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Distinguishing the cognitive and behavioral consequences of attitude importance and certainty: A new approach to testing the common-factor hypothesis[☆]

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Abstract

Some published factor analyses have suggested that attitude importance and certainty are distinct psychological constructs, but other factor analytic investigations have suggested they are largely redundant reflections of a more general underlying construct. This latter sort of finding has led investigators to average measures of importance and certainty together into a composite index and then explore its cognitive and behavioral consequences. In this paper, we report three studies gauging the underlying structure of these strength-related attitude attributes by assessing whether they in fact relate in the same ways to information processing and action tendencies. We found that importance and certainty both independently predicted the likelihood that a person attempted to persuade others to adopt his or her attitude. Importance (but not certainty) was associated with the tendency to seek out information that would enable people to use their attitudes in a subsequent judgment and only importance predicted whether or not they turned out to vote in an election to express their attitudes. Certainty (but not importance) was related to the tendency to find more than one political candidate acceptable. And importance and certainty interacted to predict the frequency with which people performed attitude-expressive behaviors. All this suggests that importance and certainty have distinct effects on thinking and behavior and supports the maintenance of conceptual and empirical distinctions between them in social psychological theory building.

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Some attitudes are durable and impactful—they resist change in the face of a persuasive appeal, they remain stable over time, and they exert a powerful influence on thinking and behavior—whereas others are not. The term “attitude strength” is often used to capture this distinction, and researchers have identified roughly a

dozen attributes of attitudes that are associated with their strength (see Petty & Krosnick, 1995). Among these strength-related attitude attributes are certainty (e.g., Budd, 1986), importance (e.g., Krosnick, 1988a), accessibility (e.g., Fazio, 1986), ambivalence (e.g., Kaplan, 1972), extremity (e.g., Osgood, Suci, & Tanenbaum, 1957), elaboration (e.g., Petty & Cacioppo, 1986), knowledge (e.g., Wood, 1982), intensity (e.g., Cantril, 1946), evaluative-cognitive consistency (e.g., Chaiken & Baldwin, 1981), and evaluative-affective consistency (e.g., Chaiken & Pomerantz, 1992). In separate lines of research, each of these attributes has been shown to relate to the durability and impactfulness of attitudes (see Petty & Krosnick, 1995, for a review).

A large literature now exists documenting the relations of such attitude attributes with the four defining features of strong attitudes (i.e., stability over time, resistance to persuasion, and powerful impact on thought and on behavior). Considerably less is known, however,

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about the relations among the various attitude attributes that are related to strength. In fact, a growing controversy regarding the underlying structure of strength-related attitude attributes has emerged in the attitude literature in recent years.

We begin below by reviewing this controversy and the conflicting empirical evidence that has fueled it. We then propose a new tack, one that more directly assesses the conceptual and practical utility of the competing perspectives. Next, we put this approach to use by exploring the relation between two attitude features related to strength about which the existing evidence is particularly ambiguous: attitude importance and attitude certainty. Finally, we consider the implications of our findings for the conceptualization of attitude strength and for the methods by which it is studied.

Competing conceptualizations of strength-related attitude features

A major debate in the attitude strength literature has revolved around whether strength-related attitude attributes should be thought of as manifestations of a relatively small number of underlying constructs, or whether each attribute should be considered a distinct construct in its own right. Some scholars have emphasized the conceptual differences among the attributes, pointing out, for example, that attaching personal importance to an attitude is conceptually distinct from being confident that the attitude is correct (e.g., Krosnick, Boninger, Chuang, Berent, & Carnot, 1993). Consistent with this view, confirmatory factor analyses testing a series of common-factor models have suggested that virtually none of the strength-related attributes are manifestations of the same underlying construct (e.g., Krosnick et al., 1993; Lavine, Huff, Wagner, & Sweeney, 1998). This has led some researchers to argue that strength-related attitude features are multi-dimensional and that efforts to elucidate the origins and consequences of attitude strength should focus on developing a fuller understanding of the origins and consequences of each individual strength-related attribute (e.g., Krosnick et al., 1993).

Other scholars have emphasized the overlap among strength-related attributes. Conceptual distinctions notwithstanding, these researchers have argued that clusters of strength-related attitude attributes appear to function as if they are manifestations of more general underlying factors. In many such investigations, exploratory factor analyses and related techniques have been used to analyze correlations among attributes, often yielding evidence consistent with the notion that sets of observable attributes reflected a few underlying factors (e.g., Abelson, 1988; Bass & Rosen, 1969; Bassili, 1996; Erber, Hodges, & Wilson, 1995; Lastovicka &

Gardner, 1979; Pomerantz, Chaiken, & Tordesillas, 1995; Prislin, 1996; Verplanken, 1989, 1991). For example, Pomerantz et al. (1995) reported factor analytic evidence suggesting that one set of strength-related attributes (including importance and volume of attitude-relevant knowledge) reflect the degree to which an attitude is embedded in a large, interconnected cognitive structure, and a second set of attributes (including attitude certainty and extremity) reflect an individual's level of commitment to the attitude. This sort of evidence has led researchers to argue that clusters of strength-related attitude attributes should be combined into indices, so that their cognitive and behavioral consequences can then be explored efficiently. And many such studies have done so (e.g., Abelson, 1988; Bassili, 1996; Bassili & Roy, 1998; Eagly, Kulesa, Brannon, Shaw, & Hutson-Comeaux, 2000; Haddock, Rothman, & Schwarz, 1996, 1999; Pomerantz et al., 1995; Prislin, 1996).

But among the exploratory factor analyses, results have varied considerably across studies. Some investigations have suggested that a wide set of strength-related attributes reflect a single underlying factor (Verplanken, 1989, 1991), whereas other studies have suggested that such attributes are surface manifestations of just two (e.g., Bassili, 1996; Pomerantz et al., 1995) or three (e.g., Abelson, 1988; Lastovicka & Gardner, 1979; Prislin, 1996) underlying factors. Furthermore, the available evidence is quite contradictory regarding which sets of strength-related attributes are redundant and which are distinct. For example, attitude importance and certainty loaded on the same factor in some studies (e.g., Erber et al., 1995; Prislin, 1996) but loaded on different factors in other studies (e.g., Abelson, 1988; Pomerantz et al., 1995; Visser and Krosnick, 2000). Likewise, attitude importance and attitude-relevant knowledge loaded on the same factor in several studies (e.g., Bassili, 1996; Erber et al., 1995; Pomerantz et al., 1995; Prislin, 1996) but loaded on different factors in other studies (e.g., Abelson, 1988; Krosnick et al., 1993, Studies 2 and 3).

Even within a single investigation, inconsistent results have sometimes emerged. For example, Bassili (1996) found importance and certainty to load on a common factor for some attitude objects but to load on different factors for other attitude objects. Similarly, Bass and Rosen (1969) found importance and certainty to load on a single factor for one attitude object and to load on different factors for a second object. Thus, this sort of investigative approach appears to yield more confusion than clarity.

Reformulating the question

This debate has been cast, at least implicitly, in absolute terms—sets of strength-related attributes are

either distinct constructs with different antecedents and consequences, or they are entirely redundant, interchangeable reflections of the same underlying construct. But the truth almost certainly lies somewhere between these extremes. Most pairs of strength-related attitude attributes are likely to be at least partially distinct—arising from at least some unique antecedents and setting into motion at least some distinct cognitive and behavioral consequences. But many pairs of strength-related attributes are likely to share at least some common variance as well, arising from some of the same antecedents. And they may exert some of the same effects on thought and behavior.

The question, then, is whether there is enough unique variance to justify distinguishing among the various strength-related attitude attributes when building theories of the origins and consequences of attitude strength. If the unique variance in a set of strength-related attributes is fairly trivial, this suggests that the attributes have largely redundant antecedents and consequences. In the interest of parsimony, measures of these attributes could then be combined together into an index to more efficiently explore their workings in relation to other psychological constructs. But if the amount of unique variance is substantial, this would indicate that causes of the various strength-related attributes are quite different, and it would raise the possibility that they might also exert different sorts of cognitive and behavioral effects. The more different their origins and consequences are, the more misleading the results of an investigation are likely to be if measures of different strength-related attitude attributes have been combined into an index.

This logic suggests that an efficient alternative to factor analyses would involve directly exploring the antecedents and consequences of various strength-related attitude attributes. If two attributes appear to be similarly affected by many predictor variables and appear to exert similar effects on thinking and action, this would suggest that there is little to be gained by maintaining sharp distinctions between them in investigations of attitude strength. But if two attributes have different causes and have independent, countervailing, or interactive effects, this would suggest that there is utility in maintaining the distinction between them in theory-building, and that the parsimony of the common-factor model comes at the price of an inaccurate characterization of strength-related attitude processes.

In this paper, we take just this approach with a focus on two strength-related attitude attributes: importance and certainty. We chose these particular attributes for a number of reasons. First, they have been the focus of a great deal of past empirical study, so they are of interest to many investigators in many different domains of social psychology, both within the attitudes area and outside. Second, these two dimensions are typical of strength-related attitude features in terms of the findings

of past exploratory factor analysis studies: sometimes loading together on a single factor and other times loading on separate factors.

Third, these two attitude features offer an opportunity for a conservative test of the utility of maintaining distinctions among strength-related attitude attributes. Importance and certainty are both what Bassili (1996) referred to as “meta-attitudinal” features, meaning that they are in essence people’s *perceptions*, formulated through introspective subjective judgments. Haddock and his colleagues (Haddock et al., 1996; Haddock et al., 1999) and Bassili (1996) have argued that people have only a vague sense of how important an attitude is to them or of the certainty with which they hold the attitude, so reports of such constructs are typically constructed by reference to the accessibility of attitudes or other cues (see also Roese & Olson, 1994). Therefore, evidence that importance and certainty are related to different cognitive and behavioral outcomes would provide an especially compelling argument for a more differentiated view of strength-related attitude features. And evidence of this sort would suggest that devoting effort to disentangling the origins and consequences of other, less similar strength-related attitude attributes should be a high priority in the attitude strength literature.

The present investigation

Below, we report the findings of three studies, two of which involved data collected from nationally representative samples of American adults, and the third of which involved data from a sample of college students. Each study assessed the certainty with which participants held attitudes on various social and political issues, as well as the amount of personal importance they attached to each attitude. And similar to the approach taken by Pomerantz et al. (1995), we examined the relations of certainty and importance to an array of their potential cognitive and behavioral consequences.

