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Exploring the Structure of Strength-Related Attitude Features: The Relation Between Attitude Importance and Attitude Accessibility

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One of the most significant current controversies in the attitude literature involves the latent structure of attitude attributes related to their strength. Four studies were conducted to explore whether 2 strength-related attributes (importance and accessibility) are affected identically by various manipulations (which would suggest that they reflect a single latent construct) and whether the attributes cause one another (which would suggest they are distinct constructs). Three laboratory experiments and 1 survey study show that (a) repeated expression and personal relevance manipulations have different effects on importance and accessibility and (b) increased importance can cause heightened accessibility. Thus, these 2 attitude attributes appear to constitute related but independent constructs. These studies therefore help to illuminate the nature of attitude strength and the interplay of its sources.

A great deal of research conducted during the past 4 decades has demonstrated that some attitudes are hard to change and powerfully drive behavior and cognition whereas others are easy to change and minimally consequential. Krosnick and Petty (1995) suggested that this distinction between two classes of attitudes be labeled a distinction in *strength:* Strong attitudes are persistent over time, resistant to change, and influential on thought and action. In studying this phenomenon, researchers have identified many attributes or dimensions of attitudes that are presumed to be responsible for their strength, including their extremity (e.g., Abelson, 1995), the certainty with which they are held (e.g., Gross, Holtz, & Miller, 1995; Holtz & Miller, 1985; Miller, Gross, & Holtz, 1991), the degree of ambivalence people feel about the objects (e.g., Thompson & Zanna, 1995; Thompson, Zanna, & Griffin, 1995), the amount of knowledge that bolsters the attitudes (e.g., Wood & Kallgren, 1988; Wood, Kallgren, & Preisler, 1985; Wood, Rhodes, & Biek, 1995), and many others (see Petty & Krosnick, 1995).

In this article, we focus on two such dimensions: *attitude importance,* which is the subjective sense of concern about an attitude and the psychological significance that an individual attaches to it (e.g., Boninger, Krosnick, Berent, & Fabrigar, 1995), and *attitude accessibility,* which is the strength of the object–evaluation link in memory (e.g., Fazio, 1995). A great deal of past research has documented relations of these attributes to the defining features of strong attitudes, but much less work has explored the causal relation(s) between these two dimensions. A number of studies have shown importance and accessibility to be positively correlated with one another (e.g., Krosnick, 1989; Krosnick, Boninger, Chuang, Berent, & Carnot, 1993; Lavine, Sullivan, Borgida, & Thompsen, 1996), but the source of this correlation is not yet clear. Some theory suggests that attitude importance may cause enhanced accessibility (Krosnick, 1989), whereas other theory suggests the reverse (Roese & Olson, 1994).

Here, we consider these issues in detail and report new evidence. Following a theoretical overview of the relation between importance and accessibility, we report the findings of four studies, conducted in the laboratory and in the field. The first two studies were experiments testing the possibility that attitude accessibility may cause attitude importance. The third study, also an experiment, explored whether importance causes accessibility. The fourth study gauged the impact of both variables on each other in the course of daily life using data from a national telephone panel survey.

Background

Strength-Related Attitude Attributes

Krosnick and Petty (1995) suggested that strength-related attributes of attitudes can be grouped into four categories. One category includes aspects of the attitude itself, most obviously its

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extremity. A second category includes aspects of attitude structure, such as accessibility, quantity of accompanying knowledge, and evaluative consistency of that knowledge with the attitude. A third category includes aspects of the process by which attitudes are formed, most notably the degree of careful thinking done. Finally, a fourth category includes people's subjective beliefs about their attitudes, such as personal importance and certainty.

Much is known about the correlations between these attitude features and the four defining qualities of strong attitudes. First, the former attributes are all positively correlated with the latter: The higher an attitude is in extremity, accessibility, personal importance, certainty, and so on, the more persistent, resistant to change, and influential on thinking and action it is (for a review, see Krosnick & Abelson, 1992). We also know that the members of almost any pair of strength-related attributes are positively correlated with one another, though these correlations are generally modest in size (Krosnick & Abelson, 1992).

Structure

These correlations have inspired one of the most significant controversies in the attitude strength literature: the structure of these strength-related attributes. For decades, many researchers have presumed that multiple strength-related attributes interchangeably measured a single underlying construct. For example, when setting out to gauge attitude "intensity," some researchers have measured certainty (Brim, 1955; Guttman & Suchman, 1947; Katz, 1944; McDill, 1959; Suchman, 1950) whereas others have measured extremity (McDill, 1959; Tannenbaum, 1956). When measuring "involvement," some researchers have assessed importance (Apsler & Sears, 1968; Borgida & Howard-Pitney, 1983; Gorn, 1975; Howard-Pitney, Borgida, & Omoto, 1986), others assessed knowledge (Stember & Hyman, 1949–1950), and still others have gauged elaboration (Bishop, 1990; Petty & Cacioppo, 1979). And whereas attitude "salience" has sometimes been measured by indices of importance (Hoelter, 1985; Jackson & Marcus, 1975; Lemon, 1968; J. L. Powell, 1977; Tedin, 1980), "salience" has also been gauged by measures of elaboration (Brown, 1974). One rationale for this sort of heterogeneity of operationalization is that multiple measures are indeed interchangeable handles with which to gauge a single underlying construct, a reasonable possibility if all the attributes have been measured with a great deal of random and systematic measurement error that attenuated truly strong intercorrelations between them.

In recent years, scholars have explored this possibility by conducting exploratory factor analyses of strength-related attributes. However, the results of these studies have been strikingly inconsistent with one another. Whereas Verplanken (1989) found that a set of strength-related attributes all loaded on a single latent factor, other such studies have suggested that the attributes reflected two latent constructs (Bassili, 1996b; Pomerantz, Chaiken, & Tordesillas, 1995), three latent constructs (Abelson, 1988; Lastovicka & Gardner, 1979), or four latent constructs (Erber, Hodges, & Wilson, 1995; Prislin, 1996). Adding further to the apparent confusion, confirmatory factor analyses have challenged all these claims, suggesting that no pair of attributes reflects a single underlying factor and that, instead, each attribute represents a unique, independent construct (Krosnick et al., 1993; Krosnick & Petty, 1995; Lavine et al., 1996). Given the variety of conflicting conclusions reached in this work, it seems that we must turn to other methods for answering the structure question.

One such approach is to examine the causes of strength-related attributes. If all such attributes represent independent constructs (as authors of the confirmatory factor analysis studies have claimed to have shown), these attributes should each have at least somewhat unique causes. And, indeed, most past research on origins has identified causes unique to each attribute. For example, attitude extremity can be increased by insults and by salience of group conflict (Abelson, 1995). Attitude certainty is a function of issue framing, social support, and social consensus (Gross, Holtz, & Miller, 1995). Attitude-relevant knowledge grows as the result of direct experience with the object and indirect learning through the media (Wood et al., 1995). And attitude importance is caused partly by material self-interest, social identification with reference groups or reference individuals, and value relevance (see Boninger, Krosnick, & Berent, 1995). However, there have as yet been no studies exploring the impact of these causes on more than one strength-related attribute. It could therefore turn out that some pairs of attributes have identical causes, which would be consistent with the notion that they reflect a single underlying factor.

Importance and Accessibility

In this article, we adopt this approach to examine the structure of two strength-related attitude features, importance and accessibility. First, we explore whether causes of one attribute cause the other as well. Furthermore, we explore a possibility implied by the "multiple distinct constructs" perspective: that one of these strength-related features may cause the other one.

Interestingly, two contrasting claims have been made about the relations between attitude importance and attitude accessibility. One is that attitude importance may be a cause of attitude accessibility (Krosnick, 1989). Once a person decides to attach personal importance to an attitude, he or she is likely to selectively seek out information relevant to it, think frequently about the attitude and relevant information, and focus that thinking on the attitude's relation to relevant knowledge and other attitudes. These processes will most likely build links between the attitude and other cognitive elements. According to general theoretical notions of the origins of construct accessibility (Higgins & King, 1981), these features of important attitudes should make them chronically accessible. Thus, importance would cause information gathering, attitude activation, and elaborative thinking about the attitude, which in turn would make it more accessible later.

The reverse is also possible: Attitude accessibility may cause attitude importance (Roese & Olson, 1994). When people are asked to report the amount of personal importance they attach to an attitude, they may do so in part by noting how quickly the attitude comes to mind. "If my attitude comes immediately to mind when I search for it," people might think, "then it must be important to me. But if my attitude comes to mind only after I dredge my memory for a while, then it must not be a very important attitude to me." This perspective presumes that people sometimes have relatively weak senses of the importance they attach to attitudes and objects (e.g., Bassili, 1996b) and therefore engage in self-perception-like processes (Bem, 1967, 1972) in order to resolve these ambiguities. In fact, in their 1994 article, Roese and Olson argued that attitude accessibility subsumes attitude importance,

such that attitude importance is a judgment completely derivative of attitude accessibility.

Consistent with both of these hypotheses, a number of studies have shown that attitudes people say are more personally important to them are indeed more accessible than are attitudes people consider to be unimportant (Krosnick, 1989; Krosnick et al., 1993; Krosnick & Petty, 1995; Lavine et al., 1996). However, the only published evidence directly examining causal impact of one on the other was reported by Roese and Olson (1994). These investigators induced people to express some attitudes repeatedly and express other attitudes only once. Consistent with previous research, this within-subject manipulation increased the accessibility of the former attitudes. Roese and Olson also found that the manipulation increased the degree of personal importance people said they attached to those attitudes. Furthermore, Roese and Olson reported that repeated expression significantly increased accessibility when controlling for importance, whereas repeated expression had no significant effect on importance when controlling for accessibility. This evidence would therefore appear to be consistent with the notion that repeated expression increased accessibility, which in turn increased importance.

However, the partial correlations that Roese and Olson (1994) estimated to conduct their critical mediational analyses were accidentally not computed properly (N. J. Roese, personal communication, October 8 and 9, 1995). The experimental design entailed computing repeated measures within-subjects associations of the manipulation with importance and accessibility across attitude objects, so it was necessary to compute the partial correlation analysis using within-subjects repeated measures as well. But accidentally, only between-subjects differences were controlled for (N. J. Roese, personal communication, October 8 and 9, 1995). Consequently, the reported mediational analyses do not shed light on the causal effects that accessibility and importance may have on one another. All we can infer from this study is that repeated expression can cause increases in both accessibility and importance.

The Present Investigation

We set out to conduct a new investigation to explore whether attitude importance causes accessibility and the reverse. Our first study attempted to replicate Roese and Olson's (1994) study as closely as possible, so that we could compute the appropriate partial correlations and assess mediation of the observed effects. Study 2 was essentially a replication of Study 1, but it incorporated some changes in the design to enhance measurement of some constructs. Our third study involved a manipulation of importance in an effort to assess whether it might cause accessibility.

In each of the first three studies, we explored the relation of attitude importance to accessibility by observing the impact of a manipulation (of repeated attitude expression or personal relevance) on these two constructs. If both of these attributes reflect a single underlying construct, then any manipulation that influences one should also influence the other. However, if the two attributes represent distinct constructs, then a cause of one will not necessarily influence the other. And if both are influenced simultaneously by a manipulation, then the impact of the manipulation on *one attribute may be mediated* by the other. Consequently, these studies afforded opportunities to explore the latent structure of these attributes in a novel way.

