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The Impact of Cognitive Sophistication and Attitude Importance on Response-Order and Question-Order Effects

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In a paper published in *Psychological Review*, Greenwald, Pratkanis, Leippe, and Baumgardner (1986) argued that the most useful and effective method of theory development is to seek the limiting conditions of known findings, what Greenwald et al. called "condition-seeking." That is, Greenwald and his colleagues argued that the best way to understand why a phenomenon occurs is to identify when it does not occur. This is a way to determine the conditions that are necessary in order for a particular effect to appear, thus increasing the precision of one's theoretical account of it. More importantly, condition-seeking can be a very effective way to identify the mechanisms by which a particular effect occurs.

The goal of the research reported in this chapter was to identify the cognitive mechanisms of two classes of response effects in surveys through the method of condition-seeking. In the first study reported below, I explored the mechanisms of four response-order effects; and in the second study, I explored the mechanism of a question-order effect. I did so not by systematically altering circumstantial or situational factors but rather by exploring heterogeneity among respondents in terms of their susceptibility to these effects. Specifically, I examined whether respondents differing in levels of cognitive sophistication and attitude importance would reveal stronger or weaker response effects. In doing so, I tested particular a priori hypotheses regarding the mechanisms of the effects.

Study 1

The focus of the first study was response-order effects, which are defined as changes in respondents' answers to a closed-ended survey question that result from alterations in the order in which response alternatives are presented. Many such effects have been documented to date (Becker, 1954; Belson, 1966; Brook & Upton, 1974; Carp, 1974; Mueller, 1970; Quinn & Belson, 1969; J. D. Payne,

1972; S. L. Payne, 1951; Rugg & Cantril, 1944; Schuman & Presser, 1981). Some of these demonstrations identified primacy effects, where response choices presented early were most likely to be selected. Other studies have found recency effects, where response choices presented later were more likely to be selected.

In Krosnick and Alwin (1987) we offered a cognitive theory of the mechanisms underlying such response-order effects. In short, this theory ascribes response-order effects to inadequate memory search and superficial evaluation of response options. Exactly how these two factors have effects depends on whether the response choices are presented visually or orally to respondents.

When response alternatives are presented to respondents visually, either on a show card or in a self-administered questionnaire, primacy effects are most likely to occur. When respondents are asked to indicate which of a list of national problems is most important for the country, for example, they are likely to begin at the top of the list and consider each response alternative individually; and when they think about each response alternative, their thoughts are likely to evidence a confirmatory bias (Hoch, 1984; Klayman & Ha, 1984; Koriat, Lichtenstein, & Fischhoff, 1980; Tschirgi, 1980; Wason & Johnson-Laird, 1972). In the present example, respondents are likely to try to think of reasons why each alternative could be the nation's most important problem and not reasons why it is *not* the most important problem. Given that survey researchers typically include in questions only response choices that constitute reasonable answers, this confirmatory-biased thinking is likely to generate at least a reason or two in favor of selecting almost any alternative that a respondent thinks about.

After considering one or two response alternatives to a closed-ended question, the potential for fatigue becomes significant. Those respondents who do become fatigued can cope by thinking only superficially about later response alternatives; the confirmatory bias would thereby give the earlier items an advantage. Alternatively, fatigued individuals could simply terminate their evaluation process altogether once they come upon a response alternative that seems to be a reasonable answer to the question. Again, because most answers are likely to seem reasonable, these respondents are likely to end up choosing response alternatives near the beginning of a list. Thus, cognitive fatigue seems likely to produce primacy effects under conditions of visual presentation.

When response alternatives are presented orally, depth-of-processing issues and memory issues come into play. Consider first depth of processing. When response alternatives are read aloud, respondents are not given the opportunity to process the first alternative extensively. Presentation of the second alternative usually terminates processing of the first one relatively quickly. Therefore, respondents are able to devote the most processing time to the final item(s) read, since interviewers usually pause most after reading them. Thus, deeper processing dominated by generation of reasons supporting selection is more likely to be accorded to the last option, so that a recency effect would be expected. However, if the list of alternatives is short, some respondents may simply listen to the list and then begin thinking by evaluating the first option and progressing through the alternatives in the order in which they were read. Given that cognitive fatigue may set in for some respondents relatively quickly, this response strategy would presumably produce a primacy effect.