Some of the outcomes we explored are core features that define strong attitudes (see Krosnick & Petty, 1995) such as the tendency to perform attitude-expressive behavior and the effects of an attitude on information processing, focusing in particular on the similarity-attraction effect. In addition, we examined four indicators of a person’s commitment to attitudes toward political candidates derived from the similarity-attraction principle: attempts to convince others to hold those attitudes, the acceptability of non-preferred candidates, intention to express the attitudes by voting, and actual turnout on election day.

Finally, we assessed the relations between importance and certainty and the motivation to gather attitude-relevant information (as evidenced by reported interest in such information, attention paid to such information

when encountered, and choices made when selecting information to be obtained) and the frequency of discussing an attitude object with other people, which might reflect an interest in gathering information, an interest in expressing one's attitudes, or other motivations. Most of the outcome variables we explored have been investigated in relation to importance (e.g., Berent & Krosnick, 1993; Granberg & Holmberg, 1986; Krosnick, 1988a, 1988b; McGraw, Lodge, & Stroh, 1990), but very few have been investigated regarding certainty (e.g., Marks & Miller, 1985), and no past study we know of has examined the independent and interactive relations between importance and certainty and any of these outcome variables.

We also examined changes in importance and certainty over time in the course of ordinary daily life. This, too, may shed light on the utility of maintaining a distinction between importance and certainty. If these attitude features rise and fall in tandem, this may suggest that they share a common set of antecedents. If instead their overtime dynamics differ, this suggests that they have at least partially distinct antecedents.

Study 1

Using survey data collected from nationally representative samples of American adults, we compared the relations of importance and certainty to attitude-expressive behavior, and we explored the patterns of change over time in importance and certainty. The focus of the survey was Americans' attitudes toward and beliefs about global warming.

Hypotheses

Attitude-expressive behavior

Attitude importance presumably motivates people to use and express their attitudes, and as a result, greater importance might be associated with the performance of more attitude-expressive behaviors. But if a person is not certain about his or her attitude on an issue, even if that attitude is important to him or her, the lack of confidence might inhibit behavioral expression of it. Therefore, we might see an interaction between importance and certainty, such that attitude-expressive behavior is most common when both importance is high (motivating the expression) and certainty is high (permitting the expression with confidence). That is, the combination of high importance and high certainty might be associated with a particularly pronounced increase in attitude-expressive behaviors.

Change over time

We also examined changes over time in the importance people attached to their attitudes toward global

warming and the certainty with which they held them. In late 1997, in the wake of the October 6 White House Conference on Global Climate Change (Cushman, 1997), the media offered the American public hundreds of newspaper, television, radio, and magazine news stories about global warming. In addition, advertisements in newspapers and on television were placed by industry and environmental groups, and numerous web sites were established on the topic. In this context, people may have gained knowledge about global warming, given more thought to their attitudes on this issue, or come to recognize that their peers share their views on this issue, each of which could increase the certainty with which they held their attitudes toward global warming (see Gross, Holtz, & Miller, 1995). However, much of the discussion in the media focused on uncertainties and complexities of the issue, so the experience could well have led people to feel less certain about their views of global warming.

The debate could have made people more convinced of links between global warming and their self-interests, reference groups or individuals, or core values, which would have led them to attach more importance to their attitudes on this issue. But it is equally possible that newly acquired information about global warming persuaded people that the issue was less closely tied to their material interests, reference groups or individuals, or values than they had previously believed, leading them to attach less importance to it.

In order to shed light on the independence or interdependence of importance and certainty, we set out to determine which of these various patterns in fact obtained. To this end, we assessed changes in the distributions of importance and certainty for the country between just before the national debate on global warming and just after it.

Method

Participants

A representative sample of 688 English-speaking adults living in private households in the US was interviewed by telephone by the Ohio State University Survey Research Unit in September and October of 1997. The sample was generated via random digit dialing, and the cooperation rate was 67.3%. To enhance the representativeness of the sample, within-household sampling was done by asking the household member with the most recent birthday to participate (Salmon & Nichols, 1983).

A second nationally representative sample of 725 adults was interviewed by telephone after the media coverage had subsided (between December 20, 1997, and February 13, 1998). The cooperation rate for the second

sample was 71.4%. Comparisons with the March 1997 Current Population Survey (CPS) conducted by the US Census Bureau indicated that both samples were quite representative of the nation in terms of race, education, age, gender, and region of residence.

Measures and coding

The same questionnaire was used for both interviews, and it included measures of importance, certainty, monetary attitude-expressive behavior, non-monetary attitude-expressive behaviors, and demographics (for all question wordings, see Appendix A).

Attitude importance

Participants reported whether the issue of global warming was extremely important, very important, somewhat important, not too important, or not important at all to them (coded 1, .75, .5, .25, and 0, respectively).

Certainty

Participants were asked how sure they were of their opinions on global warming: extremely sure, very sure, somewhat sure, slightly sure, or not at all sure (coded 1, .75, .5, .25, and 0, respectively).

Monetary attitude-expressive behavior

Participants reported whether or not they had given money to an organization concerned with the issue of global warming or air pollution during the prior four months (coded 1 for participants who had given money to such an organization and 0 for participants who had not).

Non-monetary attitude-expressive behaviors

Participants reported whether or not they had written a letter to a public official about global warming or air pollution or had attended a meeting to discuss the issues during the past four months. Responses to these questions were combined into a 3-point scale (reflecting the performance of zero, one, or two of the behaviors) that was coded to range from 0 to 1.

Demographic control variables

Demographic variables measured included sex (coded 0 for males and 1 for females), race (coded 0 for whites and 1 for nonwhites), education (coded 0, .25, .5, .75, and 1 for participants who had less than a high school diploma, a high school diploma, some college or a two-year college degree, a four-year college degree, and postgraduate education, respectively), income (coded 0 for participants whose annual household income was \$20,000 or less and 1 for participants whose annual

household income was greater than \$20,000¹), and age (coded to range from 0 to 1, where 0 represented age 18, the youngest age in this sample, and 1 represented age 95, the oldest age in this sample). Each of these were included as control variables in the analyses reported below in an effort to estimate most precisely the relations between importance and certainty and each of the dependent variables.

Results

Correlation between importance and certainty

As expected, importance and certainty were positively correlated, $r = .25$, $N = 687$, $p < .001$.

Monetary attitude-expressive behavior

Monetary attitude-expressive behaviors are presumably constrained by participants' financial resources; people with very little money cannot express their attitudes monetarily as easily as people with more money. To capture this constraint, we conducted a logistic regression predicting whether or not participants had given money to an organization concerned with global warming using importance, certainty, household income, all two-way interactions among these variables, and the three-way interaction between importance, certainty, and income.

When included individually as sole predictors, higher importance and certainty each predicted greater likelihood of monetary attitude-expressive behavior, $b = 2.83$, $SE = .62$, $p < .001$, and $b = 1.46$, $SE = .57$, $p < .001$.² However, these associations were qualified by a marginally significant three-way interaction between importance, certainty, and income ($b = 9.09$, $SE = 4.90$, $p < .07$; see Table 1). As expected, among people who were not under tight financial constraints, a two-way interaction between importance and certainty emerged, $b = 4.51$, $SE = 2.38$, $p < .06$. Participants were much more likely to have given money to an organization

¹ Unlike most demographic measures, which survey participants are typically quite comfortable reporting, some survey participants refuse to report their income. To avoid dropping from our analyses the data from this subset of participants, we coded the income for these participants at the median for the full sample. We then dichotomized this variable, reflecting our expectation that people with low annual incomes would be unable to spend money to express their political attitudes, because their basic needs for food, shelter, and clothing would quickly outstrip their available resources, whereas people with moderate or high incomes would not experience this severe restriction.

² We also ran these and all other regressions reported below including attitude valence and attitude extremity as control variables in the equation. This allowed us to test whether the observed associations between importance, certainty, and the various dependent measures were spurious, driven by confounds between importance or certainty and valence or extremity. In every case, we obtained results virtually identical to those reported in the text when we added these control variables to the equations.

Table 1
Logistic regression coefficients predicting monetary attitude-expressive behavior

Predictor	Logistic regression coefficients									
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Importance	2.83***		2.57***	1.36	2.90*		2.92*	5.33*		
Certainty		1.46**	.83	-.36		.88	-.07	2.91		
Importance $\times$ certainty				2.00				-4.54		
Importance $\times$ income					-.10		-.46	-5.70 ⁺		
Certainty $\times$ income						.78	1.19	-4.39		
Importance $\times$ certainty $\times$ income								9.09 ⁺		
Composite variable									3.38***	2.87*
Composite variable $\times$ income										.69
Sex	-.30	-.05	-.26	.28	-.30	-.06	-.26	-.27	-.18	-.18
Race	-.36	-.26	-.35	-.34	-.36	-.28	-.38	-.38	-.34	-.34
Education	2.04***	1.79***	1.93***	1.94***	2.04***	1.78**	1.93***	2.01***	1.80***	1.80***
Income	-.05	-.11	-.06	-.05	.01	-.55	-.42	2.62	-.08	-.50
Age	.70	.62	.78	.78	.70	.59	.75	.66	.80	.76
R^2	.13	.07	.13	.13	.13	.08	.13	.15	.12	.12
N	642	642	642	642	642	642	642	642	642	642

⁺ $p < .07$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

concerned with global warming if they attached importance to the issue and held their global warming attitudes with certainty (23.7% gave money) than all other combinations of importance and certainty (10.9, 8.0, and 5.7% gave money among people who were high in importance but low in certainty, low in importance but high in certainty, and low in both importance and certainty, respectively), $\chi^2(1) = 26.03$, $p < .001$. And as expected, the two-way interaction between importance and certainty was not significant among people under tight financial constraints, $b = -3.71$, $SE = 4.43$, $p = .41$.

Non-monetary attitude-expressive behavior

In separate ordinary least squares (OLS) regressions, importance and certainty were positively associated with

non-monetary attitude-expressive behaviors, $b = .06$, $SE = .02$, $p < .001$ and $b = .07$, $SE = .02$, $p < .001$, respectively (see Table 2). Main effects of importance and certainty in a simultaneous regression were both significant, $b = .05$, $SE = .02$, $p < .02$ and $b = .06$, $SE = .02$, $p < .01$, respectively. The interaction between importance and certainty was also significant, $b = .22$, $SE = .06$, $p < .001$. People who attached high importance to the issue of global warming (i.e., rated it as extremely or very important) and *also* held their attitudes with great certainty (i.e., said they were extremely or very sure of their attitudes) performed more behaviors ($M = .08$) than all other combinations of importance and certainty ($Ms = .02$, $.03$, and $.01$ for people who were high in importance but low in certainty, low in

Table 2
Unstandardized regression coefficients predicting non-monetary attitude-expressive behavior

Predictor	Unstandardized regression coefficients				
	Model 1	Model 2	Model 3	Model 4	Model 5
Importance	.06***		.05*	-.08*	
Certainty		.07***	.06**	-.05	
Importance $\times$ certainty				.22***	
Composite variable					.10***
Sex	.00	.01	.00	.00	.00
Race	-.01	-.01	-.01	-.01	-.01
Education	.02	.01	.01	.01	.01
Income	-.01	-.01	-.01	-.01	-.01
Age	-.02	-.02	.02	-.02	.02
R^2	.023	.030	.038	.057	.038
N	643	643	643	643	643

* $p < .05$.