Our fourth and final study was a national survey, gauging the impact of importance and accessibility on each other in a natural context. Respondents in this study were interviewed twice, and importance and accessibility were measured on both occasions. This allowed us to gauge whether initial levels of importance predicted subsequent changes in accessibility and whether initial levels of accessibility predicted subsequent changes in importance. Either of these longitudinal effects would be consistent with the notion that these constructs are independent of one another and can influence each other.

Study 1

The methods employed for our first study resembled that of Roese and Olson (1994) as closely as possible using essentially the same questionnaires, computer program, and procedures. However, because their study was conducted in Canada, it focused on distinctly Canadian political issues (e.g., Quebec separatism and native self-government). The current study was conducted in the United States, so we thought our participants might not be familiar with those issues. Consequently, they were replaced with issues selected by the same procedure Roese and Olson used to select their issues.

Method

Participants

One hundred sixty-eight college undergraduates (98 women and 70 men) participated in this study in partial fulfillment of a course requirement.

Procedure

Participants were told that they would take part in a study of differences that may exist between standard written surveys and a new experimental computer-based survey. Seated individually in private cubicles, participants filled out a questionnaire that asked for some target attitudes to be reported five times and others to be reported only once.[1] Next, participants reported all of these attitudes and the personal importance of each on a computer that measured response latencies. Participants were then debriefed, thanked, and dismissed.

Target Issue Selection Process

To select target issues, we identified issues that had approximately normal distributions of attitudes and importance ratings in our participant population, with moderate importance means. To do so, we conducted a pretest study asking a group of people drawn from the same pool as yielded Study 1's participants to report their attitudes on 23 policy issues, as well

[1] As in Roese and Olson's (1994) study, participants in Studies 1 and 2 first completed a questionnaire measuring political expertise. However, some of those questionnaires were lost, so we do not report analyses involving expertise. When such analyses were conducted with those data we retained, we found experts to report their opinions more quickly than novices, and we found some interactions involving expertise (e.g., question order impacted novices more than experts), but none of these interactions alter the basic conclusions reached in this article (for details, see Bizer, 1997).

as the personal importance of those issues. The four issues that most closely met the criteria and seemed most likely to be familiar to our participants were free health care for all Americans, more U.S. involvement in international affairs, the killing of animals in Alaska for fur, and increased use of nuclear power. Importance means for these issues, measured on a scale ranging from 1 (meaning lowest importance) to 9 (meaning highest importance), were 5.8, 5.5, 5.2, and 5.5, respectively (for full details, see Bizer, 1997).

Materials

Repeated expression manipulation. The manipulation of repeated attitude expression was accomplished by asking participants to complete six ostensibly unrelated one-page paper-and-pencil survey questionnaires constructed by different research organizations (for detailed descriptions of all materials, see Bizer, 1997). Each questionnaire was identified by its source (e.g., the University of Wisconsin, the Gallup Organization, the Columbus *Dispatch*/U.P.I. Poll) and involved four to eight questions on a wide range of political issues. All questions asked for responses on rating scales of various lengths (ranging from 2 points to 9 points) and with various sorts of verbal labels (e.g., *agree–disagree, yes–no, approve–disapprove*). Participants recorded their answers on a separate answer sheet.

Participants were randomly assigned to receive one of two different versions of this set of questionnaires. In one version, attitudes toward free health care and killing animals for fur were each measured by five different questions, and attitudes toward nuclear power and U.S. involvement in international affairs were each measured with only one question. In the other version, attitudes toward nuclear power and U.S. involvement in international affairs were each measured with five questions, whereas attitudes toward free health care and killing animals for fur were each measured with one question. Thus, for each participant, two attitudes were repeatedly expressed, and two were not.

Computer measure of attitudes and importance. The same computer program used by Roese and Olson (1994) was used in this study. Participants were instructed to answer each question as quickly as possible, but not so quickly that they made any errors. During the computer-reporting task, some participants (selected randomly) first reported their attitudes on 10 issues (including the 4 target issues) and then reported the personal importance of each one. The remaining participants reported the importance of each issue first and then reported their attitudes.

The attitude questions asked participants to press one of two keys to indicate whether they supported or opposed each policy; the computer measured the length of time between presentation of the issue name and the pressing of a button. The 10 policies were presented in the same order for all participants: The first 6 policies were fillers, designed to familiarize participants with the method before they reported their attitudes toward the final 4 (target) policies. Participants indicated the personal importance of each issue by pressing one of nine keys constituting a rating scale that ranged from *not at all important* to *extremely important.* Only the endpoints of this scale were verbally labeled. Answers were coded from 1 to 9, with 9 indicating maximum importance.[2]

Analysis

To analyze the effects of the repeated expression manipulation, within-subjects analyses of variance (ANOVAs) were conducted with two within-subjects independent variables, issue pair and issue. Issue pair distinguishes the two pairs of issues that shared repeated expression levels (killing animals for fur and health care composed Issue Pair 1, and nuclear power and U. S. involvement in international affairs composed Issue Pair 2). Issue distinguishes the two issues within each pair. A between-subjects variable, condition, specified which issue pair was repeatedly expressed. For participants in one condition, attitudes toward killing animals for fur and health care were repeatedly expressed, whereas for participants in the other condition, attitudes toward nuclear power and U. S. involvement in international affairs were repeatedly expressed. Therefore, in the following analyses, a significant effect of repeated expression on a dependent variable is manifested as a significant Issue Pair × Condition interaction.[3]

Results

Attitude Accessibility

A 2 (issue pair) × 2 (issue) × 2 (condition) × 2 (order of dependent variable measurement: attitudes before importance or vice versa) ANOVA was conducted on attitude accessibility, with the first two factors being within-subjects factors and the others being between-subjects factors. As expected, the Issue Pair × Condition interaction was significant, $F(1, 164) = 6.84$, $p = .005$, indicating that repeatedly expressed attitudes were reported more quickly ($M = 2.03$ s) than were nonrepeated attitudes ($M = 2.21$ s).[4] This replicates previous research showing that repeatedly expressing an attitude leads to heightened accessibility (e.g., M. C. Powell & Fazio, 1984; Roese & Olson, 1994).

We also found a main effect of dependent variable order, $F(1, 164) = 11.97$, $p < .001$, such that attitudes were reported more quickly when they were measured after attitude importance ($M = 1.93$ s) than when they were reported first ($M = 2.35$ s). And the Issue Pair × Condition × Dependent Variable Order interaction was also significant, $F(1, 164) = 6.82$, $p = .01$. The effect of repeated expression on accessibility was substantial when attitudes were measured before importance, $F(1, 93) = 30.19$, $p < .001$ ($M = 2.16$ s for repeatedly expressed attitudes vs. $M = 2.58$ s for attitudes not repeatedly expressed), whereas repeated expression

[2] To minimize the effect of outliers, the temporal latencies of the attitude reports here and in Studies 2 and 3 were subjected to reciprocal transformations as recommended by Fazio (1990) and as done by Roese and Olson (1994). Also, in line with prior work showing that importance scales behave nonlinearly (see Krosnick, 1988), we squared importance ratings here and in all subsequent studies; nonsquared importance ratings (which Roese & Olson, 1994, analyzed) yielded generally similar results to those we report for all studies, though the nonsquared results were sometimes somewhat weaker.

[3] Roese and Olson (1994) conducted a somewhat different analysis. Instead of analyzing reports on all four target issues as repeated measures, Roese and Olson averaged pairs of issues in the same repeated expression treatment conditions together into single scores. This discards meaningful variance and reduces statistical power. We therefore treated all four issues as separate repeated measures. However, analyses conducted using Roese and Olson's procedure yielded similar results to those reported in the text.

In our analyses, the pairing of free health care with killing animals for fur and the pairing of nuclear power with U.S. involvement in international affairs was completely arbitrary. Likewise, the coding of the issue variable as 1 for free health care and nuclear power and 2 for killing animals for fur and U.S. involvement in international affairs was completely arbitrary. By always including the interaction of Issue Pair × Issue in all of our analyses, though, we were able to fully model differences between all four issues in terms of each dependent variable examined, just as all four means in a 2 × 2 table can be represented in a multiple regression by two dichotomous main effects and the interaction between them.

[4] This hypothesis and most of those reported later in this article were clearly directional; one-tailed significance tests are reported for all such directional hypotheses when the means or effects were in the hypothesized direction; two-tailed tests are reported otherwise.

had no effect when attitudes were measured after importance, $F(1, 71) < 0.001$, *ns* ($M = 1.93$ s for attitudes that were and were not repeatedly expressed).

These two effects suggest that asking respondents to report the importance of their attitudes leads to some extent of attitude activation. This activation may in turn heighten accessibility, masking the effects of the repeated expression manipulation on the speed of subsequent attitude reports. Therefore, it seems that response latencies may be more accurate when measured before assessments of other strength-related attitude properties rather than when measured after other strength-related properties have been assessed.

No other effects involving repeated expression were significant.

Attitude Importance

A similar 2 (issue pair) × 2 (issue) × 2 (condition) × 2 (order of dependent variable measurement) ANOVA was conducted on attitude importance. The effect of repeated expression on importance ratings was not significant, $F(1, 164) = 0.85$, *ns*, in contrast with the finding of Roese and Olson (1994). Importance ratings were slightly lower on average when an attitude had been repeatedly expressed ($M = 6.12$) than when it had not ($M = 6.28$). No other effects involving repeated expression were significant.[5]

Correlation Between Attitude Importance and Accessibility

One reason why importance may not have been affected by the repeated expression manipulation is that the measure of this construct may not have been sufficiently reliable to detect any associations. To assess whether the importance measure used was at least minimally reliable, we attempted to replicate the finding that attitude importance and accessibility are naturally positively correlated with one another as documented in various previous studies (e.g., Krosnick, 1989; Krosnick et al., 1993; Lavine et al., 1996). To do so, we conducted hierarchical linear modeling using data on all four issues to simultaneously estimate the within-subjects association of importance with accessibility. As expected, on issues that people said were more important to them, attitudes were reported more quickly ($b = .07$, $p < .01$, $N = 168$).[6] This result suggests that the nonsignificant effect of repeated expression on importance is not simply attributable to highly unreliable importance measurement.

Discussion

These results cast new light on the notion that "measures of the perceived personal importance of attitudes are *subsumed by* [italics added] the construct of accessibility" (Roese & Olson, 1994, p. 47), a view suggesting that accessibility is the only cause of attitude importance. If this were true, attitude importance could be considered a by-product of attitude accessibility. According to this account, people always look to attitude accessibility when attempting to assess attitude importance. Consequently, a manipulation that alters attitude accessibility would, in all cases, lead to a change in attitude importance mediated by accessibility as well. Because this did not occur here, Study 1 shows that attitude accessibility does not always cause attitude importance.

Study 2

Although Study 1 uncovered the expected positive correlation between accessibility and importance, its failure to uncover an effect of repeated expression on attitude importance may nonetheless have occurred because of unreliability in the measure of importance. Many studies suggest that the single-item 9-point partially labeled rating scale used in Study 1 to measure importance is not likely to be especially reliable. Specifically, rating scales gauging unipolar constructs such as attitude importance are most reliable when they offer between 4 and 6 points (e.g., Bendig, 1953; Komorita & Graham, 1965; Orth & Wegner, 1983),[7] and rating scales are generally most reliable when all points are labeled with words, rather than some being labeled with numbers only (e.g., Alwin & Krosnick, 1991; Krosnick & Berent, 1993). We therefore repeated Study 1, using improved measures of attitude importance.

