

Increasing Cognitive Response Sensitivity

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The article has been published. It's appropriate citation is . . .

Wansink, Brian, Michael L. Ray, and Rajeev Batra (1994), "Increasing Cognitive Response Sensitivity," Journal of Advertising, 23:2 (June), 62-74.

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ABSTRACT

Traditional cognitive response elicitation procedures may not be sensitive enough to elicit the stylized and subtle thoughts that are generated during exposure to certain types of ads. When these types of thoughts are the focus of a researcher's work, it is critical that he or she develop a procedure that has the sensitivity to elicit them without being reactive. A laboratory study examines two different procedures for eliciting cognitive responses: pre-exposure elicitation exercises, and directed post-exposure instructions. The results suggest that each procedure raises measurement sensitivity, but that there is no advantage in combining them. General guidelines are then presented for developing stylized cognitive response elicitation procedures.

Researchers in consumer behavior often borrow measures and measurement procedures from other fields (primarily psychology) without considering any unique measurement needs that advertising might have. As a result, both advertising scholars and industry professionals have criticized traditional copy-testing methods for not developing measures that are more sensitive, more effective, or more relevant (Marketing Science Institute 1983). Such missed opportunities result in a less sophisticated understanding of advertising effects and processes than would be the case if some minimal measure development pre-studies were done before each major research effort.

Exploratory research and model building is greatly aided by knowing a subject's thoughts as he or she views an advertisement. For researchers who study specific types of thoughts, the traditional procedure by which these thoughts are elicited may not appropriately encourage their communication and may thus yield inconclusive findings (Russo, Johnson, and Stephens 1989). These inconclusive findings can handicap theory development and delay the generation of any related insights.

After noting the drawbacks with traditional cognitive response elicitation procedures, we review two sets of procedures: pre-exposure elicitation exercises (such as practice trials and exposure to examples), and directed post-exposure instructions. Predictions are made as to their relative effectiveness and a study is presented that compares the sensitivity and reactivity of these procedures with traditional ones. Based on our discussion of these findings, we suggest a basic methodology that researchers can use for developing the appropriate cognitive response elicitation procedure that will be most helpful for their particular program of study.

Background

The initial research with cognitive responses (or verbal protocols) was pioneered by Greenwald (1968) and then introduced into advertising by Wright (1973). Such work indicated that cognitive responses can mirror the actual thoughts that occur to people as they evaluate a persuasive message. The subsequent consensus of empirical work was that the procedure was nonreactive. Payne, Braunstein, and Carroll (1978), for instance, concluded that “the verbal protocol procedure slows down the process slightly but does not change it fundamentally” (p. 36). Although the use of cognitive responses has detractors (Turner 1988; Nisbett and Wilson 1977), their value and their perceived nonreactivity have led them to be widely used in consumer research. In turn, they have had a pronounced impact on theory development (see Wright 1980 for a review) and on our understanding of decision making (Schweiger 1983).

Cognitive responses are typically elicited with instructions such as, “Write down any thoughts that went through your mind while reading the ad.” These written thoughts are typically coded as either counterarguments, support arguments, or source derogations (Smead, Wilcox, and Wilkes 1981; Wright 1973). Although interest in persuasion research continues to grow, many researchers still tend to examine only these three types of responses (Petty and Cacioppo 1981).

There is a growing interest, however, in programs of advertising research that focus on very specific and stylized types of consumer thoughts. Such research programs include those examining affective responses to advertising (Batra and Ray 1986), neutral and irrelevant thoughts (Cacioppo and Petty 1979), ad-execution responses (Lutz and Mackenzie 1982), brand-related memories cued by advertising (Keller 1987), and usage-related thoughts (Wansink and Ray 1993). To effectively examine these issues requires a valid and reliable cognitive response elicitation procedure that allows related thoughts to be freely communicated.

Problems with Current Elicitation Procedures

Although a multitude of thoughts may be generated as one views an advertisement, sometimes only a small percentage of them will actually be communicated (Wright and Rip 1980). This becomes particularly evident when we compare the number of responses obtained when a subject speaks into a tape recorder to the reduced number that are instead obtained when the subject has to expend more effort and write them down (Kidder 1980). Even verbalizing thoughts into a tape recorder eventually results in a subject recording fewer and fewer thoughts as they fatigue (Stemple and Westley 1981).

