes of processing and is important as a check on our manipulation (see below). The items of the scale were anchored at 1 (Strongly Disagree) and 7 (Strongly Agree). Two of the 10 items in the REI scale required reverse coding. In addition, the survey measured participants level of involvement with three items ( $\alpha = .814$ ) that asked participants to indicate on a scale from 1 (not at all) to 7 (very), how *interesting*, *relevant*, and *important* they found the study to be. We also recorded age, gender, and responses to an open ended question that asked them to articulate what they believed the purpose of the study was. The final screen told them what their payment would be and if they were penalized (i.e., for taking too long or making a bad choice) the reason for the penalty was explained to them.

While participants were making a fund choice, a counter at the bottom of the screen displayed the time remaining descending from 5 to 0 min (in both minutes and seconds). If participants did not make a choice within the 5 min allotted to them, the screen with the list of funds was replaced with a screen that informed the participant that they took too long and would be penalized \$2. All of the participants made their decision within the 5 min allowed and, therefore, none were penalized based on their task completion times.

## Results

### Manipulation check

In this study, participants completed the Rational-Experiential Inventory (REI; Epstein et al., 1996). Our intention was to replicate the manipulation check of the pretest reported above, and to improve upon it by using the ten-item REI scale ( $\alpha = .743$ ) rather than the single item used in the pretest. Consistent with the pretest, we found that our priming manipulation had a strong effect on participants' decision making style such that those given the experiential prime were significantly more experiential in their information processing ( $M = 5.433$ ,  $SD = .686$ ;  $F_{(94)} = 10.456$ ,  $p = .002$ ) than

those given the rational prime ( $M = 4.960$ ,  $SD = .758$ ). Our manipulation of decision-specific knowledge did not affect this measure ( $F_{(94)} = .985$ ,  $p = .171$ ) nor did the interaction between the type of prime and decision-specific knowledge ( $F_{(94)} = 1.073$ ,  $p = .303$ ). In addition, we found no differences in participants' level of involvement between conditions: the effects of mode of processing ( $F_{(94)} = 1.275$ ,  $p = .262$ ), decision-specific knowledge ( $F_{(94)} = .126$ ,  $p = .723$ ), and the interaction ( $F_{(94)} = 1.456$ ,  $p = .231$ ) were all insignificant.

### Bidding results

The bidding results by experimental condition are illustrated in Fig. 1 and the descriptive statistics are reported in Table 2. Analysis of variance (ANOVA) was used to examine the differences in participants' bids for expert advice between conditions. We found support for  $H_1$  as the mode of information processing had a significant effect on participants' willingness to pay for advice ( $F_{(94)} = 4.173$ ,  $p = .044$ ,  $\eta^2 = .044$ ) and for  $H_2$  as decision-specific knowledge also had a significant effect on WTP ( $F_{(94)} = 36.200$ ,  $p < .001$ ,  $\eta^2 = .285$ ). However, these main effects were conditional upon the significant interaction between decision-specific knowledge and mode of information processing ( $F_{(94)} = 4.995$ ,  $p = .028$ ,  $\eta^2 = .052$ ), which provided support for  $H_3$ . Follow-up tests indicated that when decision-specific knowledge was high there was no difference between the experiential and the rational conditions ( $F_{(47)} = .027$ ,  $p = .871$ ,  $\eta^2 = .001$ ); all of the other simple effects were significant at conventional levels (all  $p$ -values  $< 0.05$ ).

In addition to looking at the differences in the amount bid by condition, we also examined differences between conditions in the proportion of people who chose not to bid for expert advice (see Table 2, % zero bid). The dependent variable was coded as 0 when the bid was zero dollars and as 1 when the bid was greater

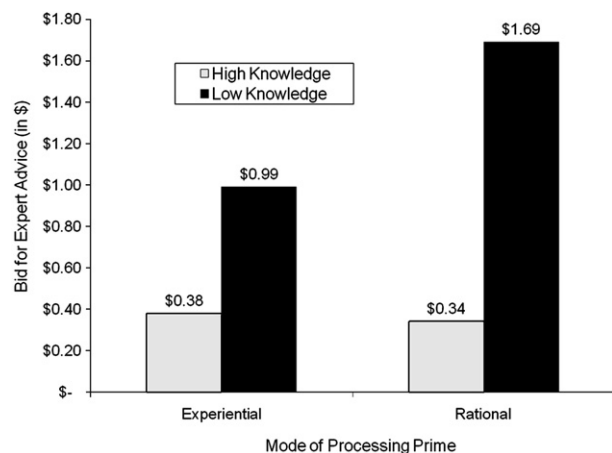


Fig. 1. Experiment 2: Willingness to pay for advice by mode of processing and level of decision-specific knowledge.