This tendency toward both primacy and recency effects will be enhanced by the effects of memory. Items presented early in a list are most likely to enter long-term memory (e.g., Bruce & Papay, 1970; Crowder, 1969; Dreben, Fiske, & Hastie, 1979; Rundus, 1971), and items presented at the end of a list are most likely to be in short-term memory immediately after the list is heard (e.g., N. H. Anderson & Hubert, 1963; Glanzer, 1972; Waugh & Norman, 1965). Therefore, when a list of response alternatives is long, items presented at the beginning and the end of the list are more likely to be recalled and thus more likely to be available for selection. However, if a list of response alternatives is relatively short, memory is unlikely to exert an effect.

Taken together, these arguments suggest that both primacy and recency effects would be expected in response to orally presented questions. Furthermore, given that primacy and recency effects in memory are typically of roughly equal magnitude, the ratio of people who begin evaluating alternatives at the beginning of the list versus people who begin evaluating alternatives at the end will determine whether a primacy or a recency effect will appear for the sample as a whole.

Regardless of whether a primacy or a recency effect occurs in a particular instance, the reasoning offered above suggests that the effect should be greater under conditions that enhance inadequate memory search and superficial evaluation of responses. Specifically, these two processes should be enhanced among respondents for whom complex, abstract, and extensive cognitive activities are difficult and therefore not enjoyable. Krosnick and Alwin (1987) referred to these individuals as being low in cognitive sophistication.

In Krosnick and Alwin (1987) we examined two sorts of measures of cognitive sophistication. The first was the years of formal schooling that respondents had completed, and the second was respondents' scores on a vocabulary test. As might be expected, these two measures were very strongly correlated with one another. Consistent with the hypothesis offered above, we found that a primacy effect in the context of visual presentation was stronger among respondents low in formal education and vocabulary test scores than among respondents high in education and vocabulary test scores. This negative association between educational attainment and strength of the response-order effect has also been observed in a number of other investigations (Cochrane & Rokeach, 1970, Table 2; McClendon, 1986; Schuman & Presser, 1981, p. 71).[1] Therefore, this evidence provides some support for the claim that response-order effects are greatest

[1] Schuman and Presser (1981, p. 71) indicated that their data revealed that less educated respondents tended to show stronger response-order effects but that none of the interactions with education that they examined approached statistical significance. However, no quantitative results were formally reported, and a meta-analysis might well have revealed a significant overall effect when the various experiments were combined in a single analysis. I am therefore reluctant to accept the conclusion of no association between the size of response-order effect and education.

among individuals for whom the costs of effortful cognitive processing are greatest, thus lending support to the inadequate memory search and superficial evaluation explanations.

It is important to recognize that measuring the number of years of formal education that a respondent has attained indicates not only cognitive sophistication but also many other related constructs. Education imparts values about appropriate and inappropriate standards of behavior, factual knowledge about the world, practice with multiple-choice tests and other similar exercises, and so on. Furthermore, some individuals are more likely than others to be admitted to college and graduate school, so that differences in formal educational attainment partly reflect these preexisting selection factors that determine access to education. In sum, then, differences between survey respondents in terms of formal education attainment almost certainly reflect an array of constructs in addition to cognitive sophistication. In order to be more certain that response-order effects are truly greater among respondents with less cognitive sophistication, it is necessary to examine whether such effects vary according to a more direct measure of cognitive sophistication.

This is precisely what this study was designed to accomplish. For it, four response-order effects identified in previous research were experimentally replicated among a sample of college students, thus holding level of educational attainment constant. It was then possible to examine whether these response-order effects were greater among respondents who were lower in cognitive sophistication, as measured by students' college grade point averages.

Method

Respondents and Data Collection

Respondents were a representative sample of 396 undergraduate students at The Ohio State University (OSU). The students were interviewed by telephone between January and March of 1988 by trained, experienced survey interviewers. Each respondent was randomly assigned to one of two versions of the questionnaire. In total, 195 respondents received Form A, and 201 received Form B.

Measures

Prior to the four target questions of present interest, respondents were asked approximately 100 questions, most of which addressed their political attitudes and beliefs. Many of these items addressed candidates and issues prominent in the 1988 U.S. Presidential election campaign, which was just getting under way at the time of the interviewing. The remaining prior questions measured demographics and respondents' needs, attitudes, and beliefs regarding child care facilities at OSU. This large number of preceding questions undoubtedly rendered respondents quite fatigued by the time that they reached our four target questions.

