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People have a lay notion of rationality—that is, the notion of using reason rather than feelings to guide decisions. Yet people differ in the degree to which they actually base their decisions on reason versus feelings. This individual difference variable is potentially general and important but is largely overlooked. The present research (1) introduces the construct of lay rationalism to capture this individual difference variable and distinguishes it from other individual difference variables; (2) develops a short, easy-to-implement scale to measure lay rationalism and demonstrates the validity and reliability of the scale; and (3) shows that lay rationalism, as measured by the scale, can predict a variety of consumer-relevant behaviors, including product preferences, savings decisions, and donation behaviors.

Keywords: decision making, reason, feelings, individual differences, lay rationalism

Lay Rationalism: Individual Differences in Using Reason Versus Feelings to Guide Decisions

People have a lay notion of rationality—the notion of using reason rather than feelings to guide decisions. Yet people differ considerably in their actual tendencies to base their decisions on reason versus feelings. Some people base their decisions largely on reason, such as facts, functions, and values (e.g., “I will buy this treadmill because it has a two-horsepower motor, has the incline feature, and is on sale today”), whereas others base their decisions largely on feelings (e.g., “I will buy this treadmill because I like the feeling of running on it”). This individual difference

variable seems widely applicable and potentially important. Nevertheless, to date, it has not been seriously studied. The present research aims to fill this gap by achieving the following: (1) introduce lay rationalism as an individual difference construct and explain how it differs from other potentially related individual difference variables; (2) introduce a short, easy-to-implement scale to measure the difference and demonstrate its validity and reliability; and (3) show that this individual difference variable, as measured by the brief scale, has the potential to predict important consumer-relevant behaviors.

INTRODUCING LAY RATIONALISM

Lay Rationalism as Relative Weighting Between Reason and Feelings

According to Merriam-Webster, “rational” means “based on facts and reason, and not on emotions or feelings” (www.merriam-webster.com/dictionary/rational). We refer to this lay notion of rationality—the notion of using reason rather than feelings to guide decisions—as “lay rationalism.” Lay rationalism is not identical to the notion of rationality in economics and decision theory. The latter involves internal consistency and formal rules such as transitivity and complementarity of probabilities (Bossert and Suzumura 2010; Kahneman 1994); it does not pit feelings

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against reason, and it treats feelings as part of a person's rational utility function.

Yet for ages, people ranging from philosophers to popular media producers have often viewed reason and feelings (e.g., emotion, passion) as antagonistic to each other. For example, Greek philosopher Epictetus considered emotion an obstacle to reason, noting that "passions ... make it impossible for us to even listen to reason" (in Oldfather 1978, p. 23). Renaissance scholar Erasmus commented that "Jupiter has bestowed far more passion than reason" (Erasmus [1515] 1971, p. 87). The novelist Kahlil Gibran (1923, p. 59) wrote, "Your soul is oftentimes a battlefield, upon which your reason and your judgment wage wars against your passion and your appetite." A 1943 Disney animated short titled "Reason and Emotion" portrayed the two factors as competing selves. Colloquially, laypeople often talk about their dilemmas in terms of following "the head" (reason) versus "the heart" (emotion).

The notion of lay rationalism captures the relative weight people place on reason versus feelings in decisions that involve trade-offs between the two factors. Many decisions, including consumer decisions, indeed involve such trade-offs: some choice alternatives appeal more to reason (e.g., entailing better objective specifications and better functionalities), and others appeal more to feelings (e.g., provoking excitement or attraction).

Prior research has investigated the effects of situational factors, especially the effect of response type, on the relative weight people place on reason versus on feelings. Specifically, people place more weight on reason than feelings when asked to choose between two options than when asked to indicate which option they like more or predict which option they would enjoy more (Amir and Ariely 2007; Chitturi, Raghunathan, and Mahajan 2007; Hsee et al. 2009; Hsee et al. 2003; Kramer, Maimaran, and Simonson 2012; Lerner and Tetlock 1999; Okada 2005; Shafir, Simonson, and Tversky 1993). For example, Chitturi, Raghunathan, and Mahajan (2007) presented research participants with two mobile phones—one of which had better functions and the other of which looked more attractive—and found that most participants favored the better-functioning model in choice and favored the better-looking one in liking. Similarly, Hsee et al. (2003) presented research participants with two chocolates—one of which was larger and had a cockroach shape and the other of which was smaller and had a heart shape—and found that most participants favored the larger chocolate in choice but favored the heart-shaped chocolate in prediction of enjoyment.

Lay Rationalism as an Individual Difference Variable

In addition to situational factors, we believe that considerable individual differences exist in lay rationalism. Studying individual difference variables and using them to predict behaviors and attitudes has long been a tradition in psychology and consumer research (Bearden, Hardesty, and Rose 2001; Bearden and Netemeyer 1999; Lynch et al. 2010; Nenkov, Inman, and Hulland 2008; Peters et al. 2009; Puligadda, Ross, and Grewal 2012; Richins and Dawson 1992; Rick, Cryder, and Loewenstein 2008; Schwartz et al. 2002; Sprott, Czellar, and Spangenberg 2009; Tangney, Baumeister, and Boone 2004; Weller et al. 2013; Zemack-Rugar, Corus, and Brinberg 2012; Zhang, Cao, and Grigoriou

2011). The current research joins this body of literature by studying lay rationalism as an individual difference variable and showing that this variable is able to predict important consumer-relevant behaviors.

We offer two clarifications. First, we do not assume that reason and feelings are mutually exclusive but instead assume that different people place different relative weights on these factors. The construct of lay rationalism is designed to capture such individual differences. Second, we do not assume that all decision situations involve trade-offs between reason and feelings but instead assume that many decision situations do. The current research focuses on these situations and examines how people with high versus low lay rationalism make decisions in these situations.

Lay Rationalism Versus Other Individual Difference Constructs

In this section, we explain conceptually how lay rationalism is related to but also distinct from other individual difference constructs in the existing literature. Subsequently, we show empirically that lay rationalism is indeed distinct from these constructs. The list of potentially relevant constructs is long and impossible to exhaust. Thus, in this article, we examine only those we believe are most relevant or most likely to be confused with lay rationalism. We discuss them in alphabetical order.

Affect intensity. Captured by items such as "My emotions tend to be more intense than those of most people," affect intensity measures the intensity with which a person experiences an emotion (Larsen and Diener 1987; Larsen, Diener, and Emmons 1986). Lay rationalism may be inversely related to this variable because reliance on feelings may imply affect intensity. However, the two variables are not identical; those with intense emotional responses do not necessarily use feelings rather than reason to guide decisions.

Buying impulsiveness. Exemplified by items such as "Sometimes I feel like buying things on the spur of the moment," buying impulsiveness indexes a person's tendency to make an impulsive purchase (Gerbing, Ahadi, and Patton 1987; Hoch and Loewenstein 1991; Rook and Fisher 1995). Lay rationalism may be inversely related to buying impulsiveness because those who engage in impulsive buying are likely to use feelings to guide their decisions. However, lay rationalism is about not only buying behavior but also reason versus feelings in general; even in the context of purchasing decisions, reliance on feelings pertains more to *what* to buy than to whether to buy impulsively.

Cognitive reflection. Assessed by items such as "If a bat and ball cost \$11 in total and the bat is \$10 more than the ball, how much does the ball cost?" cognitive reflection gauges a person's ability to suppress an intuitive and spontaneous ("System 1") wrong answer in favor of a reflective and deliberate ("System 2") correct answer (Frederick 2005). Lay rationalism may be related to cognitive reflection because both suggest a System 2 process. However, lay rationalism differs conceptually from cognitive reflection because placing greater weight on reason than on feelings does not necessarily involve suppressing intuitive or incorrect responses.

Delaying gratification. Assessed by items such as "When I am able to, I try to save a little money in case an emergency should arise," delaying gratification measures a per-

son's tendency to forgo strong immediate satisfaction for the sake of salient long-term rewards (Hoerger, Quirk, and Weed 2011; Mischel 1996; Mischel, Shoda, and Rodriguez 1989). Lay rationalism may suggest a high tendency to delay gratification, but the two constructs are not identical. Delaying gratification is about relative weighting between immediate pleasure and long-term pleasure, whereas lay rationalism is about relative weighting between reason and feelings (including pleasure).