Table 2  
Experiment 2: Bids for advice—descriptive statistics by condition

Experimental condition	<i>n</i>	Mean bid (\$)	Median bid (\$)	<i>SD</i> (\$)	Min (\$)	Max (\$)	% zero bids <sup>a</sup>
Overall	95	0.84	0.75	0.95	0	5.25	34
High knowledge-rational	24	0.34	0	0.54	0	2.00	58
High knowledge-experiential	24	0.38	0	0.77	0	3.50	63
Low knowledge-rational	23	1.69	1.50	1.02	0.50	5.25	0
Low knowledge-experiential	24	0.99	1.00	0.78	0	3.00	13

<sup>a</sup> Proportion of participations that did not bid for advice (i.e., placed a bid of \$0).

than zero dollars. Using a logistic regression model, we find that mode of processing did not affect the probability that a bid would be placed ( $\beta = .278$ ,  $Wald = 1.074$ ,  $p = .300$ ), as 70% of rationally primed participants and 63% of experientially primed participants bid for advice. However, decision-specific knowledge had a substantial impact on the probability that a bid would be placed ( $\beta = -1.578$ ,  $Wald = 21.955$ ,  $p < .001$ ), as 94% of participants in the low decision-specific knowledge condition chose to place a bid versus 40% in the high condition. The interaction between mode of information processing and decision-specific knowledge had no effect on the probability of a bid being placed ( $\beta = -.078$ ,  $Wald = .130$ ,  $p = .718$ ).

### Discussion

Experiment 2 provided support for our hypotheses when participants made consequential WTP for advice decisions with real money on the line. We found that mode of processing affected WTP for advice, such that decision makers processing information rationally were willing to pay more than those processing information experientially. However, this effect was moderated by decision-specific knowledge—i.e., there was a significant difference between the rational and experiential processing conditions when decision-specific knowledge was low, but not when decision-specific knowledge was high. This finding is consistent with our prediction ( $H_3$ ) that the difference in WTP between rational and experiential processing would decrease as decision-specific knowledge increased. The fact that there was no mode of processing effect in the high knowledge condition, likely reflects the nature of the task. Specifically, it seems that after two practice trials participants saw little value in external advice regardless of how they were processing the information. It may be that when a decision is sufficiently complex, or penalties for mistakes are particularly high, even knowledgeable people will be willing to pay a substantial amount for advice and in those situations a difference may exist between rational and experiential processing. This is an interesting question for future research that aims to generalize the current findings to other types of decisions and contexts.

Nevertheless, our data support the stated hypotheses and the differences in WTP are substantial. Collapsed

across mode of processing, participants in the low decision-specific knowledge condition were willing to pay 272% more than those in the high condition. Along the same lines, in the low knowledge condition, participants engaged in rational information processing were willing to pay 71% more than those processing information experientially (as compared to the high knowledge condition where the difference was insignificant).

It is also important to note that our WTP hypotheses are *not* dichotomous willingness-to-bid hypotheses. The differences we find in WTP between the rational and experiential modes of processing cannot be accounted for by differences in the tendency to bid for advice. We do not find a difference in the tendency to bid between the modes of processing, instead we find a difference in the mean valuation of (i.e., WTP) advice—i.e., it is the amount that people are bidding (between \$0 and \$10) and not whether or not they place a bid that is driving the WTP results. Moreover, whether or not people are willing-to-bid, and how much (or little) people are willing-to-pay, is going to depend on the nature of the decision being made. For example, an extremely complex decision with heavy penalties for mistakes is likely to generate bids for advice from all participants. In addition, such a task is likely to generate bids that represent a substantially higher percentage of available funds. In contrast, a simple choice with no penalty for mistakes is likely to generate bids for advice from fewer people and those bids are likely to be smaller. However, our hypotheses do not predict tendency to bid or the absolute size of the payment. Instead, we hypothesize that, in general, decision makers processing information experientially are willing to pay less for advice than those engaged in rational processing and that this effect is moderated by decision-specific knowledge. Our results provide strong support for these predictions.