The four target questions used in this experiment were adapted from prior research on response-order effects by Schuman and Presser (1981) and Krosnick

and Alwin (1987). The wordings of each question on the two forms were as follows:

Oil Supply, Form A: Some people say that we will s[illegible]have plenty of oil 25 years from now. Others say that at the rate we are using our oil, it will all be used up in about 15 years. Which of these ideas would you guess is most nearly right?
Oil Supply, Form B: Some people say that at the rate we are using our oil, it will all be used up in about 15 years. Others say that we will still have plenty of oil 25 years from now. Which of these ideas would you guess is most nearly right?

Divorce, Form A: Should divorce in this country be easier to obtain, more difficult to obtain, or stay as it is now?
Divorce, Form B: Should divorce in this country be easier to obtain, stay as it is now, or be more difficult to obtain?

Housing, Form A: Some people feel that the federal government should see to it that all people have adequate housing, while others feel each person should provide his own housing. Which comes closest to how you feel about this?
Housing, Form B: Some people feel each person should provide his own housing, while others feel that the federal government should see to it that all people have adequate housing. Which comes closest to how you feel about this?

Child Qualities, Form A: If you had to choose, which of the following would you pick as the most important for a child to learn to prepare him or her for life—to obey or mind his parents, to be well-liked or popular, to think for himself or herself, to work hard, or to help others when they need help?
Child Qualities, Form B: If you had to choose, which of the following would you pick as the most important for a child to learn to prepare him or her for life—to help others when they need help, to work hard, to think for himself or herself, to be well-liked or popular, or to obey or mind his parents?

At the end of the questionnaire, respondents were asked to report their current cumulative grade point average at OSU. This served as the measure of cognitive sophistication used in the analyses reported below. Respondents with GPAs less than 3.00 were labeled the "low cognitive-sophistication group," and respondents with GPAs of 3.00 and greater were labeled the "high cognitive-sophistication group." Of respondents who received Form A, 44.0% fell into the high cognitive-sophistication group, whereas 40.1% of the respondents who received Form B fell into the high cognitive-sophistication group. This slight difference between the Form A and Form B samples was not statistically significant.

Results

When the full sample was examined, the oil supply and child qualities questions revealed the previously documented response-order effects. In response to the oil supply question, 74.5% said "plenty" when that response option came second, compared with 59.1% saying "plenty" when it came first. Thus, this item

revealed a recency effect of 15.4% overall (chi-square(1) = 9.14, p = .003). The child qualities question revealed a primacy effect. A total of 40.8% of respondents chose either "to work hard" or "to help others when they need help" when these options appeared first, whereas only 33.7% of respondents selected one of these response options when they appeared last (chi-square(4) = 9.83, p = .043). These results suggest that most respondents began their evaluations of the oil supply response alternatives with the last one, whereas most began their evaluations of the child qualities alternatives with the first. The other two items did not reveal statistically significant order effects for the full sample, but both revealed trends in the expected directions (divorce: chi-square(2) = 2.05, NS; housing: chi-square(1) = 0.08, NS).

In order to explore whether these effects were greater among less cognitively sophisticated respondents, these analyses were repeated separately within the high- and low cognitive-sophistication groups (see Table 14.1). In the cases of the two questions that revealed order effects for the full sample, the expected interactions did indeed appear. For the oil supply question, the order effect was 20.9% for the low cognitive-sophistication group (chi-square(1) = 9.40, p = .002) and only 8.2% for the high cognitive-sophistication group (chi-square(1) = 0.79, NS). The difference between these two effects approaches marginal statistical significance (chi-square(1) = 1.73, p = .19). For the child qualities question, the order effect was 20.2% for the low cognitive-sophistication group (chi-square(4) = 15.24, p = .004) and nonsignificant and, in fact, in the reverse direction for the high cognitive-sophistication group (–11.00, chi-square(4) = 6.53, NS). The difference between these two effects is significant (chi-square(4) = 12.31, p = .015). Thus, in these two cases, the cognitive-sophistication hypothesis receives consistent support. For the two items that showed no order effects in the full sample, there was no evidence of an interaction between response by form and cognitive sophistication in the two subsamples either (divorce: chi-square(2) = 0.27, NS; housing: chi-square(1) = 0.06, NS).