In this study, we also explored whether changing the response options offered when measuring attitude accessibility might alter the results. The use of dichotomous response options (support–oppose) in Study 1 may confound accessibility with extremity. People who have extreme attitudes presumably have a relatively easy time determining which response option to select. However, people who are truly neutral on an issue are forced to choose between supporting and opposing, which may take extra time. If these people are given an explicit opportunity to say they are neutral, they might be able to do so quite quickly. Thus, the more moderate people's attitudes are, the more slowly they would be reported, but only when dichotomous alternatives are offered.

This raises the possibility of an alternative explanation for a finding of Study 1 and of some previous studies of repeated expression. Assume for the moment that repeated expression simply makes attitudes more extreme (see Judd & Brauer, 1995) but does not increase their accessibility. If this were true, and if dichotomous attitude measurement confounds extremity and accessibility, then repeated expression would lead to an apparent decrease in response latency that is due entirely to an increase in extremity. We therefore sought to assess whether the observed

[5] We also performed the (incorrect) analyses of covariance conducted by Roese and Olson (1994), which controlled only for between-subjects variance when using a within-subjects manipulation to predict both between-subjects and within-subjects variance in the dependent variable. Replicating Roese and Olson, we found that the effect of repeated expression on importance was not significant when controlling for between-subjects variance in accessibility, $F(1, 165) = 1.1$, *ns*. However, inconsistent with what Roese and Olson reported, the effect of repeated expression on accessibility was also nonsignificant when controlling for between-subjects variance in importance, $F(1, 165) < 1$, *ns*.

[6] For this analysis, importance was coded to range from 0 (meaning the lowest possible importance score) to 1 (meaning the highest possible importance score). Accessibility was simply the reciprocal of seconds. To parallel previous research showing the importance–accessibility relation, we included in these analyses only participants for whom accessibility was measured before importance.

[7] Rating scales measuring bipolar constructs with a zero point or neutral point in the middle, such as attitudes or agreement–disagreement with statements, appear to be most reliable and valid when they offer approximately 7 points (Altemeyer, 1988; Alwin, 1992; Alwin & Krosnick, 1991; Birkett, 1986; Matell & Jacoby, 1971).

effect of repeated expression on response latency might be reduced if we used an attitude measure that offered a neutral point, thereby circumventing the dilemma that neutral participants faced in Study 1.

Interestingly, adding a neutral response option to the support and oppose options might create a new problem for participants whose attitudes are genuinely only slightly positive or slightly negative. That is, these individuals may be faced with the difficult choice of possibly overstating the extent of their feelings (by expressing what may seem to be unqualified support or opposition) or inappropriately claiming to have no preference (by selecting the neutral response option). Thus, offering only three response options may artificially lengthen response latencies for participants with moderate attitudes. We therefore compared accessibility assessed with either dichotomous response choices (as in Study 1) or with 5-point rating scales, explicitly offering a neutral point, moderate positions, and extreme positions.

The 5-point rating scale used by some of the participants in this study also afforded the opportunity to gauge the effect of repeated expression on attitude extremity (see Downing, Judd, & Brauer, 1992; M. C. Powell & Fazio, 1984). If we were to find that repeated expression increases both accessibility and extremity, we could explore whether extremity mediated the effect on accessibility. That is, we could assess whether repeatedly expressed attitudes are reported more quickly simply because they become more extreme. Similarly, if we were to find that repeated expression increases both importance and extremity, we could see whether the effect on importance is mediated by extremity. In addition, simply examining whether repeated expression affects extremity can be viewed as testing the single-construct notion of strength-related attitude dimensions, because this view would presume that an effect of repeated expression on importance, accessibility, or extremity should be paralleled by comparable increases in the other two features.

Method

Participants

Three hundred nineteen college undergraduates (182 women and 137 men drawn from the same pool as yielded the participants for Study 1) participated in this study in partial fulfillment of a course requirement.

Procedure and Materials

The procedure and materials used in Study 2 were identical to those used in Study 1 with the following exceptions. First, the 9-point rating scale used in the computer-based measure of attitude importance was replaced with a 5-point scale (*extremely important, very important, fairly important, somewhat important, not at all important*). Second, participants were randomly assigned to report their attitudes on the computer using either dichotomous response options (support–oppose as in Study 1) or a 5-point scale with options labeled *strongly support, somewhat support, neither support nor oppose, somewhat oppose,* and *strongly oppose.*

Results

Attitude Accessibility

A 2 (issue pair) × 2 (issue) × 2 (condition) × 2 (order of dependent variable measurement) × 2 (number of response choices: two vs. five) ANOVA was conducted on attitude accessibility with the first two factors again being within-subjects factors and the remainder being between-subjects factors. The Issue Pair × Condition interaction was again significant, $F(1, 311) = 71.2$, $p < .001$. Attitudes that had been repeatedly expressed were reported more quickly ($M = 2.23$ s) than were attitudes that had not been repeatedly expressed ($M = 2.60$ s).

The main effect of the number of response choices was also significant, $F(1, 311) = 10.48$, $p < .001$: Participants reported their attitudes more quickly when given only a dichotomous choice ($M = 2.27$ s) than when they had a choice of five response options ($M = 2.55$ s). However, there was no interaction between repeated expression and the number of response choices, $F(1, 311) < 1$, *ns.* Thus, repeated expression increased accessibility equivalently, regardless of whether attitudes were measured dichotomously or continuously.

As in Study 1, the main effect of dependent variable order was marginally significant, $F(1, 311) = 3.65$, $p = .06$, such that attitudes were reported more quickly when measured after importance ($M = 2.32$ s) than when reported before importance ($M = 2.48$ s). And, as in Study 1, the Condition × Issue Pair × Dependent Variable Order interaction was also significant, $F(1, 311) = 8.47$, $p = .004$. When accessibility was measured before importance, repeated expression had a strong impact on accessibility, $F(1, 178) = 83.83$, $p < .001$, with repeatedly expressed attitudes being reported more quickly ($M = 2.24$ s) than attitudes not repeatedly expressed ($M = 2.79$ s). When accessibility was measured after importance, repeated expression still affected accessibility, but more weakly, $F(1, 137) = 10.82$, $p < .001$ ($M_{\text{repeated}} = 2.21$ s, $M_{\text{not repeated}} = 2.44$ s).[8]

No other effects of repeated expression were significant.

Attitude Importance

A 2 (issue pair) × 2 (issue) × 2 (condition) × 2 (order of dependent variable measurement) × 2 (number of response choices: two vs. five) ANOVA was conducted on attitude importance. The Issue Pair × Condition interaction was marginally significant, $F(1, 311) = 3.34$, $p = .07$. Issues on which people had repeatedly expressed their attitudes were perceived as *less* important ($M = 3.37$) than issues on which people had not repeatedly expressed their attitudes ($M = 3.48$), an unexpected difference running in the direction opposite to Roese and Olson's (1994) finding.

The only other significant effect of repeated expression was the five-way interaction of Issue Pair × Condition × Issue × Dependent Variable Order × Number of Response Choices. We saw no sensible interpretation for this complex relation.[9]

[8] The numbers of participants randomly assigned to report importance first or second were not equal because of experimenter error.

[9] When we performed the (incorrect) analyses of covariance conducted by Roese and Olson (1994), we again found that the effect of repeated expression on importance was not significant when controlling for between-subjects variance in accessibility, $F(1, 316) < 1$, *ns.* Also consistent with Roese and Olson's reported findings, the effect of repeated expression on accessibility was significant when controlling for between-subjects variance in importance, $F(1, 316) = 5.6$, $p = .02$.

Attitude Extremity

A 2 (issue pair) × 2 (issue) × 2 (condition) × 2 (order of dependent variable measurement) × 2 (number of response choices: two vs. five) ANOVA was conducted on attitude extremity among participants who reported their attitudes on 5-point rating scales that revealed extremity. People who strongly supported or opposed a policy were given an extremity score of 2 for that policy, people who moderately supported or opposed a policy were given an extremity score of 1 for that policy, and people who neither supported nor opposed a policy were given an extremity score of 0 for that policy. Repeatedly expressed attitudes were only slightly more extreme than were attitudes that had not been repeatedly expressed (Ms = 1.03 vs. 0.96); this difference was not reliable, $F(1, 141) = 1.15$, *ns*.

Correlations Among Attitude Importance, Accessibility, and Extremity

In an effort to validate the importance measure, we again assessed whether importance and accessibility were correlated using hierarchical linear modeling. As expected, on issues that people said were more important to them, attitudes were reported more quickly ($b = .09$, $p < .01$, $N = 319$).[10] This suggests that the nonsignificant effect of repeated expression on importance is not simply attributable to highly unreliable importance measurement.

We also conducted hierarchical linear modeling to assess the associations of attitude extremity with importance and accessibility. Consistent with other past research (e.g., Krosnick et al., 1993), the association between importance and extremity was positive and statistically significant ($b = .12$, $p < .01$, $N = 145$). However, extremity and accessibility were uncorrelated ($b = -.00$, *ns*, $N = 145$), which is inconsistent with previously reported positive correlations between these variables (e.g., Krosnick et al., 1993; M. C. Powell & Fazio, 1984).

Discussion

The principal findings of Study 1 were replicated here. A more reliable measure of attitude importance did not yield evidence of a positive effect of repeated expression on attitude importance. Indeed, repeated expression caused a marginally significant decrease in attitude importance. This may have occurred because repeated expression caused participants to think more about the attitudes they repeatedly expressed. This additional thinking may have led participants to realize that these particular attitudes did not merit being considered as important to them as they previously had thought, yielding decreased importance ratings.

Our finding that repeated expression did not increase attitude extremity is consistent with M. C. Powell and Fazio's (1984) and Downing, Judd, and Brauer's (1992) evidence that repeated expression does not increase attitude extremity when people have repeatedly expressed both the valence and extremity of their attitudes as was the case here. Furthermore, our finding in this regard is consistent with the claim that accessibility and extremity reflect distinct latent constructs, because a manipulation (i.e., repeated expression) that affected one (i.e., accessibility) did not affect the other (i.e., extremity). This challenges the presumption made by some past investigators that accessibility and extremity reflect a single underlying latent construct (e.g., Bassili, 1996b).

Study 3

Having found no evidence that increasing attitude accessibility caused increases in attitude importance in Studies 1 and 2, we conducted a third study to examine whether importance affects accessibility under conditions conducive to this effect. To do so, we drew on the work of Boninger, Krosnick, and Berent (1995), who conducted a series of investigations exploring the causes of attitude importance. These studies showed that self-interest (i.e., the degree to which a person perceives an attitude to be instrumental to his or her tangible rights, privileges, or lifestyle) is a principal cause of attitude importance. We therefore set out to manipulate self-interest in an effort to alter attitude importance and to see whether a consequent change in accessibility would be observed.

Our manipulation of self-interest was based on a procedure developed by Petty and Cacioppo (1986), wherein some experimental participants are told that a proposed new policy will affect them and others are told the policy will not affect them. Several studies have shown that such a manipulation of self-interest can lead people told that a policy will affect them to attach greater importance to their attitudes toward the policy (e.g., Apsler & Sears, 1968; Brickner, Harkins, & Ostrom, 1986; Madsen, 1978), so it seemed suitable for use in this study. To this end, we manipulated information given to college-student participants about the likelihood that particular new policies would be implemented at their school and measured their perceptions of these likelihoods, the amount of importance they attached to each policy, whether the participants chose to read a newspaper article on the topic (selective exposure), and the speed with which they reported their attitudes on the issues (accessibility).