### General discussion

This research demonstrates that the two modes of processing can be successfully induced. The priming procedure we used allowed us to systematically test the impact that mode of processing had on WTP for advice. Our results indicate that rational and experiential processing can have significantly different effects on conse-



quential decisions. Specifically, we find that WTP depends not only on the information available to a decision maker, but also whether the decision maker is engaged in rational or experiential processing. In this way, our results open the door for similar tests of the effects that processing mode might have on other types of decisions and in other contexts.

Although we have talked about the rational and experiential modes of processing as being distinct, we are not suggesting that the priming procedure causes participants to engage exclusively in just one mode. Consistent with CEST, we expect that the experiential mode of processing is operating for those who have been primed to be rational and vice versa. The effect of the prime is not to turn one system off, instead, we suspect that it simply elevates the contribution that the primed system is making to the WTP decision. This effect was confirmed in both the pretest and Experiment 2. However, the mechanism by which the prime is affecting participants' mode of processing remains an open question. Schul and Mayo (2003) speculated that the personal detachment of a future-orientation increases one's use of the rational mode. Similarly, the past-orientation prime may increase the focus on one's self and, thus, increase reliance on the experiential system. It is also possible that the past-orientation is more affect-laden than the future-orientation, and it is the salience of emotion that primes the experiential system. Alternatively, it may be that the past is primarily the domain of the experiential system that learns through experience (Epstein, 1994, 2003), while the future (with which we do not yet have experience) is for the most part in the realm of the rational system. In any case, the mechanism underlying the prime is a question worth pursuing in future research.

#### *Limitations and directions for future research*

In the present research, we held the quality of expertise constant. Previous research has demonstrated that WTP for advice increases as the perceived expertise of the advisor increases (Yaniv & Kleinberger, 2000). We argue that in many situations, an individual's own decision-specific knowledge is likely to be a more important factor in WTP for advice, because the quality of given advice is often not as easy to ascertain (e.g., not known until later, ambiguous or not as cognitively accessible) as is one's own decision-specific knowledge. Nevertheless, the effect of WTP for advice on the interaction between an individual's decision-specific knowledge and the expertise of the advisor may be worthy of additional investigation.

Similarly, future research could look in more detail at the degree or level of decision-specific knowledge. That is, how knowledgeable does one have to be before WTP changes and the mode of processing effect is reduced or eliminated. In our data, those participants

in the high knowledge condition demonstrated no differences in WTP between the two modes of processing. This reflects the fact that, in general, participants saw little value in paying for advice after they had practiced the task two times. Intuitively, however, it seems reasonable to assume that there are some tasks that require much higher levels of knowledge before a decision maker is willing to "go it alone." For example, even the most experienced CEO will likely find some value in the advice that an investment bank can provide during a merger or acquisition. In fact, individuals and organizations regularly return to the same expert for advice on some topics—e.g., people who pay for tax advice year after year or an ongoing relationship between a corporation and outside legal counsel. In such cases, the advisee may not be willing or able to achieve the level of knowledge necessary to eliminate the role of the advisor.

At the same time, it is interesting to note that many experts (e.g., doctors, real estate agents, stock brokers, travel agents and insurance companies) have seen a decrease in the value placed on their advice, which has been attributed to an increase in relevant knowledge among their clients (Duca, 2001; McKillen, 2002; Solheim, 2004; Thomas, 2000). Our prediction is that the difference in WTP between the two modes of processing will be greater when decision-specific knowledge is low than when it is high. In the extremes this may not hold and, in some situations, there may be differences between rational and experiential processing when decision-specific knowledge is high. The effects of different levels of knowledge and the generalizability of the current findings are important avenues for future research. Similarly, although the second study confirmed our hypotheses in a consequential WTP decision, further examination of the extent to which these results can be generalized to other contexts, and to decisions with more severe consequences, is warranted.

#### *Implications*

This research has implications for both expert advisors and advice recipients. For expert advisors, if their goal is to maximize the value that recipients place on advice, then rational processing should be encouraged for the advice recipients. For example, stockbrokers could have potential clients complete an investment survey asking the client how decisions should be made in the future for their portfolio, thus priming the rational mode and increasing the perceived value of the broker's advice. In contrast, for advice recipients it may be useful to understand that in addition to the information that they are processing, the mode in which they are processing that information can affect the decision that they make. For example, more affect-laden decisions may increase experiential processing and cause decision makers to undervalue the advice of expert advisors. In

cases where such advice could greatly aid in making an optimal decision, experiential processing could lead to lower quality decisions and less desirable outcomes.