Discussion

This experiment provides support for the cognitive-sophistication hypothesis. For the oil supply and child qualities items, there were significant response-order effects for the full sample, and those effects were confined exclusively to respondents who were low in cognitive sophistication. This finding is consistent with previous evidence that response-order effects are greater among respondents with less education (Cochrane & Rokeach, 1970, Table 2; Krosnick & Alwin, 1987; McClendon, 1986; Schuman & Presser, 1981, p. 71), and the present evidence suggests that these associations are attributable at least partly to differences between highly educated and less educated respondents in terms of cognitive sophistication. Finally, the present results lend some support to the argument offered above that response-order effects are due to inadequate memory searches and superficial evaluation of response alternatives; that is, these response-order effects are greatest among respondents for whom the cognitive costs of complete memory searches and careful evaluation of response alternatives are presumably greatest.

TABLE 14.1. Response-Order Effects for High and Low Cognitive-Sophistication Subsamples (%)

	High Sophistication			Low Sophistication		
Response	Form A	Form B	Difference	Form A	Form B	Difference
Oil Supply						
Plenty	63.2	71.4	8.2	58. 3	79.2	20.9
Used up	36.8	28.6	–8.2	41.7	20.8	–20.9
Total	100.0	100.0		100.0	100.0	
	(N = 76)	(N = 70)		(N = 96)	(N = 106)	
Child Qualities						
Obey	4.9	2.7	–2.2	8.8	8.0	–0.8
Well-liked	0.0	5.3	5.3	0.0	0.9	0.9
Think	49.4	57.3	7.9	65.7	45.5	–20.2
Work hard	25.9	18.7	–7.2	22.5	29.5	7.0
Help others	19.8	16.0	–3.8	2.9	16.1	13.2
Total	100.0	100.0		100.0	100.0	
	(N = 81)	(N = 75)		(N = 102)	(N = 112)	
Divorce						
Easier	12.5	11.1	–1.4	13.9	13.5	–0.4
More difficult	22.2	31.9	9.7	29.7	35.1	5.4
Same	65.3	56.9	–8.4	56.4	51.4	–5.0
Total	100.0	100.0		100.0	100.0	
	(N = 72)	(N = 72)		(N = 101)	(N = 111)	
Housing						
Government	56.0	54.3	–1.7	52.6	48.1	–4.5
Each person	44.0	45.7	1.7	47.4	51.9	4.5
Total	100.0	100.0		100.0	100.0	
	(N = 75)	(N = 70)		(N = 97)	(N = 104)	

For the divorce and federal housing items, there was no evidence of any response-order effect in the full sample or in the high or low cognitive-sophistication subsamples. Because our manipulations of these items did not produce reliable response-order effects at all, these items did not provide an opportunity to test the cognitive-sophistication hypothesis.

In sum, this condition-seeking exercise has clarified the interpretation of previous findings regarding educational attainment. It has also lent further support to the claim that response-order effects are the results of inadequate memory search and superficial response alternative evaluation.

Study 2

The focus of the second study was a question-order effect involving the magnitude of the false-consensus effect. The false-consensus effect was first documented by Ross, Greene, and House (1977) and has been demonstrated in a variety of ways by many investigators since then (see Marks & Miller, 1987; Mullen et al., 1985; Mullen & Hu, 1988). In general, the effect involves the overestimation of the proportion of others who share one's own attitude toward an object, or an overestimation of the similarity between one's attitude and the attitudes of others.

In reviewing the false-consensus literature, Marks and Miller (1987) suggested four possible mechanisms by which the false-consensus effect might operate. First, it could be the result of selective exposure and cognitive availability. Because people tend to associate with others who are similar to themselves (Berscheid & Walster, 1978; Newcomb, 1961), images of similar others should be readily accessible in memory and should come to mind easily and automatically, thus enhancing their prominence in judgments. Second, individuals may focus their attention on their own attitude position and may overestimate its prevalence among others as a result. Third, because people perceive most of their behavior to be the result of situational factors (Jones & Harris, 1967; Jones & Nisbett, 1972), they may assume that most others would be similarly affected by those situational forces and will therefore share their attitudes. Finally, people may intentionally distort their perceptions of others in order to "bolster perceived social support, validate the correctness or appropriateness of a position, [and] maintain self-esteem" (Marks & Miller, 1987, p. 73). Thus, the false-consensus effect may be the result of a self-enhancement motive.

In the present study, I set out to explore the validity of these various possible mechanisms. To do so, I examined the effects of two variables: the order in which the self-perception and others-perception questions are asked, and the personal importance of the issue to the respondent. As Table 14.2 illustrates, the effects of these variables on the magnitude of the false-consensus effect can be used to assess the viability of each possible explanation for it.