Emotion-based decision making. Measured by items such as "I base my goals in life on inspiration rather than logic," emotion-based decision making indicates the extent to which people base their decisions on emotion (feelings) rather than on logic (reason) (Barchard 2001). This variable is conceptually similar to our notion of lay rationalism: both assess the relative weight that people put on reason versus feelings in decision making, but the two variables are not identical. For example, emotion-based decision making is more pertinent to decisions about life, whereas lay rationalism is more pertinent to decisions about consumer-relevant options; emotion-based decision making is more abstract about what constitutes reason, whereas lay rationalism is more concrete (e.g., financial cost-benefit analysis). Furthermore, the notion of emotion-based decision making has received little attention in the literature. The scale for measuring this variable—the Emotion-Based Decision-Making Scale (Barchard 2001)—is only one of 14 subscales designed to measure a different construct ("emotional and social intelligence"); it has not been rigorously validated and has rarely been used.

Faith in intuition. Represented by items such as "I trust my initial feelings about people," faith in intuition reflects a person's engagement and confidence in intuitive judgment (Briggs 1976; Epstein et al. 1996). Lay rationalism seems inversely related to this variable because both feelings and intuition seem to be the opposite of reason. However, feelings and intuition are not identical. Feelings are hedonic experiences, which are affective, whereas intuition can be purely a cognitive heuristic, which is nonaffective. Our notion of lay rationalism focuses on the distinction between reason and feelings, not between reason and intuition. The distinction between reason and intuition may also be important, but that distinction is beyond the scope of the current research.

Material value (materialism). Measured by items such as "I'd be happier if I could afford to buy more things," materialism assesses a person's tendency to view material possessions and acquisition as essential to their satisfaction (Belk 1985; Richins 2004; Richins and Dawson 1992). Lay rationalism is potentially related to this construct because the pursuit of pecuniary gains may serve as sound reasoning in decision making. However, lay rationalism is not about materialism per se but about relative weighting between reason and feelings in decision making.

Maximizing. Captured by items such as "No matter how satisfied I am with my job, it's only right for me to be on the lookout for better opportunities," maximizing reflects a person's tendency to search for the best option rather than settle for a "good-enough" option (Schwartz et al. 2002; Simon 1956). Maximizing seems to be related to lay rationalism because both imply meticulousness, but it differs from lay rationalism in that it does not necessarily rely on reason.

Need for cognition. Captured by items such as "I prefer to do something that challenges my thinking abilities rather than something that requires little thought," need for cognition reflects a person's tendency to engage in and enjoy thinking (Cacioppo and Petty 1982; Cohen, Stotland, and Wolfe 1955; Epstein et al. 1996). Lay rationalism is potentially related to this construct because the use of reason requires thinking; however, lay rationalism is not about thinking per se but about whether to use reason or feelings to guide decisions.

Numeracy. Measured by items such as "Imagine that we roll a fair, six-sided die 1,000 times. Out of 1,000 rolls, how many times do you think the die would come up as an even number?" numeracy assesses a person's ability to use numerical concepts and information in problem solving (Lipkus, Samsa, and Rimer 2001; Peters et al. 2009; Weller et al. 2013). Lay rationalism may be related to this construct because reliance on reason may require numeracy; however, it is not about a person's ability to use numbers in problem solving but rather about his or her tendency to use reason (or feelings) in decision making.

Self-control. Measured by items such as "I have a hard time breaking bad habits," the self-control variable reflects people's capacity to control themselves (Baumeister, Heatherton, and Tice 1994; Tangney, Baumeister, and Boone 2004). Although lay rationalism may suggest high self-control, the two constructs are different. Self-control involves a person's ability to override or interrupt undesired behaviors, whereas lay rationalism involves the tendency to use reason (vs. feelings).

Spendthrift versus tightwad. The spendthrift versus tightwad variable reflects individual differences in the amount of pain a person experiences when spending money (Prelec and Loewenstein 1998; Rick, Cryder, and Loewenstein 2008). Whereas this variable focuses on one specific feeling (i.e., the pain) induced by the act or anticipation of paying, lay rationalism is about a person's general hedonic feelings for or against an option.

Social desirability. We hope and believe that lay rationalism is not a matter of social desirability (Crowne and Marlowe 1960). Yet because social desirability often biases participants' responses on surveys, we included it in our discriminant analyses.

Value consciousness. Assessed by items such as "When grocery shopping, I compare the prices of different brands to be sure I get the best value for the money," value consciousness indicates a person's concern for paying low prices (Lichtenstein, Netemeyer, and Burton 1990). Whereas lay rationalistic people may consider paying low prices to be a good reason in shopping decisions, lay rationalism is not specifically about paying low prices but about using reason (vs. feelings) in general.

MEASURING LAY RATIONALISM

In the previous section, we conceptually introduce the construct of lay rationalism. In this section, we introduce a scale that operationally measures the variable.

Item Generation and Refinement

As an initial step, each author informally interviewed his or her colleagues and assistants, describing to them the concept of lay rationalism (i.e., making decisions on the basis

of reason rather than feelings) and asking them to come up with statements for and against lay rationalism. In addition, we recruited a group of respondents from an online data collection service ($N = 47$; 59.57% female, mean age = 32.81 years) and examined their perception of the relationship between the notion of rationality and the relative reliance on reason versus feelings in decision making. Specifically, we asked them whether the more rational decision maker tended to base his or her decision on reason or on feelings. As we expected, the majority (95.7%) said that the more rational person tended to base his or her decision on reason ($\chi^2(1) = 39.34, p < .001$ [compared with 50%]). Next, we asked the respondents to list some examples of what they considered “reasons” and “feelings.” Examples of reasons included “facts,” “cost,” “features,” and “efficiency,” and examples of feelings included “happiness,” “satisfaction,” “contentment,” and “fear.”

Using these inputs, each author generated seven to ten items that he or she believed represented the notion of lay rationalism. Examples included “When making decisions, I focus on objective facts rather than on subjective feelings” and “I don’t trust the notion of happiness, unless there is a scientific device that can objectively measure it.” This step resulted in 36 items, 15 of which were reverse coded. We then eliminated redundant items, retaining 21 items. To check the face validity of these 21 items, we recruited four graduate students in the field, explained to them the concept of lay rationalism, gave them some examples, and asked them to rate each statement as being clearly representative, somewhat representative, or not representative of lay rationalism. We then kept items that were evaluated as clearly representative by three of the four judges and as either clearly representative or somewhat representative by the fourth judge. This step filtered our list down to 13 items.

Factor Structure

To examine the structure of these items, we recruited a group of respondents (described as Sample 1 in Table 1) and asked them to rate each of these statements (order ran-

domized) on a six-point Likert scale (1 = “strongly disagree,” and 6 = “strongly agree”). To ensure a high internal consistency of the scale, we calculated the corrected item-to-total correlation for each item and deleted one item that had a corrected item-to-total correlation of less than .40. To prepare for factor analyses, we performed the Kaiser–Meyer–Olkin test of sampling adequacy and the Bartlett’s test of sphericity on the remaining 12 items. The Kaiser–Meyer–Olkin measure of sampling adequacy was within an acceptable range (total matrix sampling adequacy = .90), and Bartlett’s test of sphericity was significant ($p < .001$), suggesting that our data were appropriate for factor analyses. We then conducted a principal axis factor analysis with Varimax rotation on the 12 items. However, both the scree plot and the parallel analysis suggested a two-factor structure. A further oblique rotation generated a similar result. One factor consisted of all six reverse-coded items, suggesting a systematic bias owing to the presence of those reverse-coded items (Herche and Engelland 1996; Parry 2002). Therefore, we excluded these items, which resulted in six positively coded items remaining. To reduce the acquiescent response bias (Ray 1983), we reverse-coded two of these six remaining items and asked another group of respondents (described as Sample 2 in Table 1) to rate the six items on the six-point Likert scale. We then conducted a principal axis factor analysis again. Both the scree plot and the parallel analyses suggested a one-factor structure. This factor accounted for more than 50% of the total variance (52.01%). The loadings of all six items on this factor were .60 or higher (absolute value). Table 2 lists these six items.