**Appendix A**

*Bidding. task instructions*

Please take your time and read these instructions carefully.

On the following screens you will be asked to choose a hedge fund from a large selection of potential investments. Hedge funds are an investment product intended for high net worth individuals. They are often complex in the way that they are designed, and are generally purchased with the help of an expert in the area.

For this task you will be given \$10. If you are not able to complete the task of selecting a hedge fund within the 5-min time limit you will be penalized. If you make a poor choice—that is, if you choose a hedge fund that does not provide a superior trade-off between risk and return for a minimal fee—you will also be penalized. In total these penalties could cost you the entire \$10. Immediately after you have completed the study, you will be paid the \$10 minus whatever penalties you have incurred. It is possible to lose the entire \$10; however, you will not be penalized beyond that amount.

Because there are a large number of hedge funds to choose from with different performance records and different fee structures, you can pay for an expert’s recommendation. However, expert advice will not be available to everyone. You will have to bid on the expert’s advice and only some of the study’s participants will receive an expert recommendation. You can bid (pay) any portion of the \$10 for the expert’s advice. The amount you bid will be subtracted from your payout at the end of the study.

If you have carefully read and understand the instructions, please click here to continue.

**Appendix B**

*High. Decision-Specific Knowledge Condition Practice Task Instructions*

Please take your time and read these instructions carefully

Hedge funds are an investment product intended for high net worth individuals. On the following screens you will be asked to choose a hedge fund from a large selection of potential investments. You will be given two opportunities to practice making a fund choice, and each time you will be given feedback on the quality of the decision that you have made. You will then use what you have learned to make another hedge fund choice

from the same set of investment options. However, the third time you make a selection the quality of your decision will affect the amount of money that you receive for participating today.

If you have carefully read and understand the instructions, please click here to continue.

**Appendix C**

*List. of Hedge Funds*

Participants were asked to make a choice from the following list of funds. They were told that for Return higher numbers are better and for Risk and Fees lower numbers are better. A fund was selected by clicking on the fund number

Fund	Risk	Return	Flat fee	Performance fee
1	4	4	2% of assets	25% of returns
2	8	9	2% of assets	25% of returns
3	5	5	2% of assets	22% of returns
4	9	9	2% of assets	22% of returns
5	4	4	2% of assets	25% of returns
6	5	6	2% of assets	20% of returns
7	7	7	2% of assets	22% of returns
8	5	7	2% of assets	20% of returns
9	9	10	2% of assets	25% of returns
10	4	4	2% of assets	22% of returns
11	6	6	2% of assets	22% of returns
12	8	8	2% of assets	22% of returns
13	6	6	2% of assets	25% of returns
14	6	7	2% of assets	20% of returns
15	6	6	2% of assets	20% of returns
16	7	8	2% of assets	25% of returns
17	7	9	2% of assets	20% of returns
18	9	10	2% of assets	25% of returns
19	7	8	2% of assets	25% of returns
20	5	5	2% of assets	22% of returns
21	8	8	2% of assets	22% of returns
22	8	9	2% of assets	25% of returns
23	4	4	2% of assets	25% of returns
24	6	6	2% of assets	22% of returns
25	8	10	2% of assets	20% of returns
26	7	7	2% of assets	22% of returns
27	9	10	2% of assets	25% of returns
28	4	4	2% of assets	22% of returns
29	9	10	2% of assets	25% of returns
30	5	6	2% of assets	20% of returns

**References**

Denes-Raj, V., & Epstein, S. (1994). Conflict between experiential and rational processing: When people behave against their better