If the self-enhancement explanation is true, the effect ought to be greater when the self-perception question comes first and makes one's own attitude salient (see the first row of Table 14.2). This increase in impact under the self/others orders ought to be greater among high-importance subjects than among low-importance subjects, because the former individuals should presumably be more invested in their attitudes and should have a greater need for self-validation on the issue.

If the focus-of-attention explanation is true, the false-consensus effect ought again to be greater under the self/others order than under the others/self order. This is because the former order presumably enhances focus on the self at the time that the others judgment is made. Highly important attitudes that may attract an individual's attention are more accessible than low-importance attitudes (Krosnick, 1989), so that the basic false-consensus effect would presumably be

TABLE 14.2. Predicted Effects of Attitude Importance and Question Order According to the Four Possible Explanations of the False-Consensus Effect

Explanation	Importance Main Effect	Question-Order Main Effect	Importance by Question-Order Interaction
Self-enhancement	Hi imp > Lo imp	Self/others > Others/self	Hi imp > Lo imp
Focus of attention	Hi imp > Lo imp	Self/others > Others/self	Hi imp > Lo imp
Selective exposure	Hi imp > Lo imp	None	None
Attribution	None	None	None

greater among high-importance subjects. Focusing attention on one's attitude may be more consequential among high-importance subjects, so that the effect of the question-order manipulation may also be larger among these individuals.

If the explanation emphasizing selective exposure to similar others is true, there is no reason to expect that manipulating the order of the questions would alter the magnitude of the false-consensus effect. However, under both question orders, there is strong reason to expect high-importance respondents to show a stronger false-consensus effect than low-importance respondents. This is because high-importance respondents are substantially more likely to affiliate with others who share their attitudes (Krosnick, 1988; Tedin, 1980).

Finally, if the attribution explanation is accurate, there is no reason to expect that a manipulation of question order would alter the size of the false-consensus effect. Similarly, there is no reason why high-importance respondents should evidence a stronger or weaker false-consensus effect than low-importance respondents.

In order to test these various explanations, I conducted an experiment involving a series of political issues. For each issue, the order of the self-perception and others-perception questions was systematically varied. Furthermore, respondents were asked to report the personal importance of their attitudes on each issue. This design makes it possible to examine whether any one of the patterns described in Table 14.2 is actually obtained.

Method

Respondents and Data Collection

The data analyzed in this study were also collected during the telephone survey described above in Study 1. About two-thirds of the way through that survey's interview, respondents were asked the nine questions analyzed below.

Measures

Three political issues were examined in this study: U.S. government aid to the contra rebels fighting the Nicaraguan government, U.S. defense spending, and legalized abortion. In each case, respondents were first asked how important the

issue was to them personally. All three importance questions were embedded in a battery of questions measuring attitude importance. Nine questions later, respondents were asked to indicate whether they favored or opposed each policy and what proportion of American citizens they guessed would favor each policy. The exact wordings of the questions were:

> *Attitude Importance:* How important is (U.S. government policy toward Central American nations/the issue of U.S. defense spending/the issue of abortion) to you personally—extremely important, very important, somewhat important, not too important, or not at all important?
>
> *Self-Perception:* Do you favor or oppose (U.S. government aid to the contra rebels fighting the Nicaraguan government/a substantial cut in U.S. defense spending/legalized abortion in the U.S.)?
>
> *Others-Perception:* What percent of American citizens would you guess favor (U.S. government aid to the contra rebels fighting the Nicaraguan government/a substantial cut in U.S. defense spending/legalized abortion in the U.S.)?

Respondents were randomly assigned to one of two forms of the questionnaire. In one form, self-reports preceded reports of perceptions of others; and on the other form, self-reports followed reports of perceptions of others. Thus, on one form, the question order was self/contras, others/contras, self/defense, others/defense, self/abortion, and others/abortion. On the other form, the order was others/contras, self/contras, others/defense, self/defense, others/abortion, and self/abortion.