To maximize the mundane realism of the experimental procedure, we offered respondents the opportunity to learn and think about multiple issues simultaneously, just as reading a newspaper would in the normal course of daily life. That is, respondents were presented with headlines of news stories on multiple issues; people could select which stories they would read at whatever pace they liked. In addition, they could think about the stories they read for as long as they wished. This procedure permitted statistical separation of the effect of importance on accessibility from the effect of accessibility on importance using structural equation modeling procedures, as we explain below.

In light of Boninger, Krosnick, and Berent's (1995) findings, we expected the manipulation of self-interest to influence perceived likelihood of policy implementation. Participants who read a headline saying a policy was likely to be enacted at their school should have perceived a relatively high likelihood that the policy would in fact be implemented. In contrast, participants told that the policy had been considered and rejected by a variety of other universities should have perceived a relatively low likelihood that it would be

[10] For these analyses, importance and extremity were coded to range from 0 (meaning the lowest possible importance or extremity score) to 1 (meaning the highest possible importance or extremity score). Accessibility was again the reciprocal of seconds.

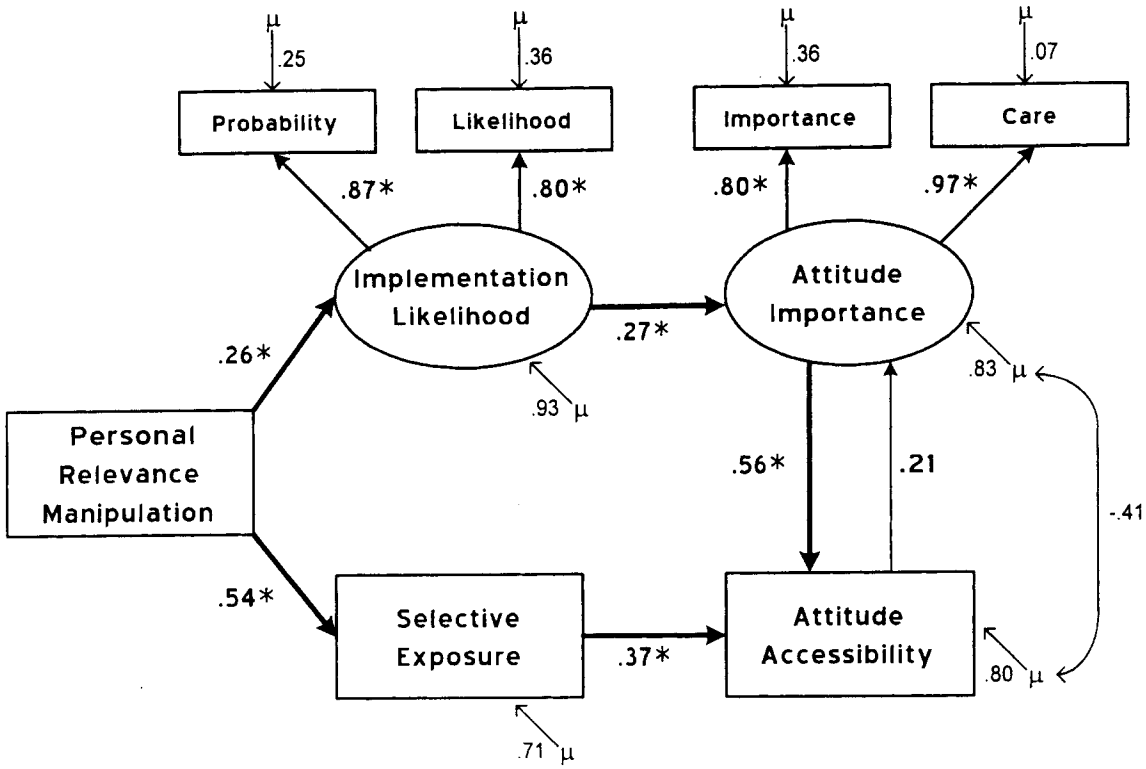

Figure 1. Structural equation model for Study 3. Boldfaced arrows indicate a significant causal effect; nonboldfaced arrows indicate a nonsignificant causal effect. $*p < .05$.

implemented at their school. We expected that enhanced perceived likelihood of implementation would yield increased attitude importance, which would lead participants to think more extensively about the information they gathered on the issue, which would in turn lead to enhanced accessibility of relevant beliefs and attitudes in their memories. These hypothesized effects are represented by the causal arrows shown in Figure 1 running from the personal relevance manipulation to implementation likelihood, from implementation likelihood to attitude importance, and from attitude importance to attitude accessibility.

In addition, we expected that our manipulation of implementation likelihood would affect attitude accessibility via selective exposure as follows. Reading a headline indicating that a story's topic is personally relevant should increase the likelihood that people would choose to read the story. And reading the story would expose people to novel information about the issue, which should cause them to access their attitudes on the issue. The enhanced exposure should in turn increase the accessibility of those attitudes. Thus, our manipulation of personal relevance may have impacted accessibility through selective exposure, which would then permit us to assess whether the increases in accessibility caused increases in attitude importance.[11] These hypothesized effects are represented by the causal arrows shown in Figure 1 running from the personal relevance manipulation to selective exposure, from selective exposure to accessibility, and from accessibility to attitude importance.

Method

Participants

Forty-seven undergraduates (30 women and 17 men) participated in partial fulfillment of a course requirement.

Procedure

Participants were told that they would test a new "computerized bulletin board service" that would allow them to access "up-to-the-minute" news about issues relevant to college students across the world. They were then each seated in private cubicles and told that their computer would display the most recent bulletins available and then ask for their opinions about those bulletins. The instructions explained that if students liked the service, the university might consider subscribing to it the next year.

Four target articles (one on each of four target issues) and one filler article were constructed. The four target articles were about policies

[11] The current method is similar to that used by Rennier (1988). Participants in this study listened to two high-relevance and two low-relevance messages about campus issues. After listening to the messages, participants reported their attitudes on the issues. Attitudes toward policies discussed in the high-relevance messages were reported more quickly than were attitudes toward policies discussed in the low-relevance messages. Rennier (1988) showed that the differences in accessibility were due to differences in issue-relevant elaboration. This suggests that in the current study, elaboration, although it was not measured, may have also mediated the effect of relevance on accessibility.

ostensibly being considered at universities: free lunches for students, a reduction in graduation requirements, mandatory Saturday classes, and the institution of senior comprehensive examinations. Each target article described a proposed policy change, offering arguments both for and against implementation. For each participant, two of the policies (selected randomly) were described as very likely to be implemented at their own university the following year, and the other two policies were described as having been considered and rejected by the University of Southern Wales in England (a faraway school) and various American universities (the articles appear in Appendix A). Thus, personal relevance was manipulated by varying which articles were about policies at Ohio State University and which were about policies at the University of Southern Wales.

Participants were shown a menu of the five story headlines and were given an opportunity to choose one to read first. After they read the selected article, they returned to the menu to select an additional story if they wished, or they could choose not to read any more articles. Participants could repeat this process until they read all five articles.

Next, participants answered a series of questions about the articles on the computer. They were then asked about their attitudes on the four target issues; the computer measured temporal latencies of these reports. Finally, participants completed a paper-and-pencil questionnaire that asked more about the bulletin board service, about the likelihood of policy implementation, and about attitude importance.

Implementation likelihood and attitude importance were measured by two questions each (see Appendix B for complete question wordings). Each of these measures was coded to range from 1 to 5, with 1 indicating perceptions of minimal likelihood and importance and 5 indicating perceptions of maximal likelihood and importance. For our initial analyses, the two measures of implementation likelihood were averaged to yield an index, and the two measures of attitude importance were averaged to yield another index. Response latencies were subjected to a reciprocal transformation before analysis.

Results

Implementation Likelihood

If the manipulation of relevance was successful, we would expect a significant effect of relevance on perceived implementation likelihood. A 2 (issue pair) × 2 (issue) × 2 (personal relevance condition) ANOVA was conducted on implementation likelihood judgments, with the first two variables being within-subjects factors. As expected, the Issue Pair × Condition interaction was significant, $F(1, 45) = 6.95$, $p = .005$. When a policy was said to be likely to be implemented the following year at the participants' university, it was perceived to be more likely to occur ($M = 2.61$) than when it was said to have been rejected by various other schools ($M = 2.20$). Thus, the manipulation was successful.

Attitude Importance

The manipulation also affected importance, as shown by a significant Condition × Issue Pair interaction, $F(1, 45) = 3.68$, $p = .03$. People attached more importance to attitudes toward policies to be implemented at their own school ($M = 4.43$) than toward policies rejected by other schools ($M = 4.27$).

Attitude Accessibility

The manipulation had a significant effect on response latencies, as demonstrated by a significant Issue Pair × Condition interaction, $F(1, 45) = 6.64$, $p = .007$. Attitudes toward policies to be implemented at participants' own school were reported more quickly ($M = 2.08$ s) than were attitudes toward policies rejected by other schools ($M = 2.72$ s).

Selective Exposure

As expected, participants were more likely to select stories to read that were about policies to be implemented at their university than stories about policies rejected elsewhere, $\chi^2(1, N = 45) = 35.77$, $p < .001$. On average, people chose to read stories about personally relevant policies 65.4% of the time, whereas this percentage was 34.6% for stories about policies low in personal relevance.

Mediation

In this context, statistical separation of the impact of attitude importance on accessibility from the effect of accessibility on importance is possible by means of the logic of instrumental variable analysis (see Kenny, 1979). To do so, we must have in hand an instrument for importance (i.e., a variable that causes importance but not accessibility) and an instrument for accessibility (i.e., a variable that causes accessibility but not importance). Likelihood judgments might be able to serve as the former, and selective exposure might be able to serve as the latter, thereby potentially constituting the empirical handles needed.

If these variables are indeed valid instruments, we could estimate the parameters of the model shown in Figure 1, which would allow us to test two key hypotheses: that importance might cause accessibility and that accessibility might cause importance. The former effect would occur if high importance causes people to think more about the issue and their attitude on it, which would in turn enhance accessibility. The effect of accessibility on importance would presumably be mediated by the self-perception processes outlined by Roese and Olson (1994). Although these unmeasured mediating variables (i.e., elaboration and self-perception reasoning) are not included in Figure 1, they are nonetheless mediators that we presume underlie any associations we observe.

We estimated the parameters of the structural equation model shown in Figure 1 using LISREL 8.14 (Jöreskog & Sörbom, 1998). LISREL 8.14 was given a matrix of partial correlations, partialing out between-subjects variance by controlling for a set of 46 dummy variables representing the 47 participants (to control for nonindependence due to multiple data points having been provided by each participant; Kenny & Judd, 1986, 1996).[12] The personal relevance manipulation, selective exposure, and accessibility were each gauged by a single indicator, so we were forced to assume that each was measured with no error (because we could not estimate how much measurement error was present in each assessment). Implementation likelihood and attitude importance were each measured by two questions, so we treated these questions as

[12] We subtracted the number of dummy variables from the total number of data points when we specified the number of observations in LISREL. This approach to controlling for differences between people treats participants as a fixed factor rather than a random one. This approach leaves only within-subjects variance to be analyzed by LISREL, but this is appropriate, because our interest is in understanding the effects of the within-subjects manipulations.