After the exploratory factor analysis, we asked another group of respondents (described as Sample 3 in Table 1) to rate the six items on the six-point Likert scale, and we then conducted a confirmatory factor analysis (CFA) on the data. The CFA, using LISREL (Jöreskog and Sörbom 1993), showed that the single-factor model fit the data well (comparative fit index = .99, normed fit index = .98, nonnormed fit index = .98, root mean square error of approximation =

Table 1
SAMPLES USED IN THIS RESEARCH AND RELIABILITY RESULTS OF THE LR SCALE

Sample	N	% Female	Mean Age	Mean Education ^a	Mean Annual Income (in \$1,000s)	Cronbach’s Alpha
Sample 1	262	43.51	34.32	3.49	31.58	.83
Sample 2 ^b	300/149	36.00/38.26	30.09/30.42	3.43/3.52	32.44/32.91	.80/.86
Sample 3	257	45.53	33.56	3.53	36.39	.87
Sample 4	50	42.00	31.64	3.50	32.93	.85
Sample 5	165	57.58	33.10	3.35	22.26	.81
Sample 6	200	43.50	30.98	3.45	34.26	.83
Sample 7	185	52.43	33.65	3.50	37.36	.80
Sample 8	147	50.34	35.60	3.46	34.76	.86
Sample 9	195	48.21	30.63	3.54	36.74	.80
Sample 10	201	48.76	34.00	3.51	31.74	.80
Sample 11	92	42.39	37.20	3.59	35.50	.87
Sample 12	250	54.40	34.87	3.52	33.99	.81
Sample 13	277	50.90	32.47	3.47	31.59	.80
Sample 14	273	56.04	35.57	3.52	38.27	.85

^a1 = “less than high school graduate,” 2 = “high school graduate or equivalent (GED),” 3 = “some college, but no degree,” 4 = “college graduate,” and 5 = “postgraduate.”

^bThis sample is used to determine the test–retest reliability of the LR Scale; the number before the slash is from the first test administration, and the number after the slash is from the second test administration.

Notes: All samples were recruited from online data collection services in the United States.

.07). All factor-loading estimates were significant ($ps < .05$). Table 2 reports the resulting item loadings.

In summary, both the exploratory and confirmatory factor analyses indicated that the six items reflected one underlying factor. Thus, we consider these six items, along with the six-point agreement scale for each statement, to be the Lay Rationalism Scale (LR Scale; see Table 2) and refer to the sum of a person's ratings on these items, with the ratings on the two reverse-coded items reversed, as his or her lay rationalism score (LR score).

Face Validity

To test whether our notion of lay rationalism is indeed what laypeople consider rational, we paraphrased each of the six items in the LR Scale in terms of two people, one who is more lay rationalistic and one who is less so. For example, we paraphrased the first item as follows: "When making decisions, Person X likes to analyze financial costs and benefits and resists the influence of his/her feelings, whereas Person Y likes to follow his/her feelings and does not analyze financial costs and benefits." (We counterbalanced the labels "X" and "Y" across items.) We then recruited a group of respondents (described as Sample 4 in Table 1), presented them with the six paraphrased items, and, for each item, asked them to indicate whether they thought Person X or Person Y was more rational. We then administered the LR Scale and collected demographic information. For all six paraphrased items, the majority of the respondents considered the more lay rationalistic person (in our terminology) to be more rational (all percentages $\geq 80\%$; all $\chi^2s \geq 18.00$, $ps < .001$ [compared with 50%]). In other words, the notion of lay rationalism that the LR Scale measures matches the notion of rationality as laypeople understand it.

Scale Reliability

To assess the internal consistency of the LR Scale, we estimated Cronbach's alphas using the data collected for the exploratory factor analysis (Sample 2), the data collected for the CFA (Sample 3), and the data collected for the face validity test (Sample 4). Each data set yielded a Cronbach's alpha of .80 or greater, suggesting high internal consistency. To assess the test-retest reliability of the scale, we administered the LR Scale twice to Sample 2, with a one-week interval between the two administrations. The test exhibited a between-administration correlation of .79 ($p < .001$), indicating high test-retest reliability.

Discriminant Validity

As we have discussed conceptually, lay rationalism is distinct from existing individual difference constructs (e.g., faith in intuition, material value, need for cognition, self-control). To empirically show the difference between lay rationalism and these other variables, we recruited multiple groups of respondents (described as Samples 5–10 in Table 1) and administered the LR Scale as well as the scales designed to measure the other individual difference variables. These scales included (in alphabetical order) the Affect Intensity Measure (Larsen and Diener 1987), Buying Impulsiveness (Rook and Fisher 1995), the Cognitive Reflection Test (Frederick 2005), the Delaying Gratification Inventory (Hoerger, Quirk, and Weed 2011),

Table 2
LR SCALE ITEMS AND FACTOR LOADINGS

Items	Factor Loading
When making decisions, I like to analyze financial costs and benefits and resist the influence of my feelings.	.78
When choosing between two options, one of which makes me feel better and the other better serves the goal I want to achieve, I choose the one that makes me feel better. (R)	-.68
When making decisions, I think about what I want to achieve rather than how I feel.	.82
When choosing between two options, one of which is financially superior and the other "feels" better to me, I choose the one that is financially better.	.74
When choosing between products, I rely on my gut feelings rather than on product specifications (numbers and objective descriptions). (R)	-.60
When making decisions, I focus on objective facts rather than subjective feelings.	.76

Notes: (R) denotes a reverse-coded item.

the Emotion-Based Decision-Making Scale (Barchard 2001), the Faith in Intuition Scale (a subscale of the Rational-Experiential Inventory; Epstein et al. 1996), the Material Value Scale (Richins 2004), the Maximization Scale (Schwartz et al. 2002), the Need for Cognition Scale (a subscale of the Rational-Experiential Inventory Scales; Epstein et al. 1996), the Numeracy (Rasch-based) Scale (Weller et al. 2013), the Self-Control Scale (brief version) (Tangney, Baumeister, and Boone 2004), the Social Desirability (Marlowe-Crowne) Scale (Crowne and Marlowe 1960), the Tightwad-Spendthrift Scale (Rick, Cryder, and Loewenstein 2008), and the Value Consciousness Scale (Lichtenstein, Netemeyer, and Burton 1990).

Table 3 summarizes the results of these analyses. As the table shows, with many of these other variables, LR scores were either not correlated or only weakly correlated ($|r| < .2$). Next, we briefly discuss (in alphabetical order) the variables with which LR scores shared a correlation coefficient of more than .2 (absolute value).

- The LR scores shared a negative correlation with buying impulsiveness scores, suggesting that people who are more lay rationalistic are less likely to engage in impulsive buying.
- The LR scores shared a positive correlation with delaying gratification scores, suggesting that people who are more lay rationalistic are more willing to sacrifice present pleasure for future gains.
- The LR scores shared a negative correlation with the emotion-based decision-making scores, indicating that people who are more lay rationalistic are less likely to base decisions on emotion.
- The LR scores shared a negative correlation with tightwad-spendthrift scores, indicating that people who are more lay rationalistic are more likely to experience the pain of paying.
- The LR scores shared a positive correlation with value consciousness scores, suggesting that people who are more lay rationalistic care more about paying low prices.

These analyses yielded several messages. First, LR scores were correlated with some of the existing individual difference variables, suggesting that lay rationalism is not an isolated concept but shares similarities with these

Table 3
CORRELATIONS BETWEEN LR SCORES AND SCORES ON OTHER SCALES AND RELIABILITY ESTIMATES

<i>Other Scales</i>	<i>Sample Used</i>	<i>Cronbach's Alpha</i>	<i>Correlation with LR Score</i>
Affect Intensity Measure	Sample 5	.74	-.17*
Buying Impulsiveness Scale	Sample 6	.94	-.38***
Cognitive Reflection Test	Sample 6	.61	.17*
Delaying Gratification Inventory	Sample 7	.91	.39***
Emotion-Based Decision-Making Scale	Sample 8	.87	-.62***
Faith in Intuition Short Form	Sample 9	.88	-.17*
Material Values Scale Short Form	Sample 9	.88	-.17*
Maximization Scale	Sample 5	.64	.01
Need for Cognition Short Form	Sample 9	.82	.18*
Numeracy (Rasch-Based) Scale	Sample 8	.64	.13
Self-Control Scale Brief Version	Sample 10	.90	.19**
Social Desirability (Marlowe-Crowne) Scale	Sample 5	.82	.11
Tightwad-Spendthrift Scale	Sample 7	.77	-.24***
Value Consciousness Scale	Sample 8	.87	.37***

* $p < .05$.