** $p < .01$.

*** $p < .001$.

importance but high in certainty, and low in both importance and certainty, respectively), $t(682) = 4.28$, $p < .001$.³

We see no reason to expect that income should moderate the relations between importance and certainty and non-monetary attitude-expressive behavior. And consistent with this reasoning, the three-way interaction of importance $\times$ certainty $\times$ income was not significant and indeed opposite in sign to what we saw for monetary behaviors: $b = -.18$, $SE = .13$, $p = .17$.

Changes over time in importance and certainty

Data from the cross-sectional samples indicated that between September–October and December–February, the proportion of people who indicated that global warming was extremely, very, or somewhat important to them increased from 75.0 to 80.5% ($\chi^2(1) = 6.17$, $p < .01$), whereas the proportion of respondents who indicated that they were extremely, very, or somewhat certain about their opinions on the issue decreased slightly and non-significantly, from 70.6 to 69.4% ($\chi^2(1) = 0.25$, $p = .62$). The trend in importance was significantly different from the trend in certainty ($\chi^2(1) = 4.73$, $p < .03$), further reinforcing the notion that importance and certainty do not behave identically.⁴

Consequences of the single-factor assumption

The results presented above suggest that averaging measures of importance and certainty (and other strength-related attitude attributes) to construct indices of the general factors presumed to underlie them (see e.g., Bassili, 1996; Eagly et al., 2000; Erber et al., 1995; Prislin, 1996) may have obscured the independent and interactive effects of importance and certainty (and perhaps other strength-related attributes as well) and may have led these researchers to draw incorrect conclusions. To explore this notion directly, we constructed a composite index by averaging together the measures of importance and certainty. We then used this composite variable to predict each of the dependent variables explored in this study. The results provide further evidence of the utility of maintaining the distinctions between these attributes (see columns 10 and 11 of Table 1 and column 6 of Table 2).

³ Virtually identical results were obtained when the two behaviors (writing a letter and attending a group meeting) were analyzed separately.

⁴ The amount of importance people attached to their global warming attitudes and the certainty with which they held them varied across some demographic subgroups (e.g., age, geographic region of residence). Therefore, to ensure that random differences in the demographic composition of the two samples did not produce artifactual differences in importance and certainty, the data from both samples were weighted to match the 1997 CPS statistics in terms of age, region of residence, race, education, and gender for this set of analyses.

For example, whereas importance increased as the result of the national debate on global warming, the composite variable registered no change, $\chi^2(1) = 0.72$, $p = .40$. The composite index also failed to reveal the interaction between importance and certainty with financial constraint when predicting monetary attitude-expressive behavior (see column 11 of Table 1) that emerged when keeping importance and certainty separate. And the composite index accounted for less variance in non-monetary attitude-expressive behavior than did importance, certainty, and the interaction between them (see column 6 of Table 2). All this suggests that treating importance and certainty as distinct constructs, rather than as indicators of a single underlying latent construct, yields more useful insights into the functioning of attitudes.

Study 2

Our second study explored the relations of importance and certainty to a new set of outcome variables: interest in obtaining issue-relevant information, attention paid to issue-relevant information, efforts to gathering of information that facilitates the use of one's attitude when making a judgment, and frequency of discussion of an issue. If attitude importance motivates people to bolster, express, and use their attitudes, then people who attach more importance to their attitudes may be more interested in acquiring and thinking about attitude-relevant information, more motivated to actively seek information that will enable them to make attitude-consistent judgments, and more motivated to express those attitudes in conversations with others.

Certainty about an attitude seems less likely to inspire these outcomes. In fact, the more confident a person is that his or her attitude is correct, the less need he or she may feel to gather or attend carefully to additional information on the issue. And simply being certain of an attitude seems unlikely to motivate people to actively seek out information that will enable them to use the attitude in a subsequent judgment. Certainty may give a person confidence in discussing an issue with others, because he or she may feel unconcerned about being incorrect. But a person who lacks confidence in his or her attitude may also be likely to discuss it with others in an effort to resolve his or her uncertainty. Therefore, it is difficult to know whether higher certainty will be associated with more or less frequency of discussion.

In exploring the relations of importance and certainty to these new outcomes, we were able to go a step beyond Study 1 analytically. In that study, each of these attributes was measured with a single questionnaire item. Responses to individual questions typically contain substantial amounts of random and systematic measurement error (e.g., Cote & Buckley, 1987), and dif-

ferences in the amount of measurement error in measures of importance and certainty could have produced apparent differences in their consequences. Specifically, if people were able to report the importance they attached to their attitudes more precisely than they were able to describe the certainty with which they held their attitudes, more measurement error in the certainty assessments would attenuate all observed relations between them and the outcomes.

In our second study, importance and certainty were each assessed with multiple items in differing formats and using various rating scale lengths. To create a level playing field for comparing the effects of importance and certainty, we estimated the parameters of a latent variable structural equation model that corrected observed effect sizes for attenuation due to random and systematic measurement error.

Method

Participants

Undergraduate students enrolled in an introductory psychology course at Ohio State University participated in this study in partial fulfillment of a course requirement. One hundred and fifty nine students came to our laboratory for a first visit, and 138 returned for a second visit three weeks later.⁵

Measures and coding

The questionnaire included measures of attitudes, importance, certainty, interest in obtaining attitude-relevant information, attention paid to attitude-relevant information, and frequency of discussion of the attitude (all measured during the first visit) and selective gathering of information about the attitude object (measured during the second visit).

Attitudes. Attitudes toward legalized abortion were assessed via (1) an 11-point bipolar rating scale, (2) three 7-point semantic differential scales, and (3) a 9-point rating scale on which the scale points were labeled with specific issue positions, ranging from the most supportive (e.g., "Abortion is acceptable under any circumstances; no restrictions whatsoever should be placed on its use.") to the most oppositional (e.g., "Abortion is the curse of humankind; it should be absolutely outlawed."). Responses to each item were coded to range from 0 to 1, with higher numbers reflecting more positive attitudes toward legalized abortion.

Importance and certainty. Attitude importance and certainty were each assessed with a set of three questions

of varying scale format. For example, participants were asked to report how important the issue was to them personally (on a 7-point scale), how much they personally cared about the issue (on a 5-point scale), and how important they considered the issue of abortion compared to other issues (on a 11-point scale). Questions measuring each construct were presented in a block, and the order in which the blocks were presented was rotated randomly across participants. Responses were coded to range from 0 to 1, with higher numbers reflecting higher levels of each construct.

Interest. Participants reported how interested they were in the issue of legalized abortion (on an 11-point scale) and how interested they were in obtaining information about this issue (on a 5-point scale), and responses were coded to range from 0 to 1, with higher numbers reflecting greater interest.

Attention. Participants reported how much attention they generally paid to information they came across regarding legalized abortion (on a 5-point scale), how much attention they paid to abortion relative to other issues (on an 11-point scale), and how much attention they paid to news articles or televised news stories about this issue (on a 7-point scale). Responses were coded to range from 0 to 1, with higher numbers reflecting greater attention.

Selective information gathering. Participants were told that they would receive information about 12 political candidates and would be asked to evaluate each candidate. Participants could choose to learn about each candidate's position on three of six possible issues. The six available issues differed across candidates, requiring participants to consider each candidate individually and choose three issues from the six that were available for that particular candidate. The issue of legalized abortion was available for six of the 12 candidates. The number of times each participant requested a candidate's position on legalized abortion was assessed (ranging from 0 to 6). This index was recoded to range from 0 to 1.

Discussion. Participants reported the frequency with which they discussed the issue of legalized abortion with other people (on a 7-point scale), how often the topic of legalized abortion came up in conversations with others (on a 4-point scale), and how much time they spent talking about this issue relative to other issues (on an 11-point scale). Responses were coded to range from 0 to 1, with higher numbers reflecting more frequent discussions.

Results

Using LISREL 8.3 (Joreskog & Sorbom, 1996), we estimated the parameters of a series of structural equation models representing the causal relations between attitude importance and certainty and (1) interest in the issue of abortion, (2) attention to information on this issue, (3) selective gathering of abortion-relevant information, and (4) frequency of discussions of this issue. In

⁵ The delay between the first and second sessions was intended to reduce the likelihood that the salience of participants' attitudes toward legalized abortion induced by the lengthy process of completing the battery of attitude-related measures during the first session would influence the measures collected during the second session.

this model, all of the latent constructs except “information gathering” were gauged by multiple measures.⁶ The model also included three “method factors,” one for 5-point rating scales, a second for 7-point rating scales, and the third for 11-point rating scales. All items using each of these scales were specified to load equally on the appropriate method factor, and the three method factors were specified to be uncorrelated with one another (see Alwin & Krosnick, 1985; Judd & Krosnick, 1982; Krosnick & Alwin, 1988; Widaman, 1985).

Consequences of importance

In an initial model, we estimated the relations between importance and each of the four consequences. A variety of indices indicated that this model fit the data well ($\chi^2/df = 1.76$; non-normed fit index = .92; root mean square residual = .003). As expected, importance was strongly associated with each of the consequences, $b = .91, .48, .58$, and $.57$, for interest, attention, selective information gathering, and frequency of discussion, respectively; all p 's < .001.

Consequences of certainty

A model that estimated the relations between certainty and the four consequences also fit the data well ($\chi^2/df = 1.52$; non-normed fit index = .95; root mean square residual = .004). Certainty was associated with interest, attention, and frequency of discussion, although less strongly, $b = .61, .34, .31$, all p 's < .01. And certainty was unrelated to selective information gathering, $b = .25, p = .12$.