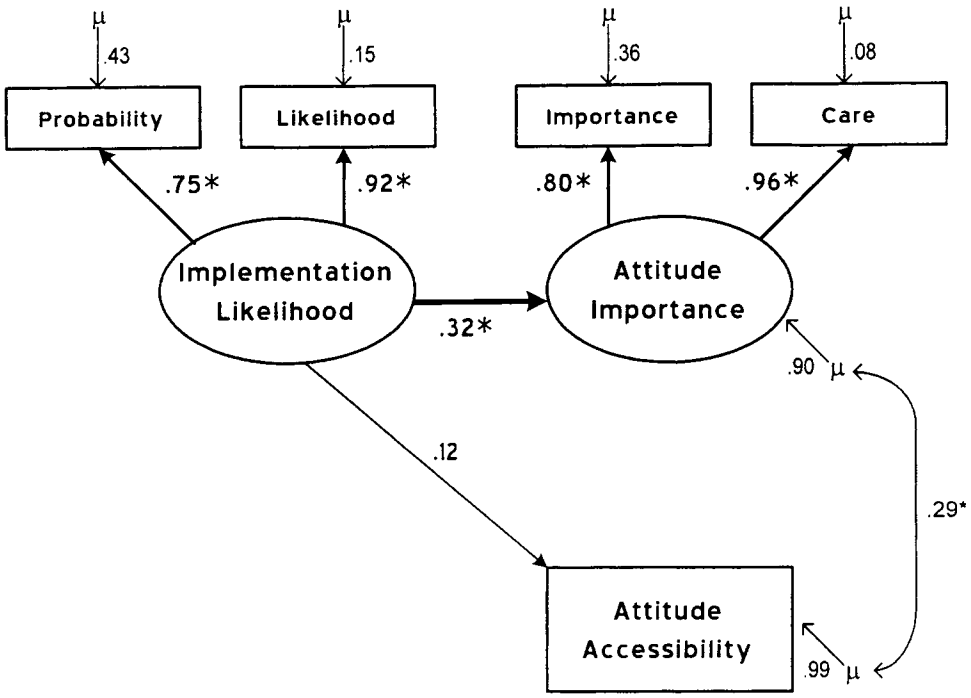

Figure 2. Structural equation model for Study 3 to test implementation likelihood as an instrument. Boldfaced arrows indicate a significant causal effect; nonboldfaced arrows indicate a nonsignificant causal effect. The correlation between the residuals is significant. * $p < .05$.

multiple indicators of the two latent constructs, thus allowing correction for attenuation due to random measurement error. The parameter estimates that LISREL yielded appear in Figure 1. A variety of indicators suggest that the fit of the model to the observed data was excellent, $\chi^2(10, N = 45) = 13.42$, *ns* ($\chi^2/df = 1.34$, goodness-of-fit index = .97, normed fit index = .96, root-mean-square residual = .05).

As expected, enhancing the personal relevance of a policy significantly increased perceptions of the likelihood that it would be implemented at participants' own university ($\beta = .26, p < .05$), which significantly increased attitude importance ($\beta = .27$, $p < .05$). Also as expected, enhancing the personal relevance of a policy in a story headline increased the likelihood that participants would choose to read about it ($\beta = .54$, $p < .05$), which in turn increased accessibility ($\beta = .37$, $p < .05$). The effect of accessibility on importance was not significant ($\beta = .21$, *ns*).[13] Thus, there is no hint here that people inferred that their attitudes were more important because they came to mind more quickly.[14]

This analytic approach is valid only if implementation likelihood and selective exposure can legitimately be treated as instrumental variables in Figure 1's model. To test the viability of these assumptions, we conducted tests following the logic offered by James and Singh (1978). For implementation likelihood to be an acceptable instrument here, it must have no residual association with accessibility once importance has been controlled. Likewise, in order for selective exposure to be an effective instrumental variable, it must have no residual association with attitude importance once accessibility has been controlled.

We therefore estimated the parameters of two additional structural equation models, each including just three latent variables. In the first model, shown in Figure 2, implementation likelihood was permitted to cause attitude importance and accessibility, and the latter two variables were permitted to be correlated with one another. As the estimates displayed in Figure 2 show, implementation likelihood had a significant effect on attitude importance ($\beta = .32$, $p < .05$) but not on accessibility ($\beta = .12$, *ns*). This model fit the data excellently, $\chi^2(3, N = 45) = 5.05$, *ns* ($\chi^2/df = 1.68$, GFI = .99, normed fit index = .98, root-mean-square residual = .03). Thus, implementation likelihood satisfied this necessary criterion for serving as an instrumental variable.

In the second model, shown in Figure 3, selective exposure was permitted to cause both attitude importance and accessibility, and the latter two variables were permitted to be correlated with one another. The estimates in Figure 3 show that selective exposure had a significant effect on accessibility ($\beta = .43$, $p < .05$) but not on attitude importance ($\beta = .11$, *ns*). This model also fit the data excellently, $\chi^2(1, N = 45) = 1.00$, *ns* ($\chi^2/df = 1.00$, GFI = 1.00,

[13] It is interesting to note that accessibility had no effect on importance even though accessibility was measured immediately before attitude importance was measured. This question sequence could have induced people to judge importance based on accessibility, yet it did not do so.

[14] When we constrained the nonsignificant correlation between the attitude importance and attitude accessibility residuals (−.41 in Figure 1) to be zero, the new model did not fit significantly less well than the model shown in Figure 1 ($\Delta\chi^2 = 2.13$, $df = 1$, *ns*), and the parameter estimates obtained supported the same conclusion as those shown in Figure 1: The effect of attitude importance on attitude accessibility was significant and positive ($\beta = .25$, $p < .05$), and the effect of accessibility on importance was small and nonsignificant ($\beta = .06$, *ns*).

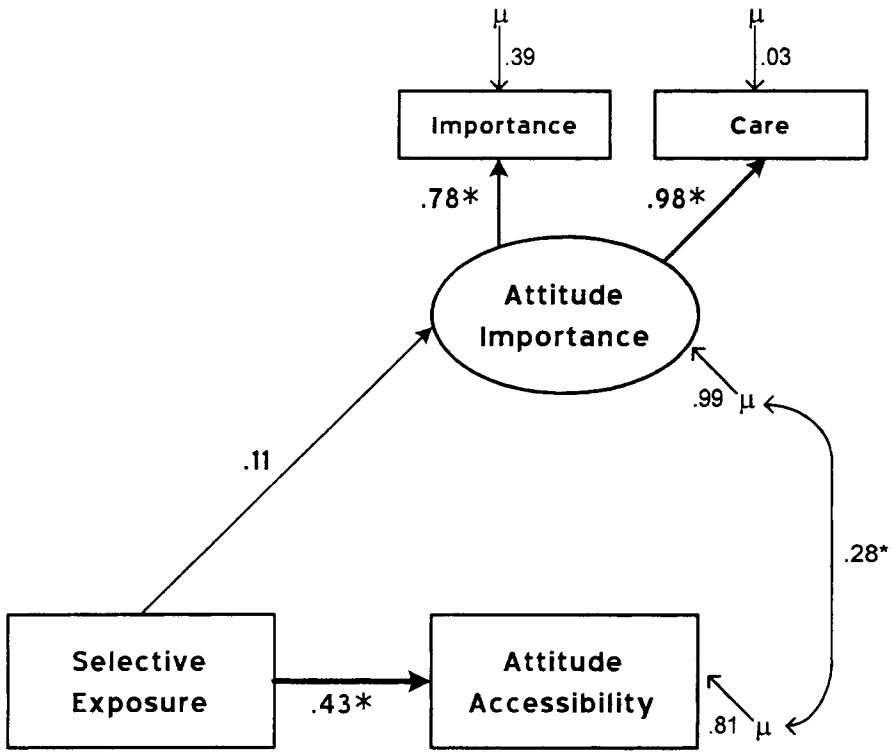

Figure 3. Structural equation model for Study 3 to test selective exposure as an instrument. Boldfaced arrows indicate a significant causal effect; nonboldfaced arrows indicate a nonsignificant causal effect. The correlation between the residuals is significant. * $p < .05$.

normed fit index = .99, root-mean-square residual = .02). Therefore, selective exposure satisfied the necessary criterion for serving as an instrumental variable. This provides a further basis for confidence in the implications of Figure 1.

Study 4

Our last study explored the impact of attitude importance and accessibility on one another over time in the course of daily life. In late 1997, in the wake of the October 6 White House Conference on Global Climate Change (Cushman, 1997), the American news media offered the public hundreds of newspaper, television, radio, and magazine news stories and talk radio shows about global warming. In addition, advertisements were placed in newspapers and on television by industry and environmental groups, and numerous Web sites were established on the topic. The focus of the debate therein was the Kyoto treaty on emissions reductions, which the United States signed in December of that year.

This flow of information on global warming offered Americans the opportunity to talk, think, and learn about global warming. During this time, people could have been selective in their exposure to and processing of this information based on preexisting levels of the personal importance of the issue to them. Therefore, high levels of importance may have instigated increases in the accessibility of relevant attitudes.

To test this hypothesis, we conducted interviews with a nationally representative panel sample of American adults twice, *immediately before the public debate* and immediately afterward. Because the relevant constructs were measured identically during both interviews, we were able to estimate the parameters of the structural equation model presented in Figure 4. This model proposes that attitude importance measured at Time 1 may have been a cause of attitude importance measured at Time 2 (representing its stability over time) and that attitude accessibility measured at Time 1 may have been a cause of accessibility at Time 2 (representing its stability). After controlling for the stability of these constructs in this fashion, the only variance left unexplained in the Time 2 measurements is any change that occurred in these constructs between Time 1 and Time 2. Therefore, the effect of each variable measured at Time 1 on the other variable measured at Time 2 identifies the amount of change that occurred in the second variable that was predictable by prior levels of the first variable. If such lagged effects appear, they are consistent with the hypothesis that the first variable caused changes in the second (see Kenny, 1979; Kessler & Greenberg, 1981).

Method

A representative national sample of 688 adults was interviewed by telephone between September 1 and October 5, 1997, before the media barrage on global warming began. We attempted to reinterview all of these individuals between December 20, 1997, and February 13, 1998, after the media coverage was completed. In fact, 497 individuals were successfully recontacted and agreed to be interviewed a second time. The Ohio State University Survey Research Unit conducted computer-assisted telephone interviews using identical questionnaires on both occasions, which in-

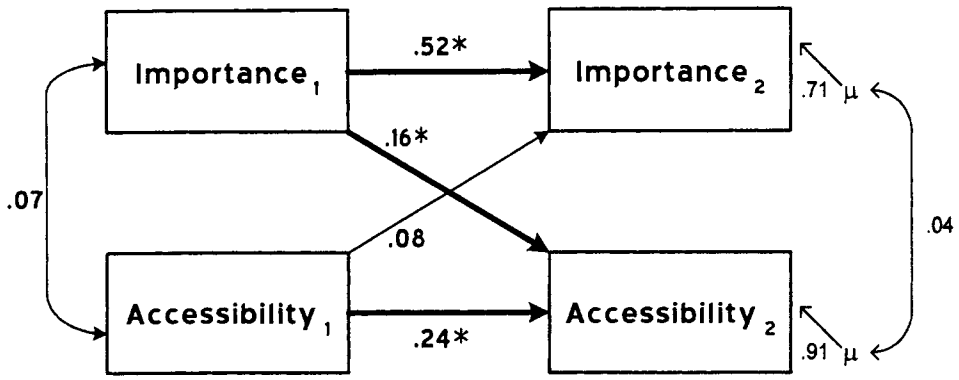

Figure 4. Structural equation model for Study 4. Subscripts on variables indicate time of measurement (Time 1 or Time 2). Boldfaced arrows indicate a significant causal effect; nonboldfaced arrows indicate a nonsignificant causal effect. * $p < .05$.

cluded measures of attitudes toward global warming and attitude importance.