- judgment. *Journal of Personality and Social Psychology*, 66, 819–829.
- Donovan, S., & Epstein, S. (1997). The difficulty of the Linda conjunction problem can be attributed to its simultaneous concrete and unnatural representation, and not to conversational implicature. *Journal of Experimental Social Psychology*, 22(1), 1–20.
- Duca, J. V. (2001). The democratization of America's capital markets. *Economic and Financial Review*, 2, 10–20.
- Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology*, 87, 327–339.
- Epstein, S. (1991). Cognitive-experiential self-theory: An integrative theory of personality. In R. Curtis (Ed.), *The relational self: Convergences in psychoanalysis and social psychology* (pp. 111–137). New York: Guilford Press.
- Epstein, S., Lipson, A., Holstein, C., & Huh, E. (1992). Irrational reactions to negative outcomes: Evidence from two conceptual systems. *Journal of Personality and Social Psychology*, 62, 328–339.
- Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American Psychologist*, 49, 709–724.
- Epstein, S. (2003). Cognitive-experiential self-theory of personality. In T. Millon & M. J. Lerner (Eds.), *Comprehensive handbook of psychology. Volume 5: Personality and social psychology* (pp. 159–184). Hoboken, NJ: Wiley.
- Epstein, S., Pacini, R., Denes-Raj, V., & Heier, H. (1996). Individual differences in intuitive-experiential and analytical-rational thinking styles. *Journal of Personality and Social Psychology*, 71, 390–405.
- Epstein, S. (1997). This I have learned from over 40 years of personality research. *Journal of Personality*, 65, 3–32.
- Gilbert, D. T. (1989a). Thinking lightly about others: Automatic components of the social inference process. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 189–211). Englewood Cliffs, NJ: Prentice-Hall.
- Gilbert, D. T. (1989b). Inferential correction. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive thought* (pp. 167–184). New York, NY: Cambridge University Press.
- Harvey, N., & Fischer, I. (1997). Taking advice: Accepting help, improving judgment and sharing responsibility. *Organizational Behavior and Human Decision Processes*, 70, 117–133.
- Harvey, N., Harries, C., & Fischer, I. (2000). Using advice and assessing its quality. *Organizational Behavior and Human Decision Processes*, 81, 252–273.
- Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioral economics. *The American Economic Review*, 93, 1449–1475.
- Kirkpatrick, L. A., & Epstein, S. (1992). Cognitive-experiential self-theory and subjective probability: Further evidence for two conceptual systems. *Journal of Personality and Social Psychology*, 63, 534–544.
- Lieberman, M. D. (2000). Intuition: A social cognitive neuroscience approach. *Psychological Bulletin*, 126, 109–137.
- Lieberman, M. D., Gaunt, R., Gilbert, D. T., & Trope, Y. (2002). Reflexion and reflection: A social cognitive neuroscience approach to attributional inference. *Advances in Experimental Social Psychology*, 34, 200–250.
- McKillen, D. (2002). Four-nation survey confirms growing acceptance of online health information. *Medical Marketing and Media*, 37, 10–12.
- Nisbett, R. E., Peng, K., Choi, I., & Norezayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108, 291–310.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communications and persuasion: Central and peripheral routes to attitude change*. New York: Springer/Verlag.
- Schul, Y., & Mayo, R. (2003). Searching for certainty in an uncertain world: The difficulty of giving up the experiential for the rational mode of thinking. *Journal of Behavioral Decision Making*, 16, 93–106.
- Sloman, S. A. (1996). The empirical case for two systems of reasoning. *Psychological Bulletin*, 119, 3–22.
- Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology: Conceptual integration and links to underlying memory system. *Personality and Social Psychology Review*, 4, 108–131.
- Sniezek, J. A., & Buckley, T. (1995). Cueing and cognitive conflict in judge-supervisor decision making. *Organizational Behavior & Human Decision Processes*, 62, 159–174.
- Solheim, M. K. (2004). Proven ways to skip the agent. *Kiplinger's Personal Finance*, 58, 91–92.
- Thomas, T. (2000). Internet insurance sales muscle assessed. *National Underwriter*, 104, 1–3.
- Wilson, T. D. (2002). *Strangers to ourselves: Discovering the adaptive unconscious*. Cambridge, MA: Harvard University Press.
- Yates, J. F., Price, P. C., Lee, J. W., & Ramirez, J. (1996). Good probabilistic forecasters: The “consumer’s” perspective. *International Journal of Forecasting*, 12, 41–56.
- Yaniv, I. (2004). Receiving other people's advice: Influence and benefit. *Organizational Behavior and Human Decision Processes*, 93, 1–13.
- Yaniv, I., & Kleinberger, E. (2000). Advice taking in decision making: Egocentric discounting and reputation formation. *Organizational Behavior and Human Decision Processes*, 83, 260–281.