** $p < .01$.

*** $p < .001$.

variables. Second, except for scores on emotion-based decision making, none of the correlations were strong ($|r| < .4$), suggesting that lay rationalism is not redundant with the other variables. Finally, the correlation between LR scores and emotion-based decision-making scores was high (though far from perfect), which indicates, as we noted previously, that the two instruments measure the same underlying construct (relative weight between reason and feelings) but do so from different angles and with different emphases. Note also that LR scores were uncorrelated with scores on the Social Desirability Scale as well, indicating that the LR Scale is reasonably immune to social desirability biases.

Construct Validity

To test the construct validity of the LR Scale, we conducted a study by randomly assigning participants to either a pro-reason condition or a pro-feelings condition and examined whether participants who were more versus less lay rationalistic made different decisions in these two conditions. Specifically, we created a set of consumer decision scenarios with two versions for each scenario. One version involved a pro-reason option, and the other involved a corresponding pro-feelings option. For example, one of the scenarios involved the decision of whether to purchase a car. The pro-reason version read, "You are in a car dealership to buy a car. A salesperson recommends a certain model. You do not particularly like this model and do not feel that it is the car you have always been looking for. However, this model has the best specifications in its price category—it has the best safety ratings, the best reliability ratings, the greatest horsepower, and the best gas mileage. Will you buy this car?" The pro-feelings version instead read, "You are in a car dealership to buy a car. A salesperson recommends a certain model. You fall deeply in love with it at first sight, and feel that it is the car you have always been looking for. However, this model does not have the best specifications in its price category—it has neither the best safety ratings, nor the best reliability ratings, nor the greatest horsepower, nor best gas mileage. Will you buy this car?" The Appendix presents the complete set of scenarios.

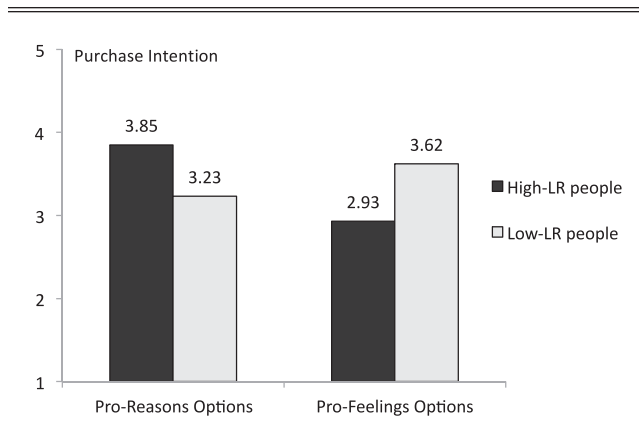
We then recruited a group of respondents (described as Sample 11 in Table 1) and randomly assigned them to two conditions: pro-reason and pro-feelings. Those in the pro-reason condition answered the pro-reason version of the questions, and those in the pro-feelings condition answered the pro-feelings version of the questions. To answer a question, respondents rated their willingness to purchase the target option on a seven-point scale (1 = "definitely no," and 7 = "definitely yes"). Next, all the respondents filled out the LR Scale and answered some demographic questions.

In line with the construct of lay rationalism, we predicted that participants who were more lay rationalistic would react differently to the target items between the two conditions than those who were less lay rationalistic. In the pro-reason version, more lay rationalistic participants would be more willing to purchase the target items than would less lay rationalistic participants; in the pro-feelings version, the opposite would be true.

We analyzed the data in two ways. First, we median-split the respondents on the basis of their LR scores and conducted a 2 (condition: pro-reason vs. pro-feelings) \times 2 (LR score: high vs. low) analysis of variance on their purchase intention (the mean of their purchase intention ratings in the six scenarios). The analysis of variance revealed a significant interaction effect between condition and LR scores ($F(1, 88) = 11.42, p < .01$) in the direction we predicted. Planned contrasts lent further support to our prediction: in the pro-reason condition, respondents who were more lay rationalistic were more willing to purchase the target items than were less lay rationalistic respondents ($t(88) = -2.27, p < .05$), whereas in the pro-feelings condition, the opposite was true ($t(88) = 2.50, p < .05$) (see Figure 1).

Because more versus less lay rationalistic participants might vary in demographic variables such as age and gender, we also analyzed the data by using a regression analysis, controlling for such demographic variables. The dependent variable in the model was purchase intention. The independent variables were condition (pro-reason vs. pro-feelings), LR scores, and the interaction between condition and LR scores. The control variables were gender, age, education, and income. The analysis again indicated that the predicted interaction between condition and LR scores was

Figure 1
RESULTS OF THE STUDY TESTING THE CONSTRUCT
VALIDITY OF THE LR SCALE



significant ($\beta = 2.28$, $t(84) = 4.45$, $p < .001$). These results added credence to the construct validity of the LR Scale, indicating that LR scores were able to predict the decisions of consumers in the same way as the lay rationalism construct would predict.

Lay Rationalism and Demographic Variables

Is lay rationalism related to demographic variables such as gender, age, education, or income? We collected such demographic information in all of Samples 2–14 described in Table 1. Thus, to examine the relationship between lay rationalism and these demographic variables, we regressed the LR scores of all of these respondents on their gender (0 = male, 1 = female), age, income, and education (1 = “less than high school graduate,” and 5 = “postgraduate”), and found that, controlling for the other demographic variables, men were more lay rationalistic than women ($\beta = -.19$, $t(2,587) = -9.99$, $p < .001$), a finding that seemed consistent with previous work showing that women were more intuitive than men (Gigerenzer 2007). Moreover, controlling for the other demographic variables, older people, more educated people, and people with higher incomes were also more lay rationalistic than their counterparts, although the absolute effects of these variables were rather small (age: $\beta = .05$, $t(2,587) = 2.73$, $p < .01$; education: $\beta = .06$, $t(2,587) = 2.74$, $p < .01$; income: $\beta = .05$, $t(2,587) = 2.19$, $p < .05$).

USING LAY RATIONALISM TO PREDICT CONSUMER BEHAVIORS

In the previous section, we report a study that demonstrates that the LR Scale could predict consumer choices in the direction that the lay rationalism construct would predict. In this section, we report three additional studies designed to test the predictability of lay rationalism as well as the LR Scale. These studies differed from the previous studies in three noteworthy aspects. First, the behaviors to be predicted in these studies were not hypothetical choices; instead, they all entailed real or probabilistically real consequences. Second, the behaviors to be predicted in these studies were not directly related to the construct of lay rationalism and could only be inferred from the construct; therefore, the predictions were less obvious. Finally, when

testing for the predictability of lay rationalism, these studies controlled not only demographic variables such as age and income but also other relevant individual difference variables such as buying impulsiveness and emotion-based decision making; the purpose of doing so was to test whether lay rationalism possessed a unique predictive power beyond these other individual difference variables.

The three behaviors to be predicted were product preference (utilitarian vs. hedonic), savings decision (spending money now vs. saving it for the future), and donation decisions (whether to donate money to help the needy). In the following subsections, we explain why we hypothesized that lay rationalism could possibly predict these behaviors and report the three studies that tested our hypotheses.

Lay Rationalism and Product Preference (Hedonic Versus Utilitarian Goods)

In consumer research, one of the most commonly used criteria to differentiate consumer products is their hedonic versus utilitarian nature (Chitturi, Raghunathan, and Mahajan 2008; Dhar and Wertenbroch 2011; Khan and Dhar 2006; Okada 2005; Wertenbroch and Dhar 2000). Utilitarian goods are primarily instrumental (i.e., useful, practical, and functional), and hedonic goods are multisensory and provide for experiential consumption, fun, pleasure, and excitement (Hirschman and Holbrook 1982; Wertenbroch and Dhar 2000). Understanding consumer preferences for hedonic versus utilitarian goods has long been of great interest to both consumer researchers and marketing managers (Chitturi, Raghunathan, and Mahajan 2008; Dhar and Wertenbroch 2011; Hirschman and Holbrook 1982; Khan and Dhar 2006; Kivetz and Simonson 2002).

We propose that lay rationalism is able to predict such preferences. Relative to less lay rationalistic consumers, more lay rationalistic consumers value feelings less. Because feelings are inherently hedonic, consumers who are more lay rationalistic would also value hedonic goods less and value utilitarian goods relatively more. Thus, we hypothesize that, relative to less lay rationalistic consumers, consumers who are more lay rationalistic are more likely to choose utilitarian products over hedonic products.