Relation between importance and certainty

We next estimated the parameters of a model that included both importance and certainty and all four of the consequences, which fit the data well ($\chi^2/df = 1.53$; non-normed fit index = .95; root mean square residual = .01; see Fig. 1). The relation between importance and certainty was quite strong ($r = .64, N = 118, p < .001$). But because this estimate is corrected for the attenuating impact of measurement error, the clear departure of this correlation from 1.0 reinforces the conclusion that importance and certainty are related but distinct constructs, raising the possibility that they may have different consequences for thought and behavior. And in fact, constraining the correlation between importance and certainty to be equal to 1 reduced model fit substantially ($\chi^2/df = 5.03$; non-normed fit index = .62; root mean square residual = 1.04). A χ^2 test of the difference between the fit of this model and the fit of a model not constraining the correlation to be 1.0 con-

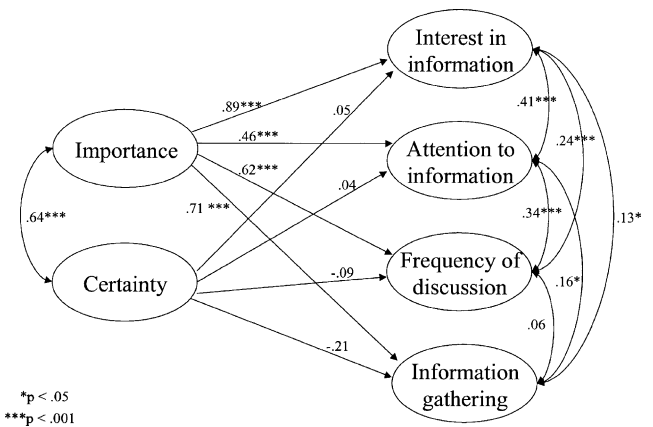


Fig. 1. Structural equation model predicting interest in attitude-relevant information, attention to attitude-relevant information, frequency of discussions, and information-seeking behavior. *Note.* Parameter estimates are unstandardized coefficients with the exception of the correlations (indicated by two-headed arrows). Every latent factor except “information gathering” was gauged by multiple indicators. The model also included three method factors, on which indicators that shared a common response scale loaded equally. The method factors were uncorrelated with all other latent factors in the model.

firmed that adding the constraint substantially reduced the fit of the model, $\chi^2(1) = 260, p < .001$.

Consequences of importance and certainty

In the model that included both importance and certainty, importance was a strong predictor of interest in receiving attitude-relevant information, $b = .89, p < .001$, attention to such information, $b = .46, p < .001$, efforts to gather information that will facilitate the use of the attitude in a subsequent judgment, $b = .71, p < .001$, and frequency of discussions of the issue with others, $b = .62, p < .001$. The certainty with which attitudes were held was not associated with any of these outcomes, $b = .05, .04, -.09$, and $-.21$, respectively; all p 's > .46.

To test for interactions between importance and certainty, we used a procedure outlined by Kenny and Judd (1984). Specifically, we added a latent independent variable to the model shown in Fig. 1 to represent the interaction, and the indicators of this new latent factor were the products of each importance measure with each certainty measure (see also Joreskog, Sorbom, du Toit, & du Toit, 1999, pp. 169–171). This new latent factor was then permitted to affect each of the four outcome variables. The effects on interest, attention, information-seeking, and frequency of discussion were all non-significant, $b = .03, SE = .36, p = .94, b = .10, SE = .33, p = .77, b = .07, SE = .21, p = .59$, and $b = .46, SE = .33, p = .16$, respectively.⁷

⁶ Because only one measure of information gathering was collected, this construct was represented in the model as a latent factor that was perfectly gauged by the single measured indicator (see Wegener & Fabrigar, 2000).

⁷ We also estimated the impact of this interaction term a second way: using latent variable scores (see Joreskog et al., 1999, pp. 171–173). We again found that the interaction was not a significant predictor of any of the dependent measures.

Consequences of the single-factor assumption

Finally, we explored the consequences of assuming that importance and certainty are reflections of the same underlying construct by constraining the correlation between importance and certainty to be 1 and constraining the relation between importance and each consequence to be equal to the association between certainty and that consequence. This is equivalent to treating measures of importance and certainty as surface manifestations of a common underlying factor. Not surprisingly, this model did not fit the data ($\chi^2/df = 5.03$, non-normed fit index = .63, root mean square residual = .50). And as in Study 1, treating importance and certainty as reflections of a common factor yielded misleading results: the composite index significantly predicted all four of the consequences, masking the fact that importance was associated with all four consequences, including selective information gathering, whereas certainty was not.

Study 3

In our final study, we explored the relations of importance and certainty to electoral behavior. Using survey data collected from a representative national sample of American adults, we examined whether importance and certainty appear to regulate the degree to which people used their preferences on government policy issues to choose between the candidates who ran for President of the United States in 1996. If importance motivates people to use an attitude, then greater importance attached to an issue such as abortion may have motivated individuals to choose between Bill Clinton and Bob Dole based on their attitudes toward abortion. That is, people who attached more importance to the issue of abortion may have been more likely to use the match between their own stand on the issue and the stands of Bill Clinton and Bob Dole to decide which of these candidates to support.

Uncertainty may cause people to hesitate before using an attitude, so lower certainty may have inhibited people from using their policy preferences to choose between the competing presidential candidates. And in fact, an interaction might appear, such that especially powerful impact of a policy preference on candidate evaluations might occur when both importance and certainty are high.

If a person's candidate preference is an expression of many important policy preferences, he or she may be more invested in that candidate preference. And if a person's candidate preference is derived from policy preferences that he or she holds with little confidence, then he or she may be only minimally invested in that candidate preference. Thus, high importance or high certainty regarding many policy preferences may lead to

greater commitment to candidate preferences and therefore more unhappiness if one's preferred candidate is not elected, more efforts to persuade others to vote for one's preferred candidate, greater intention to vote on election day, and higher likelihood of actual turnout. We tested all of these hypotheses.

Method

Participants

In 1996, the Center for Political Studies at the University of Michigan conducted face-to-face interviews with a nationally representative sample of American adults for the National Election Study. A total of 1714 people living in private households were interviewed during the weeks immediately preceding the U.S. Presidential election that year, and 1534 of these participants were reinterviewed after the election. The response rate for the pre-election wave was 71%, and 90% of the people interviewed pre-election were also interviewed post-election.

Pre-election measures and coding

Target policy attitudes. Participants reported their attitudes on five policy issues (government spending on social services, defense spending, government assistance to Blacks, abortion, and environmental protection; for the question wordings, see Appendix A) on 7-point scales with the endpoints verbally labeled. Responses were coded to range from 0 to 1, such that higher numbers corresponded to more politically liberal responses.

Attitude certainty. Participants reported the certainty with which they held their attitude on each policy issue (very certain, pretty certain, or not very certain, coded 1, .5, and 0, respectively).

Attitude importance. Participants reported how important each of the five policy issues was to them personally (extremely important, very important, somewhat important, not too important, or not important at all). In order to code the measures of importance into three categories to match the measures of certainty, participants who indicated the issue was extremely important to them were coded 1; those who reported that the issue was very or somewhat important to them were coded .5; and those who said the issue was not too or not at all important to them were coded 0.⁸

Perceptions of candidates' attitudes. Participants reported their perceptions of the attitudes of presidential candidates Bob Dole and Bill Clinton on each of the five policy issues, in each case using the same 7-point scale they had used to report their own attitudes. Responses

⁸ Results from analyses using the original 5-point importance variable were virtually identical to those reported here.

were recoded to range from 0 to 1, with higher numbers corresponding to more politically liberal views.

Issue proximity. We constructed five variables representing the distance between participants' self-placements on each of the five political issues and the position of President Clinton on each issue.⁹ Similarly, we constructed five variables representing the distance between participants' self-placements on the issues and the positions of Senator Dole. We then subtracted the distance between each participant and President Clinton for a particular issue from the distance between the participant and Senator Dole for that issue. Thus, participants whose positions on an issue were closer to Clinton's position than to Dole's had positive values on this issue proximity measure, whereas participants whose issue positions were closer to Dole's than to Clinton's had negative values. Participants whose issue positions were equidistant from Clinton and Dole had values of zero on this measure.¹⁰

Attitudes toward the presidential candidates. Participants reported their attitudes toward President Clinton and Senator Dole on 101-point thermometer scales, where 50 represented a neutral attitude, higher numbers represented more favorable attitudes, and lower numbers represented less favorable attitudes. Responses were recoded to range from 0 to 1, with higher numbers representing more favorable attitudes. We constructed a measure of participants' relative candidate evaluations by subtracting ratings of Senator Dole from ratings of President Clinton. This new variable ranged from -1 to +1 with positive numbers reflecting a preference for President Clinton and negative numbers reflected a preference for Senator Dole.

Persuasion attempts. Participants reported whether they had talked to other people during the election campaign to try to convince them to vote for or against one of the parties or candidates (coded 0 if they had not done so and 1 if they had).

Acceptability of non-preferred candidates. Participants indicated whether or not they found any presidential candidate other than their preferred candidate to be acceptable (coded 0 if they found no other candidate

acceptable and 1 if they found one or more other candidates acceptable).

Turnout intention. Participants reported whether they intended to vote in the upcoming election (coded 0 if they did not intend to vote and 1 if they intended to vote).

Post-election measures and coding

Turnout. Participants reported whether they had cast a vote in the 1996 national election (coded 0 if they had not and 1 if they had).

Control variables

Many factors have been shown to influence voting behavior, including economic resources (e.g., income, employment, and home ownership), cognitive resources (e.g., education, age, and internal political efficacy), social resources (e.g., marital status, time lived in the community, and being contacted by a political party), race, region of residence, involvement in politics (e.g., strength of party identification), and external political efficacy (see, e.g., Campbell, Converse, Miller, & Stokes, 1960; Milbrath & Goel, 1977; Rosenstone & Hansen, 1993; Verba & Nie, 1972; Weisberg & Grofman, 1981). Measures of each of these factors were included in this data set (see Appendix A for question wording and coding details). In an effort to isolate the effects of importance and certainty, we included these control variables in all of the analyses reported below.

Results

Correlations between importance and certainty

Importance and certainty were positively correlated, $r = .35$, $N = 1463$, $p < .001$, $r = .30$, $N = 1480$, $p < .001$, $r = .33$, $N = 1561$, $p < .001$, $r = .29$, $N = 1701$, $p < .001$, $r = .35$, $N = 1458$, $p < .001$, for government spending on social services, defense spending, government assistance to Blacks, abortion, and environmental protection, respectively.