Clearly, the more general the elicitation instructions, the greater the opportunity for irrelevant responses (Ericsson and Simon 1984). It is important that any cognitive response elicitation procedure uncover the thoughts that are most related to the issue under examination, while minimizing the “irrelevant” responses a subject verbalizes. Batra and Ray (1986), for instance, were interested in examining people’s affective responses to viewing ads. To accomplish this, they specifically asked subjects not to “replay what happened in the ad.” By minimizing “ad playback,” the researchers claim to have obtained more of the rich, affective responses that occurred during processing but that might not have been noted if the subject had spent time simply restating ad content.

Before subjects see an ad, it is common to tell them that they will be asked questions about the ad after viewing it. At the appropriate time, they are then typically asked to write down the thoughts they had when viewing the ad. These instructions are general, and a portion of the “noise” that results could be minimized if subjects had a better idea of what is expected of them (Ericsson and Simon 1984). In short, when a researcher is focusing on special types of thoughts, the conventional procedure of simply asking for general reactions may not be as useful as procedures that are more directed and less ambiguous.

Pre-Exposure Elicitation Exercises and Directed Post-Exposure Instructions

A person viewing an ad may generate many thoughts about cognitive responses, but not all of them will be communicated because of time constraints or cognitive capacity constraints (Ericsson and Simon 1984). To uncover these thoughts about a particular target issue, researchers have used either pre-exposure elicitation exercises or directed post-exposure instructions.

If a subject is given no instructions prior to their exposure to an ad, he or she is free to think of any issues that comes to mind. Pre-exposure elicitation exercises (such as practice tests or examples) frame a subject's processing by suggesting a range of issues which one might consider. In doing so, such exercises intensify one's thinking about the target issue as they process the ad. It is thus possible to elicit clear thoughts about the target issue, and the resulting cognitive responses can be used for exploratory research or for model development. By framing or intensifying one's processing of an ad, these exercises encourage a greater sensitivity to that area that is being examined. One way this can be accomplished is by providing subjects with a hypothetical example or illustration of what another subject might have written when he or she viewed a related ad (Keller 1987). A second way this is accomplished is by providing subjects with a practice trial that is followed with standardized feedback. The feedback, for instance, can be presented in the form a pre-written checklist which instructs them to reread their responses to insure they are not simply writing down a replay of the ad (Batra and Ray 1986).

Providing subjects with pre-exposure elicitation exercises intensifies their processing of these target issues during exposure. In contrast, giving directed post-exposure instructions to subjects after they view an ad encourages them to cognitively edit their less relevant thoughts before writing them down. This editing, in turn, leaves more time and cognitive capacity for recording the thoughts that may be of greater interest to the researcher. One way this can be accomplished is by instructing subjects to address specific issues of interest (Wright 1980). For instance, a researcher can ask subjects how they feel about using the product, if they agree or disagree with the ad, or if it reminds them of any past experiences with the product (Wright and

Rip 1980). A second way in which post-exposure instructions can be used is by giving subjects quantitative scales such as Likert-type scales or semantic differential scales that summarize relevant response classifications to instructions. We do not discuss such scales further since they are technically not cognitive responses. In addition, it should be noted that some experimentation with these scales has shown them to be less discriminating than previously mentioned techniques (Batra 1984).

Hypotheses

Elicitation Effectiveness

Numerous researchers have experimented with different procedures to better elicit the particular types of cognitive responses they were investigating. Unfortunately, many of these investigations are often conducted as prestudies and are not published. A review of those studies that have been published (see Russo, Johnson, and Stevens 1989) suggests that although a case-by-case experimentation of different procedures is recommended, generalizations can still be made about the general elicitation effectiveness of both pre-exposure elicitation exercises and directed post-exposure instructions. To more formally examine the effectiveness of these two procedures, it is important that each be tested independently. As a result, H₁ is examined only across those conditions where general post-exposure instructions were used, and H₂ is examined only across those conditions where no pre-exposure elicitation exercise was used.

H₁: When pre-exposure elicitation exercises are used, subjects will communicate more thoughts about the target issue than when no pre-exposure elicitation exercise is used.

H₂: When directed post-exposure instructions are given, subjects will communicate more thoughts about the target issue than when general instructions are given.

If thoughts about this target issue are generated but not communicated, any procedure that succeeds in underscoring their relevance will help encourage their communication. As a result, it will be unnecessary to combine both a pre-exposure elicitation exercise with directed post-exposure instructions. Using either procedure singly should be equally as effective as using the two in combination.

H₃: Combining pre-exposure elicitation exercises with directed instructions will not result in subjects being able to communicate any more thoughts about the target issue than if either were used independently.