To test this hypothesis, we recruited a group of respondents (described as Sample 12 in Table 1). We told them that by completing the study, they would earn a guaranteed \$1.50 plus an opportunity to win a prize; if they won, they could choose any product available on Amazon.com as their prize as long as it cost no more than \$50 and was not a gift card. We then asked the respondents to indicate the name or the Amazon.com link of the product they wanted to receive if they won. The products participants listed ranged from video games and headphones to paper shredders and music CDs. (After the study, we indeed selected a winner and ordered the requested item for the winner.)

After the respondents listed the product they wanted, we told them the definitions of hedonic and utilitarian products (“Utilitarian products are primarily instrumental, i.e., useful, practical, functional, and their purchase is motivated by functional product aspects, whereas hedonic goods are multisensory and provide for experiential consumption, fun, pleasure, and excitement”) and asked them to rate the hedonic/utilitarian nature of the product they had just listed on a five-point scale (1 = “purely hedonic,” and 5 = “purely utili-

tarian”). Note that instead of classifying a product as hedonic or utilitarian ourselves, we asked respondents to classify the product as utilitarian or hedonic. We did so because whether a product is hedonic or utilitarian is not an inherent characteristic of the product; rather, it is the construal of the consumer. For example, some might construe a purse as primarily utilitarian, whereas others might construe it as primarily hedonic (Laran and Janiszewski 2011).

After the respondents rated the hedonic/utilitarian nature of their product, we asked them some filler questions and then asked them to complete the LR Scale, along with all of the other scales that, according to our discriminant analyses (Table 3), shared a correlation coefficient of more than .2 (absolute value) with LR scores. These other scales included the Buying Impulsiveness Scale, the Delaying Gratification Inventory, the Emotion-Based Decision-Making Scale, the Tightwad-Spendthrift Scale, and the Value Consciousness Scale. At the end of the survey, we collected demographic information from the respondents.

To analyze the data, we ran two regressions, one controlling only the demographic variables (step 1) and the other controlling both the demographic variables and the other individual difference variables (step 2). The results, summarized in Table 4, supported our prediction. Both regressions yielded a significant effect of LR scales on product preference: relative to less lay rationalistic respondents, respondents who were more lay rationalistic were indeed more likely to choose utilitarian goods—or, more precisely, more likely to choose goods that they construed to be utilitarian.

Lay Rationalism and Savings Decision

How much a person saves for the future rather than spends now is an important financial decision because it affects his or her own well-being as well as the well-being of others (Thaler 1994). This topic has attracted increasing attention from consumer researchers (Hershfield et al. 2011; Lynch and Zaubermaier 2006; McKenzie and Liersch 2011; Soman and Cheema 2011). People’s savings decisions are

related to a multitude of factors, including income, financial literacy, and so on. We speculate that a person’s savings decision is also related to his or her lay rationalism tendency. To a large extent, the decision of whether to spend or to save money reflects a dilemma between the “should” and the “want.” Many people believe they should save more for the future but, at the same time, want to spend more now instead (Fudenberg and Levine 2006; Wertenbroch 1998; Wertenbroch and Dhar 2000). Relative to less lay rationalistic people, those who are more lay rationalistic will put more emphasis on reason (“should”) than on feelings (“want”). Therefore, we hypothesize that, relative to less lay rationalistic people, people who are more lay rationalistic are more likely to save money rather than spend it.

To test this hypothesis, we recruited another group of respondents (described as Sample 13 in Table 1) and asked them about their actual savings rate. Specifically, we asked them, “About what percentage of your annual income is put in a retirement account, such as 401k?” Then we asked them to answer some filler questions, complete the LR Scale and the other individual difference scales described previously, and answer the demographic questions.

To analyze the results, we ran two regressions again, one that controlled for only the demographic variables and another that controlled for the other individual difference variables in addition to the demographic variables. Summarized in Table 4, the results were consistent with our prediction: relative to less lay rationalistic respondents, those who were more lay rationalistic saved a greater portion of their income in a retirement account, controlling for age, gender, income, and education, and this result held even after we controlled for the other individual difference variables.

Lay Rationalism and Donation Decision

Many organizations and individuals depend on charitable donations to survive and thrive. Yet people differ considerably in whether and how much they donate. Researchers have tried to understand and predict such individual differ-

Table 4
LAY RATIONALISM AS A PREDICTOR FOR PRODUCT PREFERENCE, SAVINGS DECISION, AND DONATION DECISION

Independent Variable	Dependent Variables					
	Product Preference		Savings Decision		Donation Decision	
	Sample 12		Sample 13		Sample 14	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
LR	.14* (2.15)	.23* (2.56)	.17** (3.27)	.14* (2.04)	-.18** (-2.97)	-.21* (-2.49)
Buying impulsiveness		-.14 (-1.30)		.16 (1.82)		-.04 (-.38)
Delaying gratification		.04 (.43)		.17* (2.37)		.19* (2.28)
Emotion-based decision making		.17 (1.95)		-.05 (-.83)		-.03 (-.41)
Tightwad versus spendthrift		.16 (1.87)		-.04 (-.60)		.12 (1.41)
Value consciousness		-.03 (-.39)		-.02 (-.26)		-.06 (-.82)
Gender	-.02 (-.29)	-.05 (-.75)	.14** (2.63)	.13* (2.32)	.04 (.67)	.04 (.55)
Age	.15* (2.37)	.11 (1.63)	-.10 (-1.90)	-.09 (-1.63)	.08 (1.34)	.07 (1.17)
Education	-.04 (-.54)	-.01 (-.20)	.10 (1.93)	.10 (1.82)	.07 (1.08)	.07 (1.08)
Income	-.10 (-1.47)	-.10 (-1.45)	.50*** (9.00)	.47*** (8.44)	-.10 (-1.52)	-.12 (-1.80)
R ²	.05	.08	.31	.32	.06	.09
Adjusted R ²	.03	.04	.29	.30	.04	.05
F-value	2.48*	2.11*	23.79***	12.66***	3.29**	2.54**

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Notes: t-statistics appear in parentheses.

ences (Archer et al. 1981; Latané and Dabbs 1975; McClintock and Allison 2006). We propose that a person's lay rationalism tendency can predict his or her charitable giving tendency. In many circumstances, charitable giving stems from a person's affect and emotions, such as empathy and sympathy with the victims (e.g., "I feel deeply touched by those starving children") (Archer et al. 1981). Thus, because people who are more lay rationalistic respond less to feelings, we propose that, relative to less lay rationalistic people, those who are more lay rationalistic are less likely to make charitable donations.

To test this proposition, we recruited yet another group of respondents (described as Sample 14 in Table 1) and told them they would earn \$1.00 plus a bonus of \$1.00 by completing the study. At the beginning of the study, we presented them with some information about the record-breaking low temperatures that affected many parts of the United States at the time we were conducting this study and showed them three pictures of homeless people in the cold weather. We then asked the participants whether they would like to donate some or all of their bonus money to help the homeless through a charity organization called the National Alliance to End Homelessness (NAEH); if they agreed, we would send the money to the organization instead of paying them. Next, we asked the respondents some filler questions, administered the LR Scale and the other aforementioned individual difference scales, and asked them the demographic questions.

As in the other studies, we ran two regressions, one without the other individual difference variables as controls and the other with the other variables. As Table 4 shows, both regressions revealed a significant effect of LR scales on donations: participants who were more lay rationalistic donated less than those who were less lay rationalistic, controlling for gender, age, income, and education as well as the other individual difference variables.

Summary

The studies reported in this section demonstrate that a person's lay rationalism tendency, as measured by our six-item LR Scale, can predict consumer behaviors ranging from product preference to savings and donations that involved real or probabilistically real consequences. The studies further indicate that lay rationalism had a predictive power over these behavioral variables, even when we controlled for other related individual difference variables such as buying impulsiveness, delaying gratification, and emotion-based decision making.

GENERAL DISCUSSION

In this research, we propose the importance of the lay notion of rationality, treat it as an individual difference variable, develop a six-item scale to measure it, test the reliability and validity of the scale, and demonstrate its ability to predict consumer-relevant behaviors. We devote the remainder of the article to discussing the implications of this research and directions for further research.

Direction of Causality

When discussing the relationships between lay rationalism and the various behavioral variables such as donations and savings, we may have given the impression that lay rationalism was the cause and the behavioral variables were

the effects. However, because lay rationalism is an individual difference variable, we cannot ascertain this causal direction. The reverse might be true, or some third variable might influence both lay rationalism and the behavioral dependent variables. For example, a particular religious faith might make a person both less lay rationalistic and more philanthropic. However, our inability to establish the causal direction of the relationship between lay rationalism and these dependent variables does not undermine the value of the lay rationalism construct; it can still be used to predict these (and possibly other) dependent variables.