Moderation of the impact of attitudes toward government policies on candidate preferences

To explore whether the importance people attached to their attitudes on a specific issue and the certainty of those attitudes regulated the degree to which they used the issue when formulating their candidate preferences, we conducted OLS regressions predicting candidate preferences with issue proximity for each of the five issues, attitude importance for each of the five issues, attitude certainty for each of the five issues, and a variety of interactions positing that the impact of issue proximity varies with importance and certainty. We con-

⁹ Attitude projection (e.g., projecting one's own policy attitude onto a liked candidate) can bias a participant's report of a candidate's position and thereby distort estimates of the impact of policy preferences on candidate preferences. To eliminate this bias, researchers have often used a national sample's average perception of a candidate's attitude as a measure of his or her true position (e.g., Markus, 1982; Markus & Converse, 1979; Page, 1978). This is the method we used to calculate issue proximity scores. We subtracted each participant's position on an issue from the average sample placement of the candidate on that issue. Issue proximity scores computed using each participant's own perception of the candidates' positions instead of the sample averages yielded similar results.

¹⁰ Participants who were unable to place themselves on an issue were given values of zero on this variable.

structured one set of interaction terms by multiplying each issue proximity measure by the amount of importance participants attached to that issue. We constructed a second set of interaction terms by multiplying each issue proximity measure by the certainty with which participants held their attitudes on that issue.

To test our moderation hypotheses most parsimoniously, we constrained the coefficients for the interaction between importance and issue proximity to be equal across the five issues by averaging the five (issue proximity $\times$ importance) products to create a single summary interaction term (see Kenny, 1979, pp. 69–70). Likewise, we averaged the five (proximity $\times$ certainty) products to yield a single summary interaction term to test the hypothesis that attitude certainty moderated the impact of issue proximity. Also included in the regression equation were the demographic control variables described above.

As expected, the interaction between issue proximity and importance was significant when entered alone in the regression equation (see row 16 of Model 1 in Table 3), $b = 1.03$, $SE = .25$, $p < .001$, as was the interaction between issue proximity and certainty when it was entered in the equation alone (see row 17 of Model 2 in Table 3), $b = 1.64$, $SE = .33$, $p < .001$. Both interactions were significant when both were in the regression equation simultaneously (see rows 16 and 17 of Model 3 in Table 3). The more importance people attached to an issue, the more impact that issue had on candidate preferences, $b = .68$, $SE = .27$, $p < .01$. And attitudes held with greater certainty had more impact on candidate preferences, $b = 1.19$, $SE = .35$, $p < .001$.

To test the three-way interaction between issue proximity, importance, and certainty, we began by computing the product of those three variables for each policy issue separately. Then, we averaged the products across the five issues to again yield an efficient test of the three-way interaction. When we added the average three-way interaction term to the equation, it was not significant, $b = .63$, $SE = .92$, $p = .50$ (see Model 4 in Table 3).¹¹

Commitment to candidate preferences

To assess the relations between overall policy attitude importance and certainty and commitment to candidate preferences, we constructed indices of attitude importance and attitude certainty by summing the importance people attached to the several policy attitudes and by summing the certainty with which they held these posi-

tions. These indices (“total importance” and “total certainty”) were then recoded to range from 0 to 1, with 0 meaning no importance or certainty attached to any issue and 1 meaning maximum importance or certainty attached to every issue. We then estimated the independent and interactive associations between these indices and measures of commitment to candidate preferences. This strategy represents a departure from the analytic approach used up to this point. In Studies 1 and 2, for example, importance and certainty regarding a single attitude were used to predict behaviors expressing that attitude, interest in obtaining information relevant to that attitude, and so on. And in the preceding analysis, importance and certainty regarding a single attitude were treated as moderators of the impact of that attitude on candidate preferences.

In the analyses described next, the dependent variables are not specific to a single policy attitude but rather are general measures of commitment to candidate preferences. We hypothesized that attaching more importance to attitudes on more policy issues may enhance the likelihood that a person will develop a strong candidate preference. And holding more policy attitudes with greater certainty may also enhance the likelihood that a person will develop a strong candidate preference. To test these notions, we predicted various indicators of candidate preference strength using the total importance attached to the five issues and the total certainty attached to those issues.

Correlation between total importance and total certainty

As expected, total importance and total certainty were positively correlated, to about the same extent as the measures were for individual issues, $r = .39$, $N = 1710$, $p < .001$.

Persuasion attempts

When importance was the sole predictor of persuasion attempts, people higher in total importance were more likely to try to convince other people how to vote, $b = 1.91$, $SE = .38$, $p < .001$ (see column 2 in Table 4). And when certainty was the sole predictor, greater total certainty was also positively associated with efforts to persuade others, although more weakly, $b = .88$, $SE = .30$, $p < .01$ (see column 3 of Table 4). When total importance and total certainty were included in a single regression equation, only the effect of importance was significant, $b = 1.73$, $SE = .41$, $p < .001$, whereas the effect of certainty was not, $b = .37$, $SE = .33$, $p = .26$ (see column 4 in Table 4). The interaction between importance and certainty was also not significant, $b = -2.77$, $SE = 1.93$, $p = .15$ (see column 5 in Table 4).

Acceptability of non-preferred candidates

When importance was the sole predictor of the acceptability of non-preferred candidates, people higher in

¹¹ Virtually identical results were obtained when logistic regressions were conducted predicting self-reported vote choice coded 0 for participants who voted for Dole and 1 for participants who voted for Clinton with issue proximity scores and their interactions with attitude importance and certainty.

Table 3
Unstandardized regression coefficients predicting candidate preferences

Predictor	Unstandardized regression coefficients				
	Model 1	Model 2	Model 3	Model 4	Model 5
(Distance between participant and Dole)—(Distance between participant and Clinton): abortion	.18***	.00	.00	.00	.04
(Distance between participant and Dole)—(Distance between participant and Clinton): helping blacks	.23***	.06	.07	.09	.10
(Distance between participant and Dole)—(Distance between participant and Clinton): defense spending	.38***	.28**	.23*	.27*	.26**
(Distance between participant and Dole)—(Distance between participant and Clinton): environment	.35***	.22**	.19*	.23*	.22**
(Distance between participant and Dole)—(Distance between participant and Clinton): social services	.39**	.27***	.26***	.29***	.27***
Importance: abortion	.04		.04	.03	
Importance: helping blacks	.00		.01	.01	
Importance: defense spending	-.07*		-.06 ⁺	-.06*	
Importance: environment	.06 ⁺		.03	.03	
Importance: social services	-.08**		-.08**	-.08**	
Certainty: abortion	.06	.04	.05		
Certainty: helping blacks	-.05	-.05	-.06		
Certainty: defense spending	-.05	-.02	-.02		
Certainty: environment	.08**	.07 ⁺	.07 ⁺		
Certainty: social services	-.05	-.01	-.01		
Composite index: abortion					.07 ⁺
Composite index: helping blacks					-.03
Composite index: defense spending					-.09*
Composite index: environment					.10**
Composite index: social services					-.10***
Average interaction between relative distance from candidates and importance of the issues	1.03***		.68**	.16	
Average interaction between relative distance from candidates and certainty of the attitudes		1.64***	1.19***	.96*	
Average three-way interaction between relative distance from candidates, certainty, and importance				.63	
Average interaction between relative distance from candidates and the composite index					1.79***
R^2	.37	.37	.38	.38	.38
N	1498	1498	1498	1498	1498

Note. Also included in these regressions were predictors that have been shown in past research to influence political behavior: age, education, employment, homeownership, internal efficacy, external efficacy, time lived in the community, being contacted by a political party, race, region of residence, strength of party identification, marital status, whether one works for the government, income, and whether one is a student.

⁺ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

total importance did not differ from people lower in importance in the degree to which they found non-preferred candidates acceptable, $b = -.43$, $SE = .35$, $p = .22$ (see column 7 in Table 4). When certainty was the sole predictor, people higher in total certainty were significantly less likely to find any non-preferred candidates acceptable, $b = -1.20$, $SE = .29$, $p < .001$ (see column 8 in Table 4). This latter association remained significant when controlling for total importance, $b = -1.25$, $SE = .31$, $p < .001$, and the effect of importance remained non-significant, $b = .14$, $SE = .38$, $p = .78$ (see column 9 in Table 4). The interaction between importance and certainty in predicting acceptability of non-preferred candidates was not significant, $b = 1.48$, $SE = 1.66$, $p = .37$ (see column 10 in Table 4).

Turnout intention

When total importance was the sole predictor of pre-election intention to vote, people higher in importance were more likely to intend to vote, $b = 2.32$, $SE = .55$, $p < .001$ (see column 2 in Table 5). And when total certainty was the sole predictor, being higher in certainty was also associated with greater likelihood of intending to vote, $b = 1.55$, $SE = .43$, $p < .001$ (see column 3 in Table 5). Both of these associations remained significant when total importance and total certainty simultaneously predicted turnout intention, $b = 1.84$, $SE = .60$, $p < .01$, and $b = 1.03$, $SE = .46$, $p < .05$, respectively (see column 4 in Table 5). The interaction between importance and certainty was not significant, $b = -1.13$, $SE = 1.93$, $p = .56$ (see column 5 in Table 5).

Table 4

Logistic regression coefficients predicting efforts to persuade others and acceptability of non-preferred candidates

Predictor	Dependent variable									
	Attempts to persuade others					Acceptability of non-preferred candidates				
Total importance	1.91***		1.73***	3.94**		-.43		.14	-1.02	
Total certainty		.88**	.37	1.90 ⁺			-1.20***	-1.25***	-2.06*	
Importance × certainty				-2.77					1.48	
Composite variable					2.08***					-1.16**
R ²	.12	.11	.13	.13	.13	.04	.05	.05	.05	.04
N	1525	1523	1523	1523	1525	1404	1403	1403	1403	1404

Note. Also included in these regressions were predictors that have been shown in past research to influence political behavior: age, education, employment, homeownership, internal efficacy, external efficacy, time lived in the community, being contacted by a political party, race, region of residence, strength of party identification, marital status, whether one works for the government, income, and whether one is a student.

⁺ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Logistic regression coefficients predicting intended turnout and actual turnout

Predictor	Dependent variable									
	Intended turnout					Actual turnout				
Total importance	2.32***		1.84***	2.64		1.79***		2.02***	4.18***	
Total certainty		1.55***	1.03*	1.56			.28	-.34	1.05	
Importance × certainty				-1.13					-2.83 ⁺	
Composite variable					2.95***					1.53***
R ²	.29	.28	.30	.30	.30	.34	.33	.34	.34	.33
N	1501	1500	1500	1500	1501	1526	1524	1524	1524	1526

Note. Also included in these regressions were predictors that have been shown in past research to influence political behavior: age, education, employment, homeownership, internal efficacy, external efficacy, time lived in the community, being contacted by a political party, race, region of residence, strength of party identification, marital status, whether one works for the government, income, and whether one is a student.