Attitude accessibility was measured by the amount of time participants took to answer the brief question "Overall, would you say that global warming would be good, bad, or neither good nor bad?" after respondents had been told what global warming is. To ensure that respondents did not have a great deal of time to think before being prompted to report their attitudes, only three options were provided to participants. Importance was measured by participants' responses to the question "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?" (coded 1, .75, .50, .25, and 0, respectively).

To measure attitude accessibility during the telephone interviews, we used a methodology inspired by Bassili (1996a). The instant the interviewer finished asking the attitude question, he or she pressed a button that registered the current time on the computer. And as soon as the participant began to answer the question, the interviewer pressed another button to mark the time again. By subtracting the first time from the second, we calculated a measure of response latency in hundredths of seconds.

Various problems can lead this assessment of response latency to be invalid, including a request from a participant to reread the question, a participant's starting to answer the question before the interviewer has finished reading it, or an interviewer pressing the wrong key by accident. Therefore, after the participant gave an answer, the interviewer was asked to report whether the times can be validly used to measure response latency. Interviewers sometimes made alterations in data files after completion of interviews, inadvertently invalidating the time records for some participants. Latency measurements were valid for 400 Time 1 attitude responses and 347 Time 2 attitude responses.[15] As in our earlier studies, we subjected the response times to reciprocal transformations.

Results

The parameter estimates shown in Figure 4 were generated using LISREL 8.14. The model fit the observed data perfectly, because it is just identified. As expected, attitude importance evidenced a moderately high level of stability over time ($\beta = .52$, $p < .01$), and accessibility manifested a somewhat lower but nonetheless reliable amount of stability over time ($\beta = .24$, $p < .01$).

Of greatest interest, initial attitude importance predicted subsequent changes in accessibility in the expected direction ($\beta = .16$, $p < .01$). That is, increased initial levels of personal importance were associated with increases in accessibility over time. This result is consistent with the notion that importance is a cause of accessibility. Interestingly, initial levels of attitude accessibility did not predict subsequent changes in importance ($\beta = .08$, *ns*).

The absence of a significant positive Time 1 correlation between importance and accessibility ($r = .07$, *ns*) might seem a bit surprising, because these variables are usually positively correlated (e.g., Krosnick, 1989; Lavine et al., 1996). However, prior to the fall 1997 national debate, this issue had not enjoyed nearly as much news media coverage as it did during the debate. Consequently, these variables may have been uncorrelated because media attention had not yet sparked extensive thought about the issue among people who considered the issue to be highly important. After the debate, however, importance and accessibility were significantly positively correlated ($r = .15$, $p = .01$, $N = 293$), presumably because of the extensive media coverage of the issue. Therefore, our study documented the period during which these two attitude attributes for a novel political issue were transformed from being uncorrelated to being positively correlated, because of the influence of importance on accessibility. This is further evidence that accessibility does not subsume importance.

General Discussion

The Structure of Strength-Related Attitude Features

The findings of our four studies have a number of interesting implications regarding the latent structure of attitude features related to strength. As we outlined earlier, recent years have seen a series of explorations of the structure of these features using exploratory factor analysis in a search for parsimony. In conducting these studies, investigators have presumed that lying beneath measurable, surface manifestations such as importance, certainty, knowledge, accessibility, and the like may be a smaller number of operative constructs that are responsible for variance in some or all of the surface manifestations. Such underlying constructs could include "involvement of the self" (Petty & Cacioppo, 1986) or the

[15] Because outliers were clearly present at both ends of the response latency distributions, we trimmed the top 15% and the bottom 15% of response latencies and then subjected the remaining latencies to a reciprocal transformation.

strength of the link in memory between the attitude object and its evaluation (Fazio, 1995). In the extreme, the single-factor claim (e.g., Verplanken, 1989, 1991), represented in Figure 5, presumes that all covariance among attitude features is due to the single underlying construct called "attitude strength."

This latter view seems now to have been fully discredited by past factor analytic studies. However, the existing literature is completely puzzling regarding what, if any, latent factors do account for covariance between strength-related attitude dimensions. The fact that different exploratory factor analyses have yielded very different results is, in a sense, not especially surprising. It is well-known that the results of exploratory factor analysis are highly contingent on the particular items included, and adding or removing just a few items can dramatically alter obtained solutions (e.g., Velicer & Fava, 1987). Therefore, a more compelling approach to testing the hypothesis that two surface manifestations reflect a single underlying construct is to test three propositions that follow from that assertion: (a) The two variables should have identical causes, (b) the two variables should have identical consequences, and (c) the two variables should not cause one another.

We have taken this approach to exploring the relation between importance and accessibility and have uncovered many findings challenging the claims that these variables are both manifestations of a single underlying construct or that one subsumes the other. First, whereas we found repeated attitude expression to cause increases in accessibility in Studies 1 and 2, repeated expression did not reliably increase attitude importance. Second, self-interest caused increases in both importance and accessibility in Study 3, but the effect on accessibility was mediated by importance. We saw evidence in that study that importance is a cause of accessibility but not the reverse, a finding reinforced by Study 4's results. Furthermore, Study 4 documented the transformation of a zero correlation between importance and accessibility into a positive correlation, a process driven by the impact of importance on accessibility. Taken together, then, these studies show that importance and accessibility do not have identical causes and do in fact have a causal impact on one another. This challenges the claim that people simply infer attitude importance from attitude accessibility, presuming that their attitude toward an object must be important to them if that attitude came to mind quickly.

It is interesting to note that our conclusion regarding the independence of importance and accessibility resonates with the findings of past exploratory factor analytic studies. All such studies that included measures of both importance and accessibility found these two constructs to load on two different factors, rather than on the same factor (Bassili, 1996b; Erber et al., 1995; Krosnick et al., 1993; Pomerantz et al., 1995; Prislin, 1996). Despite the limitations of exploratory factor analyses, the consistency of these results with one another and with the new findings reported here further justifies confidence in viewing importance and accessibility as reflecting distinct underlying constructs.

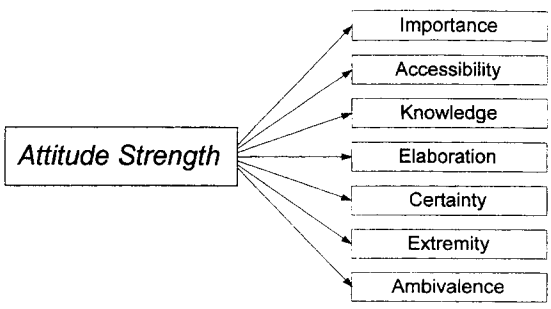

Figure 5. The one-factor model of strength-related attitude features.

The Relation of Importance to Accessibility

Our findings go beyond supporting this conclusion, however. Whereas attitude importance seems not to be caused by attitude accessibility, accessibility can be influenced by importance. This is consistent with the notion that once a person attaches psychological significance to an attitude, he or she may be more likely to think extensively and carefully about it, building bridges to related information in memory, which increases the accessibility of the attitude. This process, whether thoughtful and effortful or spontaneous and automatic, seems to be a consequence of attaching importance to an attitude.

This does not imply that accessibility is a mere by-product of importance. Instead, accessibility appears to be one of many products of importance, and importance is no doubt only one of many causes of accessibility. Therefore, importance may have effects on attitudinal phenomena sometimes mediated by accessibility and other times mediated in other ways. Likewise, observed effects of accessibility may sometimes occur because importance heightened accessibility and other times because accessibility was increased as the result of other instigators, such as repeated expression. Future research on these constructs should therefore focus on understanding their independent and synergistic impact on attitudinal phenomena and the conditions under which each is consequential. Furthermore, future work could usefully explore the conditions under which importance instigates accessibility and attempt to illuminate the cognitive and behavioral mediators involved in such processes.

The Nature of Attitude Importance

Our findings are consistent with just one of the various recently proposed portraits of attitude importance that have appeared in the literature. In line with Roese and Olson's (1994) suspicion, Bassili (1996b) suggested that importance judgments, like other meta-attitudinal judgments, are rarely represented in memory and must instead be concocted when a person is asked to describe them. Consequently, people must presumably scramble to find any bases with which to infer these attitude features. Thus, for example, Bassili (1996b) suggested that people may figure out the importance of an issue to them by thinking about their past behavior or their perceptions of "contextual norms" (p. 639). According to this logic, then, importance judgments would seem especially susceptible to the influence of contextual factors such as repeated expression or aspects of phenomenological experience such as the speed with which an attitude comes to mind. Yet, at least with regard to attitude accessibility, we found this not to be the case.

One possible interpretation of our findings is that, contrary to this speculation, importance judgments are not typically made on the basis of weak or ambiguous internal cues. As Boninger, Krosnick, and Berent (1995) argued, attitude importance seems

likely instead to constitute a choice made by an individual of which he or she is quite aware. To attach great personal importance to an attitude is to care tremendously about it and to be deeply concerned about it. We suspect that there is nothing subtle about attitude importance, particularly at its highest levels: People know very well when they are deeply concerned about an attitude, and they know just as well when they have no special concern about one.

Attitude importance is likely to be consequential precisely because of its status as a belief of which people are very aware: Deciding that an attitude is personally important appears to lead people to use it in processing information, making decisions, and taking action. That is, to attach personal importance to an attitude is to commit oneself to think about the object, to gather information about it, to use that information as well as one's attitude in making relevant decisions, and to design one's actions in accord with that attitude. In this sense, attaching personal importance to an attitude represents a substantial commitment, in some ways analogous to taking a job or getting married. Consequently, we suspect, people are not likely to attach personal importance to an attitude lightly, in response to relatively trivial events. Just as people are "misers" with regard to cognitive processing (e.g., Fiske & Taylor, 1991), they are probably also miserly with their attachments of psychological significance and value to attitudes: Only clear and compelling reasons seem likely to motivate such a psychological investment. Thus, high levels of importance are unlikely to emerge unnoticed over time; rather, deep and lasting concern is likely to be instigated by significant events of which people are well aware.

In fact, Boninger, Krosnick, and Berent (1995) showed that decisions about how much importance to attach to an attitude are driven especially powerfully by material self-interest but are also driven by the relevance of cherished values to an object and the material interests and perceived concerns of a person's reference groups and reference individuals. This sort of view of attitude importance would lead one to be skeptical that attitude importance can be easily pushed around by trivial contextual factors, such as a split-second difference in the speed with which attitudes come to mind.

Perhaps people who consider an attitude to be tremendously important or not even slightly important are not at all influenceable by context, but people at moderate levels of importance might be less certain and therefore more susceptible to context effects. However, if this is true, we should have found some evidence of impact of accessibility on importance; yet we did not. It therefore seems plausible to view our findings, in conjunction with those reported by Boninger, Krosnick, and Berent (1995), as attesting to the integrity and reality of importance judgments.

We have a great deal of confidence in Fazio's (1995) portrayal of attitude accessibility as a structural feature of the representation of attitudes in memory. That is, accessibility is a reflection of the strength of the link between an attitude object's representation in memory and a representation of the individual's evaluation of the object. In this light, the conceptual and operational distinctions between importance and accessibility seem especially clear. In discussing the MODE model, Fazio and Towles-Schwen (1999) noted that people sometimes perform behaviors without actively and effortfully considering relevant attitudes (using spontaneous processing) and other times make behavioral decisions after very careful thought about all relevant considerations, including attitudes (using deliberative processing). We agree with Fazio and Towles-Schwen that accessibility is most likely to have an impact under the former conditions, and we expect attitude importance to have its most pronounced effects under these latter conditions, when people can consciously make reference to their beliefs about attitude importance.