Manipulation of Lay Rationalism

One way to explore the causal direction of the relationships between lay rationalism and behavior is to manipulate, rather than measure, lay rationalism. Like other variables, such as need for cognition (Cacioppo and Petty 1982), construal level (Trope and Liberman 2010), regulatory focus (Crowe and Higgins 1997), and maximizing (Schwartz et al. 2002), lay rationalism is not only a personality trait but also a variable that can be manipulated. For example, an experimenter may increase or decrease research participants' lay rationalism level by asking them to write an essay either endorsing or criticizing lay rationalism. The experimenter may also manipulate research participants' lay rationalism level by priming them either with words indicating a high level of lay rationalism (e.g., "rational," "objective," "useful") or with words indicating a low level of lay rationalism (e.g., "emotional," "subjective," "enjoyable"). After the manipulation, the experimenter could use the LR Scale as a manipulation check and then examine the participants' decisions regarding, for example, their willingness to donate or to save the payment earned from the experiment. If the lay rationalism manipulation can indeed influence behavior, we can claim that lay rationalism is a cause.

Predictions of Other Possible Variables

The present research offers preliminary evidence about the predictability of lay rationalism and leaves room for further research. For example, the current research only shows that people who were less lay rationalistic were more willing to donate than those who were more lay rationalistic in a fundraiser with emotion-laden pictures; it does not examine whether the result will hold in other types of fundraisers. Although many fundraisers appeal to emotions such as sympathy, they can also appeal to reason. We predict that, relative to less lay rationalistic people, those who are more lay rationalistic will respond more to reason-based fundraisers.

Lay rationalism can potentially predict other variables than product preference, savings, and donations. We present a list of speculative propositions that invite further research:

- Consumers who are more lay rationalistic are more susceptible to central-route persuasions (e.g., advertisements highlighting the quality of the target product), whereas less lay rationalistic consumers are more susceptible to peripheral-route persuasions (e.g., advertisements using attractive celebrities) (Petty, Cacioppo, and Schumann 1983).
- Consumers who are more lay rationalistic are more inclined to make material purchases, whereas those who are less lay rationalistic are more inclined to make experiential purchases (Van Boven and Gilovich 2003).

- People who are more lay rationalistic are less consistent between attitude and choice (liking what feels good but choosing what sounds reasonable), whereas less lay rationalistic consumers are more consistent (both liking and choosing what feels good).
- People who are more lay rationalistic have more “useful” friends (e.g., friends in important positions who can help them achieve their career goals), whereas less lay rationalistic people have more “fun” friends (e.g., friends with whom they enjoy spending time).
- People who are more lay rationalistic are more successful in their careers, whereas those who are less lay rationalistic are happier in their daily lives.
- In situations involving trade-offs between objective outcomes and moral or fairness concerns, people who are more lay rationalistic care more about objective outcomes, whereas less lay rationalistic people react more to moral and fairness concerns. For example, in the trolley dilemma (Foot 1967), people who are more lay rationalistic might pull the lever to direct the trolley to kill one person, whereas those who are less lay rationalistic might do nothing and let the train kill five people (Greene and Haidt 2002; Haidt 2001).
- In the ultimatum game, people who are more lay rationalistic might accept a disadvantaged proposal, whereas people who are less lay rationalistic might reject it so nobody gets anything.
- In donation decisions, people who are more lay rationalistic might pay more attention to scope (e.g., the number of victims in need of help), whereas less lay rationalistic people might be more scope insensitive (Hsee and Rottenstreich 2004; Hsee and Zhang 2010) and more likely to exhibit the “identifiable victim effect” (Small and Loewenstein 2003; Small, Loewenstein, and Slovic 2007).

In general, people who are more lay rationalistic are more likely to do what they think they should do, whereas those who are less lay rationalistic are more likely to do what they want or like to do (Bazerman, Tenbrunsel, and Wade-Benzoni 1998; Milkman 2012; Milkman, Rogers, and Bazerman 2008). However, these propositions are merely speculations and await further research to test them. The LR Scale contains only six items and takes a few minutes to complete. Yet this brief scale is able to tap into an important yet hitherto overlooked individual difference variable: the lay notion of rationality. It is able to predict a variety of consumer-relevant behaviors and has the potential to predict more.

REFERENCES

- Amir, On and Dan Ariely (2007), “Decisions by Rules: The Case of Unwillingness to Pay for Beneficial Delays,” *Journal of Marketing Research*, 44 (February), 142–52.
- Archer, Richard L., Rolando Diaz-Loving, Peter M. Gollwitzer, Mark H. Davis, and H. Clayton Foushee (1981), “The Role of Dispositional Empathy and Social Evaluation in the Empathic Mediation of Helping,” *Journal of Personality and Social Psychology*, 40 (4), 786–96.
- Barchard, Kimberly Anne (2001), “Emotional and Social Intelligence: Examining Its Place in the Nomological Network,” doctoral dissertation, University of British Columbia.
- Baumeister, Roy F., Todd F. Heatherton, and Dianne M. Tice (1994), *Losing Control: How and Why People Fail at Self-Regulation*. San Diego: Academic Press.
- Bazerman, Max H., Ann E. Tenbrunsel, and Kimberly Wade-Benzoni (1998), “Negotiating with Yourself and Losing: Making Decisions with Competing Internal Preferences,” *Academy of Management Review*, 23 (2), 225–41.
- Bearden, William O., David M. Hardesty, and Randall L. Rose (2001), “Consumer Self-Confidence: Refinements in Conceptualization and Measurement,” *Journal of Consumer Research*, 28 (1), 121–34.
- and Richard G. Netemeyer (1999), *Handbook of Marketing Scales: Multi-Item Measures for Marketing and Consumer Behavior Research*. Thousand Oaks, CA: Sage Publications.
- Belk, Russell W. (1985), “Materialism: Trait Aspects of Living in the Material World,” *Journal of Consumer Research*, 12 (3), 265–80.
- Bossert, Walter and Kōtarō Suzumura (2010), *Consistency, Choice, and Rationality*. Cambridge, MA: Harvard University Press.
- Briggs, Katharine C. (1976), *Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- Cacioppo, John T. and Richard E. Petty (1982), “The Need for Cognition,” *Journal of Personality and Social Psychology*, 42 (1), 116–31.
- Chitturi, Ravindra, Rajagopal Raghunathan, and Vijay Mahajan (2007), “Form Versus Function: How the Intensities of Specific Emotions Evoked in Functional Versus Hedonic Trade-Offs Mediate Product Preferences,” *Journal of Marketing Research*, 44 (November), 702–714.
- , ———, and ——— (2008), “Delight by Design: The Role of Hedonic Versus Utilitarian Benefits,” *Journal of Marketing*, 72 (May), 48–63.
- Cohen, Arthur R., Ezra Stotland, and Donald M. Wolfe (1955), “An Experimental Investigation of Need for Cognition,” *Journal of Abnormal and Social Psychology*, 51 (2), 291–94.
- Crowe, Ellen and E. Tory Higgins (1997), “Regulatory Focus and Strategic Inclinations: Promotion and Prevention in Decision-Making,” *Organizational Behavior and Human Decision Processes*, 69 (2), 117–32.
- Crowne, Douglas P. and David Marlowe (1960), “A New Scale of Social Desirability Independent of Psychopathology,” *Journal of Consulting Psychology*, 24 (4), 349–54.
- Dhar, Ravi and Klaus Wertenbroch (2011), “Self-Signaling and the Costs and Benefits of Temptation in Consumer Choice,” *Journal of Marketing Research*, 49 (February), 15–25.
- Epstein, Seymour, Rosemary Pacini, Veronika Denes-Raj, and Harriet Heier (1996), “Individual Differences in Intuitive–Experiential and Analytical–Rational Thinking Styles,” *Journal of Personality and Social Psychology*, 71 (2), 390–405.
- Erasmus of Rotterdam ([1515] 1971), *Praise of Folly*, Betty Radice, trans. London: Penguin.
- Foot, Philippa (1967), “The Problem of Abortion and the Doctrine of Double Effect,” *Oxford Review (Trinity)*, 5, 5–15.
- Frederick, Shane (2005), “Cognitive Reflection and Decision Making,” *Journal of Economic Perspectives*, 19 (4), 25–42.
- Fudenberg, Drew and David K. Levine (2006), “A Dual-Self Model of Impulse Control,” *American Economic Review*, 96 (5), 1449–76.
- Gerbing, David W., Stephen A. Ahadi, and Jim H. Patton (1987), “Toward a Conceptualization of Impulsivity: Components Across the Behavioral and Self-Report Domains,” *Multivariate Behavioral Research*, 22 (3), 357–79.
- Gibran, Khalil (1923), *The Prophet*. New York: Alfred A. Knopf.
- Gigerenzer, Gerd (2007), *Gut Feelings: The Intelligence of the Unconscious*. New York: Viking Press.
- Greene, Joshua and Jonathan Haidt (2002), “How (and Where) Does Moral Judgment Work?” *Trends in Cognitive Sciences*, 6 (12), 517–23.
- Haidt, Jonathan (2001), “The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment,” *Psychological Review*, 108 (4), 814–34.
- Herche, Joel and Brian Engelland (1996), “Reversed-Polarity Items and Scale Unidimensionality,” *Journal of the Academy of Marketing Science*, 24 (4), 366–74.