⁺ $p < .10$.

* $p < .05$.

*** $p < .001$.

Turnout

When total importance was the sole predictor of turnout, people higher in importance were more likely to vote, $b = 1.79$, $SE = .43$, $p < .001$ (see column 7 in Table 5). In contrast, total certainty was unrelated to election turnout when the former was the sole predictor of the latter, $b = .28$, $SE = .34$, $p = .41$ (see column 8 in Table 5). Including both predictors in the same equation did not change these results (see column 9 in Table 5). The interaction between importance and certainty was marginally significant, $b = -2.83$, $SE = 1.67$, $p < .09$ (see column 10 in Table 5). Importance was a slightly weaker predictor of turnout among people who were highly certain of their policy preferences ($b = 1.83$, $SE = .61$, $p < .001$) than among people who were less certain of their preferences ($b = 2.40$, $SE = .71$, $p < .001$).¹²

¹² Total certainty was not a significant predictor of turnout among people low in total importance, $b = .00$, $SE = .46$, $p = .99$, or among people high in total importance, $b = -.15$, $SE = .59$, $p = .80$.

Consequences of the single-factor assumption

We again examined the consequences of treating measures of attitude importance and certainty as redundant reflections of a single latent construct. To do so in testing moderation of the impact of policy attitudes on candidate preferences, we averaged the importance and certainty of each issue to yield a composite index for that issue, computed the product of that index and issue proximity, and then averaged the products to yield a single interaction term to add to the regression equation (see model 5 in Table 3). To examine the relation between the composite index and the indicators of commitment to candidate preferences, we summed all five importance scores and all five certainty scores for each respondent and used this index to predict each indicator of commitment.

Not surprisingly, in instances in which both importance and certainty were independent and significant predictors of an outcome, the composite index also significantly predicted that outcome. For example, the

composite index moderated the degree to which participants used particular issues when formulating their candidate preferences ($b = 1.79$, $SE = .33$, $p < .001$; see model 5 in Table 3), and the composite index significantly predicted efforts to persuade others how to vote ($b = 2.08$, $SE = .41$, $p < .001$; see column 6 in Table 4) and intention to vote ($b = 2.95$, $SE = .58$, $p < .001$; see column 6 in Table 5).

In other instances, though, the composite index yielded misleading results. For example, the composite index was significantly associated with turnout ($b = 1.53$, $SE = .45$, $p < .001$, see column 11 in Table 5), inviting the inference that both importance and certainty were related to turnout, when in fact only importance was. Similarly, the composite index significantly predicted perceptions that a non-preferred candidate was acceptable ($b = -1.16$, $SE = .39$, $p < .01$, see column 11 in Table 4), obscuring the fact that certainty was strongly associated with this perception and importance was completely unrelated to it.

General discussion

Latent structure

One scholarly view of self-reports of strength-related attitude features is that they are all constructions, built from blurry introspective glances, simply reflecting the extent to which an attitude seems to its holder to be mushy or firm (e.g., Bassili, 1996; Haddock et al., 1996, 1999). Regardless of whether a person is asked about the importance he or she attaches to an attitude or his or her confidence in holding it or how much relevant information he or she possesses or how strong his or her feelings are about the object, he or she looks to internal psychological cues for any vague sense of attitudinal mushiness or crystallization and uses that sense to derive an answer to whatever question has been posed. If this is true, then self-reports of such features are all manifestations of that vague introspective impression.

Some of our results can be viewed as consistent with this notion and might seem to suggest that little is sacrificed when these two attitude features are treated as interchangeable reflections of the same general “attitude crystallization” factor. When considered alone, both importance and certainty were positive predictors of non-monetary and monetary attitude-expressive behavior, use of a policy attitude in evaluating presidential candidates, attempts to persuade others to adopt one’s candidate preference, intention to turn out on election day, and interest in, attention to, and discussion of attitude-relevant information. And in each of these cases, averaging importance and certainty into an index revealed the expected positive association with the outcome variable.

But in many other cases, our results challenge the general crystallization perspective by showing that importance and certainty related to cognitive and behavioral outcomes in distinct ways. In some instances, importance and certainty had different patterns of association: the importance that people attached to their policy attitudes (but not the certainty with which they held those attitudes) predicted whether they turned out to vote on election day, whereas certainty (but not importance) predicted the degree to which people found a non-preferred presidential candidate acceptable. In other cases, importance and certainty each predicted unique variance in a particular cognitive or behavioral outcome: importance and certainty both independently predicted people’s turnout intentions, and both regulated the impact of a policy attitude on people’s candidate preferences. And importance and certainty sometimes had interactive effects: both were positively related to attitude-expressive behavior, but the combination of high importance and high certainty was associated with an especially pronounced surge of such behavior.

Importance and certainty appeared to be distinct in terms of their origins as well. After a spate of intense news media attention to global warming, Americans came to attach more importance to their attitudes on that issue, but they did not come to hold their attitudes with greater certainty. Thus, importance and certainty appear to be sufficiently distinct to warrant sacrificing the parsimony of a common-factor view of them and treating them as separate constructs with at least partly unique psychological properties and distinct effects on thought and behavior. In short, it appears that people do not generate reports of importance and certainty by consulting the same vague introspective impressions but rather use distinct and apparently valid internal cues to describe two different features of their attitudes. Viewing these features as largely redundant measures of a single construct is therefore likely to obscure differences between their causes and consequences and would contribute to an unrealistically simple conceptualization of attitude strength.

Resonance with other studies

In this regard, our results resonate with findings reported peripherally in two past investigations. Although Haddock et al. (1999) focused their attention on an index computed by averaging importance, certainty, and intensity ratings together, these investigators also reported disaggregated results showing that manipulations of perceived ease of retrieving relevant knowledge had different effects on certainty and importance ratings. Likewise, although Bassili (1996) focused attention on an index computed by averaging ratings of importance, intensity, knowledge, attention to relevant information,

frequency of thought about relevant information, and more, he also reported disaggregated results that showed different effects of importance and certainty on attitude stability and pliability. These findings are consistent with the conclusion that importance and certainty have difference causes and difference effects.

At first glance, one of our findings also appears to resonate with evidence reported by Pomerantz et al. (1995). Just as we found that interest in and attention to relevant information were predicted by importance but not certainty, those investigators did as well. But in their analyses, importance was averaged together with ratings of knowledge volume, centrality of the attitude to one's self-concept, and value-relevance to create an index they called "embeddedness," and certainty was averaged together with perceived likelihood of attitude change and extremity to create an index they called "commitment." Therefore, it is impossible to know from their study whether the differences between these two general indices reflected the distinct effects of importance and certainty, or were instead driven by differences between the other components of the indices.

If indeed measures of certainty, perceived likelihood of change, and extremity all reflect a single underlying construct, then averaging them together would be a useful way to investigate the effects of that construct. But in fact, prior evidence challenges the claim that these three sets of measures are univocal. Investigating the same kinds of political attitudes that Pomerantz et al. (1995) examined, Visser and Krosnick (1998) showed that although the certainty with which people hold political attitudes rises sharply between age 18 and mid-life and then falls sharply during late adulthood, perceptions of the likelihood that one's political attitudes will change declines consistently and substantially across the adult life-cycle, suggesting that they are distinct constructs. This implies that, like the composite indices we created in each of our studies, the apparent consequences of the commitment index may provide distorted evidence about the relations between each of its constituents and interest in or attention to relevant information. Our results therefore help to clarify the findings reported by Pomerantz et al. (1995) regarding interest in and attention to relevant information, confirming that these effects are the result of importance but not certainty.

Pomerantz et al. (1995) examined another outcome variable that we explored as well: attitude-expressive behavior. Those investigators concluded that both importance (averaged with other variables) and certainty (averaged with other variables) independently enhanced the likelihood of attitude-expressive behavior. In a sense, this seems to parallel our results, although we also found importance and certainty to interact in predicting expressive behaviors.

However, Pomerantz et al.'s (1995) index of attitude-expressive behavior averaged together measures of

monetary behaviors (e.g., giving money to an organization), non-monetary behaviors (e.g., writing a letter to a government official), information-seeking (e.g., requesting information about the issue), and attempts to persuade others (e.g., engaging in a debate with someone about the issue). Our analyses showed that these four outcomes differ notably from one another in terms of their relations with importance and certainty. Whereas importance and certainty interacted in predicting both forms of attitude-expressive behavior, importance but not certainty predicted information-seeking and attempts to persuade others. Furthermore, we found that the interaction between importance and certainty in predicting monetary attitude-expressive behavior did not appear unless the constraint imposed by limited income was taken into account. So even averaging measures of non-monetary and monetary behaviors into an index seems unwise. Therefore, what might seem to be a parallel between our results and those of Pomerantz et al. (1995) regarding behavior seems not to be so upon close inspection. Our disaggregation of importance and certainty from other measures thus adds clarity to the relations between these variables and tendencies toward attitude-expressive action.

Pomerantz et al. (1995) reported additional findings as well regarding the relations of their two indices to other outcomes. For example, neither embeddedness nor commitment predicted time spent reading, extent of thinking about, or accuracy in remembering attitude-relevant information. This is surprising in light of evidence reported by Krosnick and Berent (1991), who found that attitude importance was positively associated with all three of these outcome variables across a series of seven studies. And whereas Pomerantz et al. (1995) found embeddedness (but not certainty) to be associated with bias toward remembering attitude-congenial information, Krosnick and Berent (1991) found no such relation between importance and biased recall. We suspect that this is further evidence that blending a measure of attitude importance with other measures into an index of embeddedness may mask the associations (or lack thereof) of attitude importance with these outcomes. We look forward to future studies of the other constituents of the embeddedness and commitment indices to see whether they can account for the discrepancies between Pomerantz et al.'s results and our own. In the meantime, in light of all the above, we are hesitant to draw strong inferences about strength-related attitude attributes from evidence based on composite indices that combine measures of more than one attribute.