Of primary interest here are differences between respondents who attached a great deal of personal importance to an issue and respondents who attached relatively little importance to that issue. To explore these differences, the full sample was divided into a high-importance subsample and a low-importance subsample for each issue. The high-importance subsample was composed of respondents who said that the issue was "extremely important" or "very important" to them personally. The low-importance subsample was composed of respondents who said that the issue was "somewhat important," "not too important," or "not important at all" to them personally. On Form B, the low-importance group was 65.2% of the sample for the contras, 37.8% of the sample for defense spending, and 29.5% of the sample for abortion. The comparable figures for Form A were 60.4%, 43.1%, and 17.2%. There were no statistically significant differences in these figures across the two forms.

Results

Before examining the false-consensus effect directly, I determined whether the distributions of responses to the self and others questions varied across the questionnaire forms. Surprisingly, when the full sample was considered as a whole, there were no statistically significant or even marginally significant differences between the two forms for any of the six questions. Analyses conducted separately with the high- and low-importance groups of respondents yielded comparable results. Thus, whatever effects the question-order manipulations had were not apparent in the marginal distributions of responses to the individual questions. However, this does not preclude effects of question order on the magnitude of the false-consensus effect.

The false-consensus effect was assessed by computing the difference between the mean perceived proportion of citizens favoring a policy among respondents who favored that policy and the mean perceived proportion of citizens favoring a policy among respondents who opposed that policy. As the figures displayed in Table 14.3 illustrate, there were significant false-consensus effects for all issues under both orders for the full sample. The effects range in magnitude from a 5.28-unit difference to a 12.74-unit difference.

Table 14.3 also illustrates a statistically significant effect of question order on the magnitude of the false-consensus effect. However, the direction of this interaction is completely unexpected. Across the three issues, the false-consensus effect was consistently larger under the others/self order than it was under the self/others order. When the results for the three issues were combined through meta-analytic procedures, the question-order effect was clearly statistically significant ($z = 1.77$, $p = .038$). Thus, this finding definitely challenges the self-enhancement and focus-of-attention explanations.

When we turn to differences between high-importance and low-importance respondents, we find further surprises (see Table 14.4). In particular, we cannot reach a single conclusion about whether the false-consensus effect is different in magnitude for the high- and low-importance respondents. Under the self/others order, the false-consensus effect is sizable and significant among the low-importance respondents and is smaller and nonsignificant among the high-importance respondents (interaction: $z = 2.67$, $p = .004$; see Table 14.5). However, under the others/self order, the false-consensus effect appears to be of the same magnitude in both the high- and low-importance groups (interaction: $z = 1.01$, $p = .156$). When examined through meta-analysis combining the three issues, the two-way interaction between order and importance is almost marginally significant ($z = 1.17$, $p = .121$). Because of the simple effects results, I am inclined to view this interaction as a real one. Thus, this seems to be a case where the substantive implications of an empirical investigation regarding the relation between attitude importance and the false-consensus effect vary depending on the order in which the questions are asked. Regardless of this inconsistency, however, the failure to find any evidence that the false-consensus effect is greater under high importance clearly contradicts the self-enhancement, focus-of-attention, and selective-exposure explanations.

Finally, we can examine whether the question-order manipulation had a greater effect among the high-importance respondents than among the low-importance respondents as the self-enhancement and focus-of-attention explanations predict. As Table 14.4 clearly illustrates, this prediction is confirmed. The question-order manipulation had a highly significant impact among the high-importance respondents ($z = 2.35$, $p = .009$) and no impact among the low-

TABLE 14.3. Unstandardized Regression Coefficients Estimating the False-Consensus Effect for the Full Sample

Question	Order		Significance of Difference
	Self/Others	Others/Self	
Aid to contras	5.28*	10.61*	$z = 1.60$
	($N = 154$)	($N = 164$)	$p = .055$
Defense spending	8.20**	12.74**	$z = 1.24$
	($N = 183$)	($N = 188$)	$p = .108$
Abortion	6.73**	7.56**	$z = 0.22$
	($N = 180$)	($N = 183$)	$p = .280$
Combined			$z = 1.77$
			$p = .038$

*$p < .05$. **$p < .01$.