Testing for Reactivity and Methodological Bias

Pre-exposure elicitation exercises and directed post-exposure instructions both share risks of potential reactivity. The primary concern is that these procedures may “force” a subject to generate thoughts about a particular target issue that would have otherwise never occurred to them (Turner 1988; Nisbett and Wilson 1977). As a result, such thoughts would be invalid and would bias outcome measures such as beliefs, attitudes, or intentions.

One way a researcher can test for such reactivity was alluded to in H₃. If it is believed that thoughts about target issues are being generated by subjects but simply not communicated, either pre-exposure elicitation exercises or directed instructions should be independently as effective in eliciting these thoughts as when used together in combination. If the combination generates an increase in the number of thoughts that are communicated, a researcher should be concerned that these thoughts are possibly being formed on a post hoc basis. That is, if they had naturally occurred, they should have been elicited under less “heavy-handed” circumstances. In effect, if H₃ is not supported, a researcher should be particularly concerned with the possibility of reactivity.

A more direct way of testing for reactivity is by measuring the impact these different procedures have on critical outcome variables (Russo, Johnson, and Stephens 1989). If the procedures are nonreactive, they should have a similar impact on the ratings of any outcome variables when compared with the ratings that are instead generated from a control group. In testing for methodological reactivity, a researcher should examine a hypothesis similar to the following:

H₄: There will be no difference in the ratings of A_{brand}, A_{ad}, and usage intentions between subjects who are given pre-exposure elicitation exercises, directed post-exposure instructions, or neither.

Methodology

Background and Objectives

Both industry professionals and academics have criticized traditional copy-testing methods for their inability to capture the richness of advertising-related responses, such as responses related to one's usage of the product (Marketing Science Institute 1983; Bell 1988). Because of this shortcoming with traditional copy-testing measures, one objective of this study is to determine whether pre-exposure elicitation exercises or directed post-exposure instructions can improve measurement sensitivity about usage-related thoughts without generating reactivity.

Our approach uses ads (in the form of storyboards) that encourage the use of four target brands in unfamiliar situations (Quaker Oats Oatmeal for lunch, Ocean Spray Cranberry Sauce with sandwiches, Jell-O Brand Gelatin for a snack, and Campbell's Soup for breakfast). We are interested in thoughts related to the usage or consumption of each brand (Wansink and Ray 1992). The ideal elicitation procedure would be one that prompts a maximum number of usage-related responses and brand-related responses while minimizing unrelated cognitive responses (such as those that only restate ad content) and avoiding any inappropriate impact on outcome

measures.

Design and Procedure

Both examples and practice trials are pre-exposure elicitation exercises that have been shown to affect the thoughts a subject chooses to disclose (Batra 1984). Figure 1 illustrates how this study combined these two exercises (along with a control condition) with either a directed post-exposure instruction or with a general instruction to test the hypotheses. One-third of the subjects saw an example of someone's cognitive responses before they saw the ad; one-third of the subjects participated in a practice trial (along with receiving standardized feedback); and the last third served as a control condition and was involved in no pre-exposure elicitation exercise. Each subject then saw ads for each of four brands (with order of exposure rotated). In summary, the design was a 3 x 2 x 4 mixed-design. This included three levels of the pre-exposure condition (practice, feedback, and control), two levels of the post-exposure condition (general and directed), and four different brands (Quaker Oats, Ocean Spray Cranberry Sauce, Jell-O Brand Gelatin, and Campbell's Soup). The pre-exposure and post-exposure manipulations are between-subject factors while each of the four brands serves as a replication.

Insert Figure 1 About Here

The basic procedure is as follows: subjects in the "prior example" condition were shown a hypothetical example of what another subject wrote about an ad for a product that was unrelated to this study (Keller 1987). Subjects in the "trial ad" condition were shown the same ad and were asked to write down any thoughts that went through their minds while reading the ad. After doing this, they were given standardized feedback that instructed them to reread their

responses to be sure they were not simply writing down a replay of the ad (Batra and Ray 1986). Subjects in the control condition were involved in no pre-exposure elicitation exercise.

After seeing the ad, half of each of these three groups of subjects were given general instructions about writing down their thoughts, and the other half were given directed instructions. The general instructions said “Please write down any thoughts or feelings you might have had toward the brand or toward eating the brand as you looked at the storyboard.” In contrast, the directed instructions said “Please write down any thoughts or feelings you might have had toward the brand or toward eating the brand as you looked at the storyboard. Did you agree or disagree with the ad? Did it remind you of anything?” This instruction is taken from suggestions in a review article by Wright (1980) and has been used in other contexts (Batra 1984; Wright and Rip 1980). A wide range of directed instructions, however, could have been given.