Mechanisms of the effects of importance and certainty

The evidence we uncovered was not designed to test a particular theoretical account of the cognitive and behavioral effects we observed. But all of our results are

consistent with the notion that importance may be best characterized as a motivational variable—one that propels an individual to protect, use, and express an attitude by acting in accordance with it, gathering information relevant to it, and by trying to persuade others to adopt the same attitude. Specifically in line with this view is evidence that importance appears to have instigated both monetary and non-monetary attitude-expressive behavior, more discussion of the attitude, more reliance upon similarity in terms of the attitude when evaluating others (i.e., presidential candidates), more information gathering, more interest in and attention to such information, and more attempts to persuade others to share one's attitudes.

Some of our findings regarding certainty are consistent with the notion that uncertainty inhibits people from expressing an attitude or using it in decision-making. High certainty did appear to enhance the frequency of monetary and non-monetary attitude-expressive behaviors regarding specific attitudes, inspire attempts to persuade others, reduce the acceptability of non-preferred presidential candidates, and increase turnout intentions. However, certainty was not related to actual turnout, information gathering, attentiveness to relevant information, or discussion of such information. It is difficult to know why these latter associations, some of which seemed quite plausible *a priori*, did not emerge. These surprises are certainly sensible foci for future studies.

Contributions to the psychological literature on uncertainty

The reduction of uncertainty has long been considered an important motivator of human behavior (see, e.g., Kagan, 1972), and a large literature now documents uncertainty's antecedents and consequences. In this literature, uncertainty has sometimes been characterized as a momentary, experiential sensation—a “cognitive feeling”—that signals to an individual a discrepancy between his or her desired state of knowledge or understanding and his or her actual state (e.g., Clore, 1992) and sets into motion efforts to reduce this discrepancy (Douglas, 1994; Edwards & Weary, 1993; Festinger, 1954; Swann & Ely, 1984). Others have conceptualized uncertainty as a chronic individual difference and have shown that uncertainty motivates seeking out and processing of diagnostic information (for a review, see Weary & Edwards, 1996; Weary & Jacobson, 1997; Weisz, Sweeney, Proffitt, & Carr, 1993; Weisz, Weiss, Wasserman, & Rintoul, 1987). And Sorrentino and his colleagues have shown many differences in the cognitive strategies and behavior between people who are comfortable with uncertainty and seek to resolve it through the acquisition of new information and people who are uncomfortable with uncertainty and strive to avoid it

(e.g., Sorrentino, Raynor, Zubek, & Short, 1990; Sorrentino & Roney, 2000; Sorrentino & Short, 1986).

The attitude literature contains much evidence about certainty as well. People who hold their attitudes with certainty are less susceptible to social influence (e.g., Swann & Ely, 1984; Swann, Pelham, & Chidester, 1988) and are more likely to persevere in an evaluation after disconfirming evidence has been presented (Babad, Ariav, Rosen, & Salomon, 1987), to seek attitude-confirming information (e.g., Swann & Ely, 1984), to overestimate the prevalence of their attitudes (Marks & Miller, 1985), and to behave in accordance with those attitudes (e.g., Fazio & Zanna, 1978; Franc, 1999; Sample & Warland, 1973).

Our own results contribute to this literature in several ways. First, the current research has identified several new apparent consequences of attitude certainty: attitude certainty was positively associated with active efforts to persuade others to adopt one's views, the use of one's attitudes toward particular objects to form attitudes toward other people (via the similarity-attraction principle), and the tendency to form behavioral intentions to express one's attitudes (e.g., to vote). Second, our results extend previous findings by demonstrating that attitude certainty in combination with attitude importance is associated with a particularly pronounced increase in attitude-expressive behavior and that resource limitations (e.g., money) restrict some forms of such motivated behavior even when psychological motivation is high.

Our evidence suggesting that people who were uncertain of their attitudes did not attempt to reduce this uncertainty by seeking additional attitude-relevant information, by attending carefully to the information they encountered, or by instigating discussions with others about the attitude object stands at odds with the general assumption in social psychology that uncertainty reduction is a primary human motivation and that people actively seek to reduce uncertainty whenever they experience it (e.g., Berlyne, 1962; Festinger, 1954; Kagan, 1972; Weary, Marsh, Gleicher, & Edwards, 1993). Our findings suggest instead that people may sometimes accept uncertainty quite comfortably and may make no concerted efforts to resolve it. Indeed, given the complexity of the social world, people are likely to be uncertain about many more things than they are certain about, so efforts to reduce uncertainty at every turn would quickly exceed cognitive capacity. This suggests that attitudinal uncertainty motivates uncertainty-reduction behaviors only sometimes, and we look forward to future research elucidating the moderators at work. Surprisingly, attitude importance seems not to be one of them.

One possibility is that different people may respond to attitudinal uncertainty in opposite ways, depending on their general orientations to uncertainty (e.g., Sor-

rentino et al., 1990). Uncertainty-oriented individuals may seek out relevant information and attend carefully to that information in an effort to resolve their uncertainty about an attitude object. But certainty-oriented individuals may actively avoid new information in an effort to downplay or ignore their uncertainty about the attitude object. These countervailing tendencies in different subsets of our samples may have produced null relations between uncertainty and uncertainty-reduction behaviors in the aggregate. Future research exploring this possibility would be quite useful.

Selective exposure

During the course of daily life, people have neither the time nor the cognitive resources to attend to all the information in the “buzzing, blooming confusion” (James, 1890) that fills their social environments. People must therefore be selective in terms of which available information they attend to and which they ignore. Selective exposure has been a topic of interest to social psychologists for quite some time, but the focus of this work has been tightly placed on the notion, derived from cognitive dissonance theory, that people may prefer to expose themselves to information with which they agree and avoid exposure to information that may challenge their opinions (Festinger, 1957). Much evidence has accumulated to support this notion, delineating the specific conditions under which it is most likely to occur (see Frey, 1986).

Here, we have explored a different idea: that people’s decisions about when to seek out exposure to information on a topic may be driven by strength-related attributes of relevant attitudes. We found that people were especially interested in acquiring information on topics of importance to them, presumably because that information would prove useful to them in efforts to use their attitudes. We also thought that holding opinions with greater certainty would inhibit a person from seeking information on a topic, because people might intentionally avoid spending their time and energy acquiring information that would be of no value to them. To our surprise, this relation did not appear. Therefore, perhaps people are not especially defensive and forward-looking in their allocation of resources in acquiring information. That is, certainty may not inhibit information gathering because people may not strategically plan their efforts in this regard on the basis of their anticipated marginal gain from additional knowledge.

Similarity-attraction in the world of politics

It has long been recognized that in order for a person to choose between competing political candidates on the basis of a policy issue, a number of conditions must be met: He or she must have an attitude toward the policy,

perceive the attitudes toward the policy held by the candidates, and perceive those attitudes to differ from one another (e.g., Campbell et al., 1960). Furthermore, policy-based similarity is thought to be used to make vote choices more among people who are especially informed about and involved in politics (Knight, 1985) and among people who attach personal importance to the policy issue (e.g., Krosnick, 1988b). The findings reported in this paper add to this list by documenting that attitude-based similarity in this domain is apparently more consequential when an attitude is held with great certainty. This evidence complements work by Alvarez and Franklin (1994, 1996), who demonstrated that policy preferences held with more certainty are more stable over time and that such certainty is greater among people who have more factual information about politics (Alvarez, 1996).

Causes of attitude-expressive political behavior

Political scientists have long recognized that no matter how much people may want to become politically active, whether or not they actually do is determined in part by whether they have the resources necessary to do so (see, e.g., Rosenstone & Hansen, 1993; Verba, Scholzman, & Brady, 1995). That notion has led political scientists to test and demonstrate that one predictor of whether people make financial contributions to political organizations is how much disposable income they have (Verba et al., 1995). This sort of result might have been seen as suggesting that the more income people have, the more they will contribute to all groups, but such a claim doesn’t seem especially plausible.

We are inclined to view resource effects as constraints at the low ends of the distributions, which operate in conjunction with issue-specific psychological motivators. No matter how much a person may want to support a political lobbying group, he or she cannot make a financial contribution to the group if he or she barely has enough money to meet basic food, clothing, and shelter needs. Therefore, only people making more than a minimal income have the luxury to contribute money to an activist group focused on an issue they consider highly important and on which they hold an attitude with confidence. Our findings support this claim and therefore suggest a refinement in political scientists’ accounts of the origins of attitude-expressive political activism, focusing on the interaction of material resource availability with psychological motivators.

Voter turnout

A great deal is now known about the determinants of voter turnout. According to Rosenstone and Hansen (1993), these factors fall into five categories (see also Piven & Cloward, 1988; Teixeira, 1992; Wolfinger &

Rosenstone, 1980): resources (such as education and income), the feeling of having a great deal at stake in the election, being connected to other people and social organizations, being mobilized by the events of a campaign, and barriers that make registering to vote or getting to the polling place difficult. Our results add to this literature by highlighting the potential that policy preferences have to instigate turnout. Deep concern about a broad range of policy issues appears to increase the likelihood that a person will vote, presumably because the vote that is cast reflects his or her preferences on those important policy issues.

Limitations

Several features of the studies reported here represent limitations that should be acknowledged. First, our studies are correlation rather than experimental, which precludes strong conclusions about the causal relations of importance and certainty with most of the various dependent measures. We look forward to future experimental studies providing additional evidence of causality and clarifying the psychological mechanisms through which importance and certainty operate. Second, some of the dependent measures we examined were self-reports of behaviors rather than more direct measures of behaviors (e.g., turnout). Future research that measures behavior more directly would be useful as well. Finally, Studies 1 and 3 relied on single items to measure importance and certainty, whereas multiple measures are clearly preferable and can yield more precise estimates of the relations between importance and certainty and the outcomes examined in those studies. We hope future studies in the attitude strength literature are able to routinely adopt the multiple indicators approach with structural equation modeling to make most use of them.

Coda

Our findings take nothing away from the general claim that some attitudes are strong and others are weak. But our results suggest that not all strong attitudes are alike, and that careful attention to the bases of attitude strength will likely have useful payoffs for psychological theory building. According to our results, some attitudes are strong because people attach a great deal of importance to them, which has a particular set of consequences for thinking and action. Other attitudes are strong because they are held with tremendous certainty, which seems to set into motion a somewhat different set of cognitive and behavioral consequences. And some attitudes manifest strength because of the copresence of importance and certainty. Thus, attitude strength is a complex construct with multi-dimensional origins.

Appendix A. Question wording and coding

Study 1

Importance

“How important is the issue of global warming to you personally? Extremely important, very important, somewhat important, not too important, or not at all important?”

Certainty

“Overall, how sure are you of your opinions about global warming? Extremely sure, very sure, somewhat sure, slightly sure, or not at all sure?”