- Hershfield, Hal E., Daniel G. Goldstein, William F. Sharpe, Jesse Fox, Leo Yeykelis, Laura L. Carstensen, et al. (2011), "Increasing Saving Behavior Through Age-Progressed Renderings of the Future Self," *Journal of Marketing Research*, 48 (Special Issue), S23–S37.
- Hirschman, Elizabeth C. and Morris B. Holbrook (1982), "Hedonic Consumption: Emerging Concepts, Methods and Propositions," *Journal of Marketing*, 46 (July), 92–101.
- Hoch, Stephen J. and George F. Loewenstein (1991), "Time-Inconsistent Preferences and Consumer Self-Control," *Journal of Consumer Research*, 17 (4), 492–507.
- Hoerger, Michael, Stuart W. Quirk, and Nathan C. Weed (2011), "Development and Validation of the Delaying Gratification Inventory," *Psychological Assessment*, 23 (3), 725–38.
- Hsee, Christopher K. and Yuval Rottenstreich (2004), "Music, Pandas, and Muggers: On the Affective Psychology of Value," *Journal of Experimental Psychology: General*, 133 (1), 23–30.
- , Yang Yang, Yangjie Gu, and Jie Chen (2009), "Specific Seeking: How Product Specifications Influence Consumer Preferences," *Journal of Consumer Research*, 35 (6), 952–66.
- and Jiao Zhang (2010), "General Evaluability Theory," *Perspectives on Psychological Science*, 5 (4), 343–55.
- , ———, Fang Yu, and Yiheng Xi (2003), "Lay Rationalism and Inconsistency Between Predicted Experience and Decision," *Journal of Behavioral Decision Making*, 16 (4), 257–72.
- Jöreskog, Karl G. and Dag Sörbom (1993), *LISREL VIII: User's Reference Guide*. Mooresville, IN: Scientific Software.
- Kahneman, Daniel (1994), "New Challenges to the Rationality Assumption," *Journal of Institutional and Theoretical Economics*, 150 (1), 18–36.
- Khan, Uzma and Ravi Dhar (2006), "Licensing Effect in Consumer Choice," *Journal of Marketing Research*, 43 (May), 259–66.
- Kivetz, Ran and Itamar Simonson (2002), "Earning the Right to Indulge: Effort as a Determinant of Customer Preferences Toward Frequency Program Rewards," *Journal of Marketing Research*, 39 (May), 155–70.
- Kramer, Thomas, Michal Maimaran, and Itamar Simonson (2012), "Asymmetric Option Effects on Ease of Choice Criticism and Defense," *Organizational Behavior and Human Decision Processes*, 117 (1), 179–91.
- Laran, Juliano and Chris Janiszewski (2011), "Work or Fun? How Task Construal and Completion Influence Regulatory Behavior," *Journal of Consumer Research*, 37 (6), 967–83.
- Larsen, Randy J. and Ed Diener (1987), "Affect Intensity as an Individual Difference Characteristic: A Review," *Journal of Research in Personality*, 21 (1), 1–39.
- , ———, and Robert A. Emmons (1986), "Affect Intensity and Reactions to Daily Life Events," *Journal of Personality and Social Psychology*, 51 (4), 803–814.
- Latané, Bibb and James M. Dabbs Jr. (1975), "Sex, Group Size and Helping in Three Cities," *Sociometry*, 38 (2), 180–94.
- Lerner, Jennifer S. and Philip E. Tetlock (1999), "Accounting for the Effects of Accountability," *Psychological Bulletin*, 125 (2), 255–75.
- Lichtenstein, Donald R., Richard G. Netemeyer, and Scot Burton (1990), "Distinguishing Coupon Proneness from Value Consciousness: An Acquisition-Transaction Utility Theory Perspective," *Journal of Marketing*, 54 (July), 54–67.
- Lipkus, Isaac M., Greg Samsa, and Barbara K. Rimer (2001), "General Performance on a Numeracy Scale Among Highly Educated Samples," *Medical Decision Making*, 21 (1), 37–44.
- Lynch, John G., Jr., Richard G. Netemeyer, Stephen A. Spiller, and Alessandra Zammit (2010), "A Generalizable Scale of Propensity to Plan: The Long and the Short of Planning for Time and for Money," *Journal of Consumer Research*, 37 (1), 108–128.
- and Gal Zauberan (2006), "When Do You Want It? Time, Decisions, and Public Policy," *Journal of Public Policy & Marketing*, 25 (Spring), 67–78.
- McClintock, Charles G. and Scott T. Allison (2006), "Social Value Orientation and Helping Behavior," *Journal of Applied Social Psychology*, 19 (4), 353–62.
- McKenzie, Craig R.M. and Michael J. Liersch (2011), "Misunderstanding Savings Growth: Implications for Retirement Savings Behavior," *Journal of Marketing Research*, 48 (Special Issue), S1–S13.
- Milkman, Katherine L. (2012), "Unsure What the Future Will Bring? You May Overindulge: Uncertainty Increases the Appeal of Wants over Shoulds," *Organizational Behavior and Human Decision Processes*, 119 (2), 163–76.
- , Todd Rogers, and Max H. Bazerman (2008), "Harnessing our Inner Angels and Demons: What We Have Learned About Want/Should Conflicts and How That Knowledge Can Help Us Reduce Short-Sighted Decision Making," *Perspectives on Psychological Science*, 3 (4), 324–38.
- Mischel, Walter (1996), "From Good Intentions to Willpower," in *The Psychology of Action: Linking Cognition and Motivation to Behavior*, Peter M. Gollwitzer and John A. Bargh, eds. New York: Guilford Press, 197–218.
- , Yuichi Shoda, and Monica L. Rodriguez (1989), "Delay of Gratification in Children," *Science*, 244 (4907), 933–38.
- Nenkov, Gergana Y., J. Jeffrey Inman, and John Hulland (2008), "Considering the Future: The Conceptualization and Measurement of Elaboration on Potential Outcomes," *Journal of Consumer Research*, 35 (1), 126–41.
- Okada, Erica Mina (2005), "Justification Effects on Consumer Choice of Hedonic and Utilitarian Goods," *Journal of Marketing Research*, 42 (February), 43–53.
- Oldfather, W.A., trans. (1978), *Epictetus: The Discourses*, Vol. 2. Cambridge, MA: Harvard University Press.
- Parry, Ken W. and James R. Meindl, eds. (2002), *Grounding Leadership Theory and Research: Issues, Perspectives and Methods*. Charlotte, NC: Information Age Publishing.
- Peters, Ellen, Nathan F. Dieckmann, Daniel Västfjäll, C.K. Mertz, Paul Slovic, and Judith H. Hibbard (2009), "Bringing Meaning to Numbers: The Impact of Evaluative Categories on Decisions," *Journal of Experimental Psychology: Applied*, 15 (3), 213–27.
- Petty, Richard, John T. Cacioppo, and David Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, 10 (2), 135–46.
- Prelec, Drazen and George Loewenstein (1998), "The Red and the Black: Mental Accounting of Savings and Debt," *Marketing Science*, 17 (1), 4–28.
- Puligadda, Sanjay, William T. Ross Jr., and Rajdeep Grewal (2012), "Individual Differences in Brand Schematicity," *Journal of Marketing Research*, 49 (February), 115–30.
- Ray, John J. (1983), "Reviving the Problem of Acquiescent Response Bias," *Journal of Social Psychology*, 121 (1), 81–96.
- Richins, Marsha L. (2004), "The Material Values Scale: Measurement Properties and Development of a Short Form," *Journal of Consumer Research*, 31 (1), 209–219.
- and Scott Dawson (1992), "A Consumer Values Orientation for Materialism and Its Measurement: Scale Development and Validation," *Journal of Consumer Research*, 19 (3), 303–316.
- Rick, Scott I., Cynthia E. Cryder, and George Loewenstein (2008), "Tightwads and Spendthrifts," *Journal of Consumer Research*, 34 (6), 767–82.
- Rook, Dennis W. and Robert J. Fisher (1995), "Normative Influences on Impulsive Buying Behavior," *Journal of Consumer Research*, 22 (3), 305–313.