TABLE 14.4. Unstandardized Regression Coefficients Estimating the False-Consensus Effect for the High- and Low-Importance Subsamples

Question	Order		Significance of Difference
	Self/Others	Others/Self	
High Importance			
Aid to contras	−1.40	10.41**	$z = 2.51$
	($N = 60$)	($N = 61$)	$p = .006$
Defense spending	5.79*	11.79**	$z = 1.27$
	($N = 102$)	($N = 113$)	$p = .102$
Abortion	4.08	5.61	$z = 0.29$
	($N = 86$)	($N = 92$)	$p = .386$
Combined			$z = 2.35$
			$p = .009$
Low Importance			
Aid to contras	9.30**	11.00**	$z = 0.37$
	($N = 94$)	($N = 103$)	$p = .356$
Defense spending	11.56**	14.50**	$z = 0.48$
	($N = 81$)	($N = 75$)	$p = .316$
Abortion	10.05**	12.01**	$z = 0.34$
	($N = 94$)	($N = 91$)	$p = .367$
Combined			$z = 0.69$
			$p = .245$

*$p < .10$. **$p < .01$.

TABLE 14.5. Significance Levels for Tests of the Differences between the False-Consensus Effects in the High- and Low-Importance Subsamples

Question	Order		Significance of Difference
	Self/Others	Others/Self	
Aid to contras	$z = 2.45$	$z = 0.12$	$z = 1.65$
	$p = .007$	$p = .452$	$p = .050$
Defense spending	$z = 1.02$	$z = 0.52$	$z = 0.35$
	$p = .154$	$p = .302$	$p = .363$
Abortion	$z = 1.16$	$z = 1.11$	$z = 0.04$
	$p = .123$	$p = .134$	$p = .484$
Combined	$z = 2.67$	$z = 1.01$	$z = 1.17$
	$p = .004$	$p = .156$	$p = .121$

importance respondents ($z = 0.69$, $p = .245$). Therefore, an interaction did appear involving attitude importance in the direction expected. However, because the direction of the question-order effect is opposite to that predicted by the self-enhancement and focus-of-attention explanations, this significant interaction involving importance cannot be viewed as offering support for those explanations.

Discussion

Taken together, these results cast serious doubt on all four of the possible explanations for the false-consensus effect offered by Marks and Miller (1987). Not one of the predictions presented in Table 14.2 was confirmed by these data. Although disappointing in this regard, these results make it clear how condition-seeking can be a useful way to assess the validity of hypotheses regarding the psychological mechanisms of well-documented effects.

Before considering possible alternative explanations suggested by the present findings, it is useful to note that these findings are consistent with those of a variety of previous investigations that explored the main effects of either question order or attitude importance on the magnitude of the false-consensus effect. For example, Campbell (1986) used only the self/others question order, and as is true in the present results, she found a weaker false-consensus effect among high-importance respondents than among low-importance respondents.[2] Also, two

[2]Instead of measuring attitude importance, Crano (1983) manipulated it by altering the perceived relevance of an issue for subjects. Increased importance was associated with an increase in the magnitude of the false-consensus effect. I suspect that the difference between this result on the one hand and Campbell's (1986) and the present findings on the other is due to the different operationalizations of attitude importance.

meta-analyses and many experimental studies have found that the false-consensus effect was greater under the others/self order than under the self/others order (Baron & Roper, 1976; McCauley, Kogan, & Teger, 1971; Mullen et al., 1985; Mullen, Driskell, & Smith, 1989; Mullen & Hu, 1988), just as Table 14.3 reveals.[3] Because none of these previous studies examined variation in the impact of the question-order manipulation across levels of attitude importance, they were unable to offer the definitive disconfirmation of the four explanations afforded by the present investigation.

Given this correspondence between the results of these prior investigations and those of the present investigation, it seems reasonable to view them as robust. It therefore seems appropriate to speculate about what these results suggest in terms of alternative cognitive mechanisms underlying the false-consensus effect. I say mechanisms here because the present results suggest that there are almost certainly different mechanisms at work among high- and low-importance respondents. This is because the impact of the question-order manipulation is different in these two groups.

In the high-importance group, the false-consensus effect is robust under the others/self order and essentially nonexistent under the self/others order. This result is consistent with the following scenario. When high-importance respondents are first asked to report their own attitudes on the issue, they do so easily and reliably because these attitudes are associated with strong, clear, and highly accessible internal cues (Krosnick, 1986, 1988, 1989). When these respondents are next asked to report their perceptions of others' attitudes on the issue, they may recognize the temporary salience of their own attitudes and their tendency to perhaps overly assume that others agree with them. In order to compensate for this, these individuals may correct for the impact of their own attitudes on their perceptions of others' attitudes (see, e.g., Martin & Harlow, chap. 7, this volume; Strack, Martin, & Schwarz, 1988). Because their perceptions of others' attitudes may be relatively weak and malleable, it is relatively easy for respondents to adjust their report of others to be more dissimilar from their own than they would have stated otherwise. This effort to differentiate may thus eliminate the impact of respondents' own attitudes on their perceptions of others' attitudes. This process is akin to Schuman and Presser's (1981) subtraction effect, where respondents intentionally subtract their own attitudes out of their reports of their perceptions of others' attitudes. This scenario, of course, predicts exactly the results obtained in the present study.