Attitude-expressive behavior

“Since June 1st, about four months ago, have you written a letter to a public official expressing your views about global warming or air pollution?” (yes/no)

“Since June 1st, have you attended a group meeting to discuss global warming or air pollution?” (yes/no)

“Since June 1st, have you given money to an organization that is concerned with global warming or air pollution?” (yes/no)

Study 2

Attitudes toward abortion

“There has been a lot of discussion about the issue of abortion in recent years. Some people feel that abortion should never be permitted. Others feel that a woman should be able to obtain an abortion if she chooses to do so. Still others have opinions somewhere in between these two. Please circle the number that corresponds to the extent that you favor or oppose legalized abortion.” (Eleven-point scale, anchored by “strongly oppose” and “strongly in favor.”)

“Please use the following scales to describe your feelings about legalized abortion. Circle one number on each line.” (Semantic differential scales ranging from –3 to +3, endpoints labeled bad/good, foolish/wise, harmful/beneficial.)

“Please circle the ONE statement that comes closest to your stand on the issue of legalized abortion:

1. Abortion is the curse of humankind; it should be absolutely outlawed.
2. Abortion is immoral and should be prohibited by law.
3. Abortion should be illegal except in the extreme case of rape or when the mother’s life is in danger.

4. Abortions have negative consequences, so they should be strongly discouraged whenever possible.
5. The arguments in favor of and against the legalization of abortion are nearly equally persuasive.
6. Legalized abortion may be helpful in a few specific situations.
7. Abortion should be legal so that when one is necessary, it can be performed in a proper and safe manner.
8. Abortion must always be protected by federal law so that women always have the right to have one.
9. Abortion is acceptable under any circumstances; no restrictions whatsoever should be placed upon its use."

Attitude importance

"How important is the issue of abortion to you personally?" (Seven-point scale, anchored by "not at all important" and "extremely important.")

"How much do you personally care about the issue of abortion?" (Five-point scale, anchored by "not at all" and "very much.")

"Compared to the way you feel about other issues, how important is the issue of abortion to you personally?" (Eleven-point scale, anchored by "it is a completely unimportant issue" and "it is the most important issue.")

Attitude certainty

"Some people are very certain of their views on the issue of abortion. Others are not at all certain about their views on this issue. How certain are you of your views about legalized abortion?" (Eleven-point scale, anchored by "not at all certain" and "absolutely certain.")

"How firm would you say your opinion about legalized abortion is? Would you say it is completely firm, very firm, somewhat firm, not very firm, not at all firm?"

"How sure are you that your position on the issue of legalized abortion is right? Not sure, fairly sure, or very sure?"

Interest

"How interested are you in the issue of abortion?" (Eleven-point scale anchored by "not at all" and "extremely.")

"How interested are you in obtaining information about the issue of abortion?" (Five-point scale ranging from "not at all interested" to "extremely interested.")

Attention

"People often say that on some issues, they pay close attention to relevant information in magazines, newspapers, or on television. On other issues, though, they say they devote very little attention to relevant information. How closely do you pay attention to information about abortion?" (Eleven-point scale with endpoints labeled "no attention at all" and "a great deal of attention.")

"To what extent do you agree with the following statement: 'When I come across information about the issue of abortion, I don't pay much attention to it.'" (Five-point scale ranging from "agree strongly" to "disagree strongly.")

"When you keep up with the news by reading magazines or newspapers or by watching television, how closely do you pay attention to stories about the issue of abortion?" (Seven-point scale with endpoints labeled "very little attention" and "very close attention.")

Talking

"Some people discuss the issue of abortion very often with friends and family, whereas others never discuss it at all. How often do you discuss abortion with others?" (Seven-point scale with endpoints labeled "never" and "very often.")

"How often does the topic of abortion come up in conversations with others?" (Four-point scale ranging from "never" to "very frequently.")

"Compared to other issues, how much time do you spend talking about the issue of abortion?" (Eleven-point scale with endpoints labeled "much less time than other issues" and "much more time than other issues.")

Study 3

Issue positions

Environmental protection. "Some people think it is important to protect the environment even if it costs some jobs or otherwise reduces our standard of living. Suppose these people are at one end of the scale, at point number 1. Other people think that protecting the environment is not as important as maintaining jobs and our standard of living. Suppose these people are at the other end of the scale, at point number 7. And of course, some other people have opinions somewhere in between, at points 2, 3, 4, 5, or 6. Where would you place yourself on this scale, or haven't you thought much about this?"

Government services. "Some people think the government should provide fewer services even in areas such as health and education in order to reduce spending. Other people feel it is important for the government to

provide many more services even if it means an increase in spending. Where would you place yourself on this scale, or have not you thought much about this?" (Seven-point scale, anchored by "government should provide many fewer services" and "government should provide many more services.")

Defense spending. "Some people believe that we should spend much less money for defense. Others feel that defense spending should be greatly increased. Where would you place yourself on this scale, or have not you thought much about this?" (Seven-point scale, anchored by "greatly decrease defense spending" and "greatly increase defense spending.")

Government assistance to Blacks. "Some people feel that the government in Washington should make every effort to improve the social and economic position of blacks. Others feel that the government should not make any special effort to help blacks because they should help themselves. Where would you place yourself on this scale, or haven't you thought much about this?" (Seven-point scale, anchored by "government should help blacks" and "blacks should help themselves.")

Abortion. "There has been some discussion about abortion during recent years. Which one of the opinions on this page best agrees with your view? You can just tell me the number of the opinion you choose":

1. By law, abortion should never be permitted.
2. The law should permit abortion only in case of rape, incest, or when the woman's life is in danger.
3. The law should permit abortion for reasons other than rape, incest, or danger to the woman's life, but only after the need for the abortion has been clearly established.
4. By law, a woman should always be able to obtain an abortion as a matter of personal choice.

Attitude importance

After participants expressed their views on each of the five issues above, they were asked, "How important is this issue to you? Extremely important, very important, somewhat important, not too important, or not at all important?"

Attitude certainty

After participants expressed their views on each of the five issues above, they were asked, "How certain are you of your position on this scale? Very certain, pretty certain, or not very certain?"

Collateral variables in voter turnout analyses

Age. "What is the month, day and year of your birth?" (Coding: Age in years rescaled to range from 0,

meaning age 18, to 1, meaning age 93, the highest age in the sample.)

Black. "Observed by interviewer." (Coding: 1 if black, 0 otherwise.)

Hispanic. "In addition to being an American what do you consider your main ethnic or national group? Are you of Spanish or Hispanic origin or descent?" (Coded 1 if yes, 0 if no.)

Education. "What is the highest grade of school or year of college you have completed? Did you get a high school diploma or pass a high school equivalency test? What is the highest degree you have earned?" (Coding: 0 for people who did not graduate from high school, .25 for high school graduates, .50 for people who attended college but did not graduate, .75 for college graduates, and 1 for people who completed post-graduate work.)

External political efficacy. "Now I'd like to read some of the kinds of things people tell us when we interview them. Please tell me if you agree or disagree with these statements: 'I don't think public officials care much about what people like me think.' and 'People like me don't have any say about what government does.'" (Coding: For each item, coded 0 if agree, 1 if disagree, .5 if missing or do not know, then averaged.)

Internal political efficacy. "Now I'd like to read some of the kinds of things people tell us when we interview them. Please tell me if you agree or disagree with these statements: 'Sometimes politics and government seem so complicated that a person like me can't really understand what's going on.'" (Coding: 0 if agree, 1 if disagree, .5 if missing or don't know.)

Southern. Observed by interviewer. (Coding: Coded 1 if lives in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, or Virginia, 0 otherwise.)

From a border state. Observed by interviewer. (Coding: Coded 1 if lives in Missouri, Kentucky, Maryland, Oklahoma, or West Virginia, 0 otherwise.)

Income. "Please look at this page and tell me the letter of the income group that includes the combined income of all members of your family living here in [year] before taxes. This figure should include salaries, wages, pensions, dividends, interest, and all other income." Income categories: less than \$2900, \$3000–4999, \$5000–6999, \$7000–8999, \$9000–9999, \$10,000–10,999, \$11,000–11,999, \$12,000–12,999, \$13,000–13,999, \$14,000–14,999, \$15,000–16,999, \$17,000–19,999, \$20,000–21,999, \$22,000–24,999, \$25,000–29,999, \$30,000–34,999, \$35,000–39,999, \$40,000–44,999, \$45,000–49,999, \$50,000–59,999, \$60,000–74,999, \$75,000–89,999, \$90,000–104,999, \$105,000 or above. (Coding: participants with missing data were coded at the median; income was then dichotomized such that participants' whose annual household income was \$20,000 or less were coded 0 and those whose annual household income was greater than \$20,000 were coded 1.)

Home owner. “Do you/Does your family own your home, pay rent or what?” (Coding: 0 if not a home owner, 1 if a home owner.)

Years in community. “How long have you lived here in your present (city/town)?” (Coding: Number of years rescaled to range from 0 to 1.)

Marital status. “Are you married now and living with your (husband/wife), or are you widowed, divorced, separated, or have you never married?” (Coding: 1 if married and living with husband/wife, 0 otherwise.)

Employed. “We’d like to know if you are working now, temporarily laid off, or are unemployed, retired, permanently disabled, a homemaker, a student or what?” (Coding: 1 if employed, 0 otherwise.)

Unemployed. “We’d like to know if you are working now, temporarily laid off, or are unemployed, retired, permanently disabled, a homemaker, a student, or what?” (Coding: 1 if unemployed, 0 if otherwise.)

Student. “We’d like to know if you are working now, temporarily laid off, or are unemployed, retired, permanently disabled, a homemaker, a student or what?” (Coding: 1 if a student, 0 otherwise.)

Work for government. “Are you employed by a federal, state or local government?” (Coding: 1 if yes, 0 otherwise.)

Strength of party identification. “Generally speaking, do you usually think of yourself as a Republican, a Democrat, an independent, or what? (If Republican or Democrat) Would you call yourself a strong (Republican/Democrat) or not very strong (Republican/Democrat) (If Independent, other or no preference) Do you think of yourself as close to the Republican or Democratic party? (Coding: 0 if independent or apolitical, .33 if independent leaning towards a party, .5 if independent, do not know, apolitical, or missing, .67 if weak partisan, 1 if strong partisan.)

Contacted by a political party. “The political parties try to talk to as many people as they can to get them to vote for their candidates. Did anyone from one of the political parties call you up or come around to talk to you about the campaign?” (Coding: 0 if not contacted, 1 if contacted.)

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