Interestingly, importance may have indirect effects on spontaneous processing as well, because it appears to be a cause of accessibility. That is, once a person has chosen to attach importance to an attitude and thinks often about it as a result, that attitude is likely to become increasingly accessible. And this accessibility is likely to enhance the effects of the attitude on thinking and action under conditions of spontaneous, uncontrolled processing. However, because at least some of the natural variation in accessibility is likely to be attributable to variation in importance, accessibility may produce stronger effects of important attitudes even under conditions in which a person cannot choose to place special weight on those attitudes. In this sense, then, accessibility and importance may be two connected pieces of a causal chain, working cooperatively to yield enhanced attitude impact under various circumstances.

Creating Systematic Measurement Error

We have no doubt that clever experimenters can construct a context in which reports of importance judgments can be pushed around by contextual factors. However, our guess is that such manipulations of reports would simply be creating systematic measurement error in the assessments of importance, not in the true underlying importance construct. If this is so, improved assessment tools could then be used to correct the measurements by attenuating the impact of the systematic measurement error. Thus, we should be careful not to presume that manipulations temporarily altering reports of importance have truly altered the construct itself.

It is also interesting that if contextual factors do alter moderate importance judgments, this would not have the implications regarding studies of attitude functioning that might appear likely. In past studies, we have found that attitude importance is especially consequential at its highest level (e.g., Krosnick, 1988). That is, leading a person to consider an attitude to be moderately important instead of completely unimportant enhances his or her motivation to use and protect the attitude very minimally. Only when a person comes to consider an attitude to be extremely important does evidence of powerful use and protection emerge. If effects of importance are treated as nonlinear in this way, contextual impact on reports of low or moderate importance levels will not have particularly great consequences in terms of the results of studies of attitude functioning.

An Alternative View: Correction

Another possible interpretation of the findings of our first two studies involves the notion of correction processes, which have been of great interest in social psychology recently (Foerster & Strack, 1998; Wegner, Petty, & Dunn, 1998). Perhaps people do naturally consult the speed with which their attitudes on an issue come to mind when assessing the importance of the issue to them,

as Roese and Olson (1994) proposed. However, the apparent diagnosticity of this cue may vary depending on context. If people have just completed a set of questionnaires asking them to report their opinions on capital punishment over and over again, they may doubt that the quickness with which their opinion on this issue later comes to mind is indicative of their concern about the issue. "Of course my opinion came to mind quickly," these people might say to themselves, "I just reported it over and over!" Therefore, people may discount the inferential value of this cue, thereby eliminating its impact on reports. As a result, our first two studies might have underestimated the impact that accessibility normally has on importance judgments, precisely because the study design attempted to manipulate accessibility too obviously and immediately before the importance reports were solicited.

However, if this were true, and if people did normally consult accessibility when making importance judgments, then we would have expected to see a significant positive correlation between importance and accessibility at Time 1 in Study 4. That is, people's Time 1 importance reports should have been driven by their Time 1 accessibility. Because this did not occur, it seems unlikely that, in Studies 1 and 2, correction processes suppressed a normal reliance on accessibility when making attitude importance judgments. Nonetheless, this possibility seems potentially worth investigating in future research. More generally, it seems worthwhile to explore the phenomenology of accessibility to see if people are even aware of differences in attitude accessibility and, if so, what these people make of those differences.

Implications for Self-Perception Theory

Another useful topic for consideration is the implications of our findings for self-perception theory, initially proposed by Bem (1967, 1972), prominent in the social psychological literature for decades, and supported by many empirical studies. We know, for example, that people sometimes infer their attitudes using observations of their past behavior (e.g., Bem, 1967). And the availability of information in memory is a basis for some inferences people make, a hypothesis that is a central feature of Kahneman and Tversky's portrayal of heuristics and biases in social reasoning (e.g., Kahneman, Slovic, & Tversky, 1982). Thus, it seems clear that people sometimes observe themselves in action and make inferences about the sort of person they must be or about states of the world based on these observations.

Our findings do not challenge self-perception theory generally in any way. However, our findings do suggest that a particular type of self-perception may not occur. Specifically, people seem not to make inferences about the importance they attach to an issue or attitude based on how quickly they retrieve their attitudes from memory. In his original portrayal of self-perception processes, Bem (1972) did not suggest that people make all inferences about themselves as if they were outside observers but rather argued that such inferences are especially likely when internal cues indicating a particular psychological orientation are either weak or ambiguous. Thus, one parsimonious view of our findings, as we have suggested already, attributes lack of impact of accessibility on importance to the solidity and reality of internal cues indicating importance. However, it is also possible that among people who have attitudes stored in memory and succeed in locating them, differences on the order of milliseconds in the speed with which those attitudes are retrieved are not noticeable to people. This, too, would preclude self-perception processes being driven by retrieval time.

Another type of self-perception appears more plausible, though. People can certainly recognize when they go searching for an attitude in their memories and come up with absolutely nothing. And this may readily lead people to infer that the attitude object cannot possibly be of any importance to them at all. That is, some people may say to themselves, "When I went looking for an attitude toward this object, I found nothing, so it couldn't be important to me, because if the object was important to me, surely I would have an attitude toward it in my memory." But even this appears not to have occurred in our data, because it would have yielded a correlation of response latency with importance ratings at Time 1 in Study 4. Furthermore, if this sort of self-perception process were to occur under some circumstances, it would not be evidence of the impact on attitude accessibility; rather, it would be evidence of the impact of attitude existence.

Extremity

Recently, Bassili (1996b) claimed that attitude extremity and accessibility are both surface manifestations of a single underlying construct that might be called "operative attitude strength." In support of this suggestion, Bassili (1996b) reported exploratory factor analyses showing that these attributes loaded on the same latent factor. Our evidence that repeated expression affected extremity and importance equivalently (i.e., it had no effect on either one) is consistent with the notion that these two attitude features are surface manifestations of a single underlying construct, because they behaved identically in this regard. However, the complete absence of a correlation between importance and extremity is clearly inconsistent with that notion. And although we found that repeated expression enhanced attitude accessibility, repeated expression did not increase attitude extremity. These results are therefore most in harmony with the notion that accessibility, importance, and extremity reflect different constructs and should be treated as conceptually and operationally distinct.

Explaining Divergence Between Studies

Our results are inconsistent with Roese and Olson's (1994) in one particularly striking way. We found that repeated attitude expression decreased attitude importance (marginally significantly), whereas Roese and Olson found that repeated expression increased importance. Past studies have shown that attitude processes sometimes differ across attitude objects (e.g., Prislin, 1996; Wallsten, 1996) and across participant populations (e.g., Langston, Ohnesorge, Kruley, & Haase, 1994), and the discrepancy in our case may be due to an interaction of these two factors.

Specifically, repeated expression of a political attitude probably leads people to think about the issue involved as they are expressing the attitude. The more people think about some issues, the more they may come to believe the issues are important, whereas thinking about other issues may lead people to conclude that they are less important than it originally appeared. Therefore, the change in importance we observed in Study 2 may be attributable to the content of thoughts generated during the repeated expression, not to the mere fact of repeated expression. And the partic-

ipants in Roese and Olson's (1994) study may have generated different sorts of thoughts about their issues, leading them to seem more important. Future studies might explore the cognitive mechanisms and moderators of repeated expression effects on importance to resolve this apparent contradiction.

Other studies that might seem inconsistent with ours have been reported by Wänke, Bless, and Biller (1996); Haddock, Rothman, Reber, and Schwarz (1999); and Haddock, Rothman, and Schwarz (1996). In four studies, these investigators have explored the impact of a manipulation of the apparent ease of argument generation on reports of attitude importance, intensity, and certainty. In short, the researchers have manipulated respondents' senses of how easily they could produce information on a political issue. Some respondents were asked to do a difficult task (to list seven arguments supportive of or opposed to a particular policy), whereas other respondents were asked to do an easier version of the same task (list only three arguments). As expected, people found it easy to generate three arguments consistent with their own opinions and found it more difficult to generate seven arguments opposing their own opinions.

Wänke et al. (1996) and Haddock et al. (1996, 1999) expected that the manipulation of generation difficulty would influence respondents' perceptions of importance, intensity, and certainty. Having found it very difficult to generate seven arguments consistent with their own opinion, people might say to themselves, "If I had a strong opinion on this issue, I ought to have an easy time generating facts to back up my opinion. But since it was tough for me, maybe I don't feel all that strongly on this issue, maybe I'm not very certain about where I stand, and maybe the issue isn't very important to me." However, if people find it easy to generate three supportive arguments, there would be no reason for self-doubt in these regards. Likewise, if people have an easy time generating just three arguments challenging their own viewpoints, they might be led to doubt the justification for their opinions, thereby reducing perceived confidence, intensity, and importance. However, if people have difficulty generating seven counterattitudinal arguments, they again have no reason for self-doubt.

To test these hypotheses, Haddock et al. (1996, 1999) averaged together measures of certainty, intensity, and importance to yield a single composite. This composite had an alpha reliability of .91, which was consistent with Haddock et al.'s (1999) finding from an exploratory factor analysis that the three dimensions loaded on a single factor. Further, this composite measure moved as expected as the result of the argument generation manipulation. That is, people who generated three attitude-supportive arguments had higher composite scores than people who generated seven attitude-supportive arguments, and people who generated seven counterattitudinal arguments had higher composite scores than people who generated only three counterattitudinal arguments.

However, an interesting pattern emerged in Haddock et al.'s (1999) study when the three strength-related attitude attributes were analyzed separately. Although the expected effects appeared significantly for certainty and intensity ratings (see also Wänke et al., 1996), importance ratings did not manifest the expected effect of the argument generation manipulation significantly in either of the two studies. Furthermore, whereas the cell means corresponded to the researchers' expectations exactly in the analyses involving certainty and intensity, the cell means in the analysis involving importance did not correspond to the hypothesis.

One possible explanation for the failure of importance to manifest the same effects as shown by certainty and intensity is that the latter two dimensions may have been measured more reliably than was the former. However, in Haddock et al.'s (1996, 1999) studies, each of these attributes was measured by two items, and all six items involved the same 7-point rating scale, with endpoints labeled *not at all* and *very*. Therefore, it seems unlikely that notable differences between the dimensions in measurement reliability were present. Interestingly, this use of the same response scale for all items raises the possibility that the coefficient alpha for the composite measure may have been inflated because of correlated measurement error shared across the six items (see Brady, 1985; Green & Citrin, 1994).

We therefore view this study as offering further reason to draw a distinction among strength-related attitude attributes. Of course, certainty and intensity ratings were identically influenced by the argument generation manipulation, which is certainly consistent with the claim that they reflect a single underlying construct. However, the apparently reliable finding that importance was not influenced by the manipulation suggests that it is a distinct (though related) construct. Further, the collapsing of the strength-related attributes served to mask an interesting finding—that importance demonstrated an effect different from the other attributes.

In sum, then, the findings of these studies appear not to suggest that ease of retrieval of knowledge affects attitude importance. And this alone might seem sufficient to set aside concerns about inconsistency between these investigators' findings and ours. However, even more fundamentally, the present article's focus is on the accessibility of attitudes, whereas Wänke et al. (1996) and Haddock et al. (1996, 1999) have focused on ease of retrieval of knowledge. Because it seems quite plausible that some people with minimal knowledge about an attitude object might nonetheless have very accessible attitudes toward it, it seems obvious that accessibility of attitudes and accessibility of knowledge should be viewed as distinct constructs, with the potential for distinct effects. In this light, there is no inconsistency at all between these investigators' findings on knowledge accessibility and ours on attitude accessibility.