- Schwartz, Barry, Andrew Ward, John Monterosso, Sonja Lyubomirsky, Katherine White, and Darrin R. Lehman (2002), "Maximizing Versus Satisficing: Happiness Is a Matter of Choice," *Journal of Personality and Social Psychology*, 83 (5), 1178–97.
- Shafir, Eldar, Itamar Simonson, and Amos Tversky (1993), "Reason-Based Choice," *Cognition*, 49 (1), 11–36.
- Simon, Herbert A. (1956), "Rational Choice and the Structure of the Environment," *Psychological Review*, 63 (2), 129–38.
- Small, Deborah A. and George Loewenstein (2003), "Helping a Victim or Helping the Victim: Altruism and Identifiability," *Journal of Risk and Uncertainty*, 26 (1), 5–16.
- , ———, and Paul Slovic (2007), "Sympathy and Callousness: The Impact of Deliberative Thought on Donations to Identifiable and Statistical Victims," *Organizational Behavior and Human Decision Processes*, 102 (2), 143–53.
- Soman, Dilip and Amar Cheema (2011), "Earmarking and Partitioning: Increasing Saving by Low-Income Households," *Journal of Marketing Research*, 48 (Special Issue), S14–S22.
- Sprott, David, Sandor Czellar, and Eric Spangenberg (2009), "The Importance of a General Measure of Brand Engagement on Market Behavior: Development and Validation of a Scale," *Journal of Marketing Research*, 46 (February), 92–104.
- Tangney, June P., Roy F. Baumeister, and Angie Luzio Boone (2004), "High Self-Control Predicts Good Adjustment, Less Pathology, Better Grades, and Interpersonal Success," *Journal of Personality*, 72 (2), 271–324.
- Thaler, Richard H. (1994), "Psychology and Savings Policies," *American Economic Review*, 84 (2), 186–92.
- Trope, Yaacov and Nira Liberman (2010), "Construal-Level Theory of Psychological Distance," *Psychological Review*, 117 (2), 440–63.
- Van Boven, Leaf and Thomas Gilovich (2003), "To Do or to Have? That Is the Question," *Journal of Personality and Social Psychology*, 85 (6), 1193–1202.
- Weller, Joshua A., Nathan F. Dieckmann, Martin Tusler, C.K. Mertz, William J. Burns, and Ellen Peters (2013), "Development and Testing of an Abbreviated Numeracy Scale: A Rasch Analysis Approach," *Journal of Behavioral Decision Making*, 26 (2), 198–212.
- Werthenbroch, Klaus (1998), "Consumption Self-Control by Rationing Purchase Quantities of Virtue and Vice," *Marketing Science*, 17 (4), 317–37.
- and Ravi Dhar (2000), "Consumer Choice Between Hedonic and Utilitarian Goods," *Journal of Marketing Research*, 37 (February), 60–71.
- Zemack-Rugar, Yael, Canan Corus, and David Brinberg (2012), "The 'Response-to-Failure' Scale: Predicting Behavior Following Initial Self-Control Failure," *Journal of Marketing Research*, 49 (December), 996–1014.
- Zhang, Xinan, Qing Cao, and Nicholas Grigoriou (2011), "Consciousness of Social Face: The Development and Validation of a Scale Measuring Desire to Gain Face Versus Fear of Losing Face," *Journal of Social Psychology*, 151 (2), 129–49.

APPENDIX

INSTRUCTIONS USED IN THE STUDY TESTING THE CONSTRUCT VALIDITY OF THE LR SCALE

	<i>Pro-Reason Version</i>	<i>Pro-Feelings Version</i>
Scenario 1	You are in a watch store to buy a watch for yourself. A sales representative recommends a certain watch, whose original price is \$200. For reasons you cannot articulate, you do not particularly like this watch and do not fall in love with it. However, this watch happens to be on sale today at 30% off and it is the only watch on sale. The sale will end today and will not happen again in the near future. Will you buy this watch?	You are in a watch store to buy a watch for yourself. A sales representative recommends a certain watch, whose original price is \$200. For reasons you cannot articulate, you really like this watch and fall in love with it at first sight. This watch happened to be on sale yesterday at 30% off and it was the only watch on sale. However, the sale has ended and will not happen again in the near future. Will you buy this watch?
Scenario 2	You are in a gallery to shop for a painting for your new home. A salesperson recommends a certain painting, whose original price is \$300. Though it is not bad, you do not fall in love with it and do not have deep affection for it. However, this painting happens to be on sale today at 50% off and it is the only painting on sale. The sale will end today and will not happen again in the near future. Will you buy this painting?	You are in an art gallery to shop for a painting for your new home. A salesperson recommends a certain painting, whose original price is \$300. You fall in love with it at first sight and you cannot explain why you love it so much. You learned that this painting was on sale yesterday at 50% off and it was the only one on sale yesterday. However, the sale has ended and will not happen again in the near future. Will you buy this painting?
Scenario 3	You are shopping for a camera in a camera store. A salesperson recommends a certain model. For reasons you cannot articulate, you do not particularly like this camera and you do not fall in love with it. However, this model has the best specifications in its price category—it has the best resolution (megapixels), the widest zoom range, the longest battery life, and the highest low-light sensitivity. Will you buy this camera?	You are shopping for a camera in a camera store. A salesperson recommends a certain model. For reasons you cannot articulate, you really like this camera and fall in love with it at first sight. However, this model does not have the best specifications in its price category—it has neither the best resolution (megapixels), nor the widest zoom range, nor the longest battery life, nor the highest low-light sensitivity. Will you buy this camera?
Scenario 4	You are in a car dealership to buy a car. A salesperson recommends a certain model. You do not particularly like this model and do not feel that it is the car you have always been looking for. However, this model has the best specifications in its price category—it has the best safety ratings, the best reliability ratings, the greatest horsepower, and the best gas mileage. Will you buy this car?	You are in a car dealership to buy a car. A salesperson recommends a certain model. You fall deeply in love with it at first sight, and feel that it is the car you have always been looking for. However, this model does not have the best specifications in its price category—it has neither the best safety ratings, nor the best reliability ratings, nor the greatest horsepower, nor best gas mileage. Will you buy this car?
Scenario 5	You will take a long flight to Canada to attend a job fair. You are at a bookstore at the airport and plan to buy a book to read en route. A sales representative recommends a certain book. It is not a book for leisure and is not the type you love; you predict you will not enjoy reading it at all. Nevertheless, this book is related to your career, and reading it will help your career development. Will you buy this book?	You will take a long flight to Canada to attend a job fair. You are at a bookstore at the airport and plan to buy a book to read en route. A sales representative recommends a certain book. It is a book for leisure and is the type you always love; you predict you will enjoy reading it very much. Nevertheless, this book is not related to your career, and reading it will not help your career development. Will you buy this book?
Scenario 6	You have free time in the evenings and are interested in taking a course. A neighborhood school happens to offer such evening courses. A representative from the school recommends a particular course to you; it consists of 20 evening sessions and costs \$600. After reading its description, you do not find this course very enjoyable: You will not do fun things or meet fun people during the course. Nevertheless, the course will teach you useful knowledge and useful skills and will help you advance your career. Will you spend time and money to take this course?	You have free time in the evenings and are interested in taking a course. A neighborhood school happens to offer such evening courses. A representative from the school recommends a particular course to you; it consists of 20 evening sessions and costs \$600. After reading its description, you find this course very enjoyable: You will do a lot of fun things and meet a lot of fun people during the course. Nevertheless, the course does not teach you any useful knowledge or any useful skills and will not help you advance your career. Will you spend time and money to take this course?