Seventy-six PTA (Parent Teacher Association) members (74 percent female) from the western United States were recruited through local school districts and randomly assigned to one of the six different procedure sets. Each subject was shown one storyboard for each of four different brands in their respective usage situations. The order of storyboards was rotated across each brand. After seeing each storyboard, subjects were asked to write down their thoughts. They were then asked a number of quantitative instructions about attribute beliefs, brand attitudes, and usage intentions. These measures were taken to determine if the different combinations of elicitation exercises had any unintended effects on the outcome measures. This procedure was repeated for each brand.

Each thought that a subject wrote down was independently coded by three individuals (including one author) to determine whether it referred to 1) specific thoughts about using or consuming the product, 2) general thoughts about the brand or its attributes, or 3) unrelated thoughts about the brand or to its usage (ad playback, irrelevant associations). The three

individuals agreed upon the coding of 86.3 percent of these thoughts. The remaining ones were discussed and consensus determined how they would be coded.

Results

Overview

Analysis of the 3 x 2 x 4 design was accomplished by using an ANOVA design that treated the four brands as within-subject factors. The results of a series of ANOVAs conducted on the key dependent variables indicate that there were mean-level differences between the four brands but no statistically significant interactions. Because the basic patterns of the data for each brand were similar, the analyses are generalized across all four brands as has been the convention in other studies (Winer, Brown, and Michels 1991; Keller 1987).

Elicitation Effectiveness Hypotheses (H₁₋₃)

It was stated in H₁ that a pre-exposure elicitation exercise will enable subjects to communicate more thoughts about the targeted behavior (brand usage or consumption) than if no pre-exposure elicitation exercise is used. As is seen in Table 1, this hypothesis was supported. This hypothesis was analyzed by examining only those subjects who had been given the general post-exposure instructions (cells 1 and 2 versus 3 in Figure 1). (Those who had been given directed post-exposure instructions are not examined in this hypothesis since they were also involved in an alternative procedure and would confound the test.) A linear contrast of the pre-exposure elicitation exercises (example and prior trial) with the control condition (no elicitation) shows that pre-exposure elicitation exercises elicited a greater number of usage-related cognitive responses than the control condition. Subjects in the control condition elicited 0.3 cognitive responses, while those in the pre-exposure conditions elicited an average of 2.1 (2.3 and 2.0). This difference is statistically significant ($F_{1,70} = 9.4$; $p < .01$), even when conservatively pooling the variance of the two pre-elicitation conditions. When compared separately with the

control condition, those subjects seeing examples communicated more usage-related cognitive responses ($F_{1,70} = 11.0$; $p < .01$) than did those who were involved in a prior trial ($F_{1,70} = 10.2$; $p < .01$).

Insert Table 1 About Here

Similarly, H_2 states that asking a directed post-exposure instruction will enable subjects to communicate more thoughts about the targeted behavior (brand usage or consumption) than if only a general instruction is given. This hypothesis was also supported (cell 3 versus 6). Subjects who were given only general instructions communicated 0.3 usage-related thoughts while those who were given directed instructions communicated 1.1 ($F_{1,70} = 4.2$; $p < .05$).

H_3 argues that the sensitivity of the two elicitation procedures will not be significantly improved if used concurrently. This was also supported. Adding pre-exposure elicitation exercises to directed instructions did not increase the number of usage-related thoughts that were communicated, even when using an alpha of .20 to minimize the possibility of a Type II error (Cohen 1992). A comparison of cells 4 and 5 (1.5 and .08) with cell 6 (1.1) shows no significant difference ($F_{1,70} = 1.4$; $p < .20$). Similarly, it was also expected that pre-exposure elicitation would be at least as effective when followed by general instructions as when followed by directed instructions. A comparison of cells 1 and 2 (2.3 and 2.0) with cells 4 and 5 (1.5 and .8) show that combining pre-exposure exercises with general instructions was even more effective than using directed instructions ($F_{1,70} = 4.2$; $p < .05$).

This key finding is illustrated in Figure 2. The black bars represent usage-related responses, which are the specific cognitive responses that were the focus of this study. Of the subjects who received a practice trial, those who were given general instructions communicated more usage-related thoughts than those given directed instructions ($F_{1,70} = 3.3$; $p < .05$). Similar results were found in the prior exposure condition, but they are not statistically significant ($F_{1,70}$

= 1.4; $p < .20$). These differences between general instructions and directed instructions might be attributable to the more open-ended nature of the general instructions, which offer greater response flexibility than the more directed instructions. The remaining differences that appear notable in Figure 2 are not statistically reliable. Nevertheless, the insights they suggest will be addressed later.