When high-importance respondents are asked the others question first, their own attitude is likely to come to mind spontaneously and automatically (Krosnick, 1989) and is therefore likely to be a highly salient anchor influencing their responses. Because these individuals' perceptions of others are again probably relatively malleable, the self-anchor is presumably capable of exerting a substantial effect on them. When these respondents are next asked to report their own attitudes, they again probably feel some pressure not to be redundant and therefore to differentiate themselves from others. However, because the internal cues associated with their own attitudes are quite strong and unambiguous, no differentiation can take place. Furthermore, there is no clear reason why these respondents should subtract their perceptions of others out of their reports of their own attitudes. Therefore, the false-consensus effect would be expected to be readily apparent under this question order, just as it was.

[3]Weinstein (1984) failed to find a stronger false-consensus effect under the others/self order compared with the self/others order. This inconsistency with the preponderance of published results is difficult to explain.

In the low-importance group, the false-consensus effect is equally strong under both question orders. This suggests that the false-consensus effect does not occur because these individuals' attitudes are salient perceptual anchors that pull assessments of others' attitudes toward them. Instead, neither these individuals' own attitudes nor their perceptions of others' attitudes are likely to be associated with strong and clear internal cues. In this case, respondents may be forced to go through a reasoning process described by Bem's (1972) self-perception theory. That is, regardless of whether they are asked the self question or the others question first, these respondents may ask themselves: "What would a reasonable position be for a smart person to take on this issue?" Then, when the next question is asked, regardless of whether it addresses self or others, these respondents are likely to apply the same reasoning and therefore reach a comparable response. This would lead to the appearance of an equally strong false-consensus effect under both question orders. The reason for it would be that the same speculative reasoning process is used to generate both answers. Of course, all of this reasoning is post hoc and highly speculative, so that it should not be taken too seriously before additional empirical evaluations are conducted.

In addition to the specific finding of this study, the results reported here support some broad conclusions about the nature of response effects in survey questionnaires. First, effects of question order were present here even though the marginal distribution of answers to the relevant questions were unaltered. This supports the growing consensus that analyses of marginal distributions are not sufficient for ruling out effects of question form, wording, or ordering on the substantive conclusions of research (see, e.g., Kinder & Sanders, 1990; Krosnick & Alwin, 1988). The findings from this study also demonstrate that the substantive findings of correlational research can vary depending on question order. The impact of attitude importance on the magnitude of the false-consensus effect was different depending on which question order was examined. Question-order effects may similarly limit the generalizability of other psychological effects.

The data in this study indicate that the magnitude of an experimental effect decreases across replications of the experiment in the same survey. Specifically, the effects of question order become weaker moving from the top to the bottom of Table 14.3. This presumably occurs because respondents began to anticipate the questions that they would be asked later, thereby eliminating any potential effects of question order. This suggests that investigators interested in question-order effects (and also perhaps other response effects) should not attempt to conduct more than one or two parallel experiments in a row during an interview.

A third general conclusion that receives some support from the data in this study involves the cognitive mechanisms underlying response effects. I argued above that different psychological processes produced the false-consensus effects shown in the various cells of Tables 14.3 and 14.4. Thus, effects that appear to be comparable on the surface may in fact reflect quite different underlying dynamics. This possibility should be borne in mind by investigators of response effects in the future.

Conclusion

Both of the studies reported here illustrate the value of condition-seeking research. In Study 1, I found that response-order effects were greater among respondents with less cognitive sophistication. This finding reinforces previous interpretations of the findings in earlier studies and lends additional support to a particular cognitive explanation for these response-order effects. In Study 2, I found that the magnitude of the false-consensus effect depends on both the importance of the attitude to respondents and the order in which the self-perception and others-perception questions are asked. The specific pattern of results obtained clearly challenges the four explanations for the false-consensus effect that are currently prominent in the relevant social-psychological literature. The obtained results also led to the generation of a set of speculative alternative explanations that can be subjected to testing in future empirical research.

Part IV
Order Effects in Psychological Testing