Future Research on Accessibility and Importance

One topic for future research on the relation of attitude accessibility to importance might be reconsideration of the findings of Study 4, because the phrasing of the attitude question used there to measure accessibility might conceivably be improved. In typical laboratory procedures, respondents are first told that they will read the names of a series of objects, one at a time, on a computer screen and that they should push one of two keys on a computer keyboard to indicate their attitude toward each object when they see its name. As a result, the time interval between the appearance of the object's name on the screen and the pressing of a button presumably includes simply the time it takes to read the object's name, interpret it, retrieve one's attitude toward it, and report that attitude.

In our study, however, participants heard the object's name and then listened to the three response options before the timer was started. Therefore, some respondents may have retrieved their attitudes while listening to the response options and before the timer actually started. This would presumably have compromised

the accuracy of response latency as an indicator of attitude accessibility. Because change in response latency between Time 1 and Time 2 was predictable using Time 1 attitude importance in line with theoretical expectations, the measurement of accessibility seems not to have been completely without validity. Nonetheless, we look forward to future studies exploring whether changing the format of attitude measures administered in surveys changes their utility for accurately measuring accessibility.

Conclusion

Taken together, the evidence reported here contributes to our growing understanding of attitude strength. Specifically, our results encourage attitude strength researchers to proceed as many of them have to date, extensively and carefully documenting the origins, consequences, and dynamics of each strength-related attitude attribute individually. And we should go further, exploring the impact that the strength-related attributes have on one another as in the present studies. Each insight in this regard will constitute a piece of a larger puzzle now being solved by many investigators who are interested in the structure of attitude strength-related properties. As more such evidence is accumulated, we will move the field toward a better understanding of why some attitudes are stable, powerful shapers of cognition and action, and others are not.

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Appendix A

Articles From Study 3

Filler Article

National University of Peru to Hire an Additional 40 Professors

The National University of Peru announced today that it would begin the hiring of an additional 40 professors beginning in the 1998–1999 academic year. Each of the university's eight colleges would benefit from the hiring of an additional five faculty members.

The additional funds would come from the Congressional Allocation Fund, a fund with which the Peruvian legislature can finance any public cause.

Much of the campus is excited about the news. "This is a great day for everyone involved with our university," Juan Gutierrez said. "More professors means more teaching and better classes. We are very excited."

Some, however, argue that the direction of additional funds to professors may hurt the university in the long run. "More professors is okay," student president Berta Bermudez said. "But what we really need is new dormitories, new classrooms, and better-equipped laboratories. Taking examinations with roofs leaking above your head is not a good thing."

High-Personal-Relevance Articles

Ohio State University Expected to Begin Senior Comprehensive Exams

Ohio State University officials announced that the university will "most likely" institute senior comprehensive examinations in the 1997–1998 school year. Under this plan, all students would be required to pass comprehensive examinations testing knowledge about their major.

Committees representing each of the university's majors would meet over the summer to compose the exams for students hoping to graduate in the autumn. Tests would be made for each of the university's dozens of available majors.

The new program has some supporters. "This would be a major step forward in ensuring the prestige of our diplomas," assistant Chancellor Chris Bredesen said. "Degree-holders would be able to boast that they passed a major hurdle in college."

Others on campus disagree, saying time could be better spent. "There's no need for this," student Grant McDougal said. "As a senior, why should I waste my time re-memorizing useless stuff I learned as a freshman?"

Ohio State University Expected to Cut Graduation Requirements

Officials at Ohio State University are expected to approve a plan to cut graduation requirements beginning in the 1997–1998 academic year. The measure would reduce the number of classes all current and incoming students are required to take.

To implement the new program, the faculty would meet over the summer to discuss which requirements are least necessary. All students would see their graduation requirements similarly reduced.

Many on campus applaud the idea. "It's become apparent that students are taking too long to graduate," faculty committee member Beth Cooper said. "By eliminating extraneous requirements, we would allow virtually all our students to graduate in four years."

Others, however, argue that cutting requirements means graduates will be less-rounded and poorly positioned to gain jobs. "The idea is dumb," student Chris Miller said. "In an age where more knowledge is better, how can we compete by learning less?"

Ohio State University Will Likely Buy Students' Lunches

The Dean of Students at Ohio State University is seeking final approval for a plan that would offer free weekly lunches to students next year. The program would distribute vouchers to students redeemable at any of ten campus-area restaurants.

The Office of Student Services would give students a voucher each quarter, with coupons good for one free weekly lunch. Funds to cover the program would come from decreases in dormitory food costs and advertising within the booklets.

Some think that the new plan is worthwhile. "This would be a great service for the university, the students, and the community," assistant dean Aaron Coates said. "Once students are more likely to have a filling lunch, we might see increases in class attentiveness."

The program also has its doubters. "By encouraging students to eat at places like McDonald's, we are promoting fatty, cholesterol-rich foods," nutrition professor Brian Carroll said. "This would send the wrong message."

Mandatory Saturday Classes Likely at Ohio State University

The Office of Academic Affairs at Ohio State University is expected to approve a program to make Saturday classes mandatory for all students. According to the plan slated to begin next fall, all students would be required to enroll in at least one class that meets on Saturdays to graduate.

Under the plan, all students would earn a "Saturday credit" for taking a Saturday class. Students without a Saturday credit would not be allowed to graduate.

Many argue the move is needed. "Classes are much too crowded," associate registrar Amy O'Malley said. "With mandatory Saturday classes, we would be able to offer some of our students better classroom availability."

Some argue, however, that the requirement would be too demanding. "After a hard week, I look forward to relaxing," student Kerry Lynn said. "If I had to go to classes on Saturdays, I'd probably get burned out!"

Low-Personal-Relevance Articles

University of Southern Wales Rejects Senior Comprehensive Exams

University of South Wales [*sic*] officials announced that they rejected a plan to institute senior comprehensive examinations in the 1997–1998 school year. Under this plan, which was labeled "worthless" by American educators, all students would have been required to pass comprehensive examinations testing knowledge about their major.

"This would have been a major step forward in ensuring the prestige of our diplomas, assistant Chancellor Chris Bredesen said. "Degree-holders would have been able to boast that they passed a major hurdle in college.

Others on campus disagree, saying time can be better spent. "There's no need for this," student Grant McDougal said. "As a senior, why should I waste my time re-memorizing useless stuff I learned as a freshman?"

Committees representing each of the university's majors would have met over the summer to compose the exams for students hoping to graduate in the autumn. Tests would have been made for each of the University's dozens of available majors.

University of Southern Wales Will Not Cut Graduation Requirements

Officials at University of Southern Wales have rejected a plan to cut graduation requirements beginning in the 1997–1998 academic year. The measure, which was also rejected in the United States, would have reduced the number of classes all students are required to take to graduate.

To implement the new program, the faculty would have met over the summer to choose which requirements to cut. All students would have seen their graduation requirements similarly reduced.

Many on campus supported the idea. "It's become apparent that students are taking too long to graduate," faculty committee member Beth Cooper said. "By eliminating extraneous requirements, we would have allowed virtually all our students to graduate in four years."

Others, however, argue that cutting requirements means graduates would have led to less-rounded graduates. [*sic*] "The idea is dumb," student Chris Miller said. "In an age where more knowledge is better, how could we compete by learning less?"

University of Southern Wales Will Not Buy Students' Lunches

The Dean of Students at the University of Southern Wales has rejected an idea to begin offering weekly free lunches to students next year. The program, which violates United States anti-trust laws, would have distributed vouchers to students redeemable at any of ten campus-area restaurants.

The Office of Student Services would give students a voucher each quarter, with coupons good for one free weekly lunch. Funds to cover the program would come from decreases in dormitory food costs and advertising within the booklets.

Some think that the new plan would have been worthwhile. "This would have been a great service for the university, the students, and the community," assistant dean Aaron Coates said. "If students were more likely to have a filling lunch, we might have seen increases in class attentiveness."

The program also had its doubters. "By encouraging students to eat at places like McDonald's, we would have promoted fatty, cholesterol-rich foods," nutrition professor Brian Carroll said. "This would have sent the wrong message."

Mandatory Saturday Classes Not Coming to University of Southern Wales

The office of Academic Affairs at the University of South Wales [*sic*] has rejected a plan that would have made Saturday classes mandatory for all students. A similar plan was proposed in the United States several years ago, but was soundly rejected. Under the plan, all students would have been required to enroll in at least one class that meets on Saturdays to graduate.

Under the plan, all students would have earned a "Saturday credit" for taking a class that met on Saturdays. Students without a Saturday credit would not have been allowed to graduate.

Many argue the move was needed. "Classes are much too crowded," associate registrar Amy O'Malley said. "With mandatory Saturday classes, we would have been able to offer some of our students better classroom availability."

Some argue, however, that the requirement would have been too demanding. "After a hard week, I look forward to relaxing," student Kerry Lynn said. "If I had to go to classes on Saturdays, I'd probably get burned out!"

Appendix B

Question Wordings From Study 3

Likelihood

First Question

What is the chance that the following things will happen to you while you are in college? Please answer in percentages, between 0% and 100%.

- The University will offer one free lunch to you each week.
- You will have to take Saturday classes.
- To earn your diploma, you will be required to pass a comprehensive examination covering your entire undergraduate career.
- The number of classes that you must take to graduate will be decreased.

Second Question

How likely is it that you will be required to pass a comprehensive examination covering all the courses you took in college to earn your diploma? (Response options: *extremely likely, very likely, somewhat likely, not too likely, not likely at all.*)

How likely is it that the number of classes you are required to take to graduate will be reduced? (Response options: *extremely likely, very likely, somewhat likely, not too likely, not likely at all.*)

How likely is it that the University will offer you one free lunch each week? (Response options: *extremely likely, very likely, somewhat likely, not too likely, not likely at all.*)

How likely is it that you will be forced to take Saturday classes as a college student? (Response options: *extremely likely, very likely, somewhat likely, not too likely, not likely at all.*)

(*Appendixes continue*)

Attitude Importance

First Question

How important to you personally is the issue of one free lunch a week for all college students? (Response options: *extremely important, very important, somewhat important, not too important, not important at all.*)

How important to you personally is the issue of mandatory Saturday classes for college students? (Response options: *extremely important, very important, somewhat important, not too important, not important at all.*)

How important to you personally is the issue of requiring college students to pass comprehensive examinations covering their entire undergraduate careers to earn their diplomas? (Response options: *extremely important, very important, somewhat important, not too important, not important at all.*)

How important to you personally is the issue of reducing the number of classes students are required to take in order to graduate? (Response options: *extremely important, very important, somewhat important, not too important, not important at all.*)

Second Question

How much do you personally care about the issue of reducing the number of classes required for graduation? (Response options: *extremely, very much, somewhat, not too much, not at all.*)

How much do you personally care about the issue of mandatory Saturday classes for college students? (Response options: *extremely, very much, somewhat, not too much, not at all.*)

How much do you personally care about the issue of requiring college students to pass comprehensive examinations covering all the classes they took in college to earn their diplomas? (Response options: *extremely, very much, somewhat, not too much, not at all.*)

How much do you personally care about the issue of one free lunch a week for all college students? (Response options: *extremely, very much, somewhat, not too much, not at all.*)

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