Insert Figure 2 About Here

The Reactivity and Methodological Bias Hypothesis (H₄)

An important question is whether these different elicitation procedures generate reactivity and bias. The results for H₃ provide favorable evidence since the “heavy-handed” combination of both procedures did not result in any more thoughts being communicated than when either procedure was used by itself. Further evidence that reactivity is not a concern will be found if it can be shown that the different elicitation procedures have no differential impact on the ratings of A_{brand} , A_{ad} , or usage intentions (H₄).

In order to guard against Type II errors (accepting the null hypothesis when it is false), a p-value of .20 was used instead of .05. Even after taking these conservative precautions, linear contrasts confirmed this hypothesis. As can be seen in Table 1, there is no statistical difference between the effect of directed instructions and the effect of general instructions (cells 4 and 5 versus cell 6) when analyzing A_{brand} ($F_{2,70} = .8$; $p > .20$), A_{ad} ($F_{2,70} = .1$; $p > .20$), and usage intentions ($F_{2,70} = .0$; $p > .20$). Similar results are found when comparing the effect of pre-exposure elicitation exercises and the effect of no such exercise (cells 1 and 2 versus cell 3). That is, the differences are statistically insignificant for measures of A_{brand} ($F_{2,70} = .9$; $p > .20$), for A_{ad} ($F_{2,70} = 1.2$; $p > .20$), and for usage intentions ($F_{2,70} = .4$; $p > .20$).

Conclusions

In the context of this paper, using either pre-exposure elicitation exercises or directed post-exposure instructions proved to be nonreactive while also effectively increasing the number of thoughts a respondent communicated about a particular target issue. These results are consistent with what Batra (1984) found when examining different types of elicitation exercises different dependent variables. His results showed that general instructions can be as effective as directed instructions, but only when accompanied with some form of vivid pre-elicitation exercise or illustration (such as an example or as a practice trial). The results in this paper are also consistent with other work the authors have conducted on source credibility and word-of-mouth communication.

When should pre-exposure exercises be used in favor of directed post-exposure instructions? Before answering this, it is important to realize that both options are not always available. Involving subjects in pre-exposure exercises is not always feasible, and it can be constrained by the experimental design or by time limitations. Under such circumstances, directed post-exposure instructions are the best alternative. When pre-exposure exercises can be used, Figure 2 suggests that they might elicit more thoughts about target issue. It is critical, however, that each researcher examine these different alternatives in light of the issues they are examining. As Russo, Johnson, and Stephens (1989, p. 759) point out, “protocol validity should be based on an empirical check rather than on theory-based assurances.”

Limitations

A limitation of this study -- as with all methodological studies -- is that some degree of subjectivity must be used to determine the precise wording of the directed post-exposure instructions. Because of the stylized nature of target issues, the wording of these instructions will vary from research topic to research topic. Nevertheless, general guidelines have been given in articles by Wright (1980), Batra (1984), and Wright and Rip (1980).

Although six different elicitation alternatives were examined here, there are many more that could have also been considered. The point of this article is not to test all possible combinations, but to show how various combinations can be compared. The appropriate combinations will change depending on the target issues under examination. This study illustrates that either pre-exposure exercises or post-exposure directed instructions can be valuable ways of increasing sensitivity, and that their combined use provides little value.

In examining these various elicitation procedures, this study used a relatively small sample size and within-subject factors to strengthen the statistical power of the tests. The ideal design would have involved between-subjects comparisons, but this was not believed necessary, given our objectives. It is important that researchers be mindful of the statistical power necessary to provide a valid test of bias. Having each subject provide multiple observations will be one way such statistical power can be economically achieved.

A General Methodology for Increasing Cognitive Response Sensitivity

The study reported in this paper is important because of the generalizations it makes about increasing cognitive response sensitivity. In doing so, it illustrates a general pre-testing methodology that can help researchers determine what procedure will be most appropriate for eliciting the cognitive responses that are of specific interest for a particular program of research. The general four step methodology follows:

1. Given the specific cognitive responses of interest (such as usage-related responses, affective responses, credibility-related responses), select a number of pre-exposure elicitation exercises and directed post-exposure instructions believed to provide the greatest level of sensitivity. Be certain to include a control condition.

2. Design the study by having the various procedures under examination represent between-subjects factors. Statistical power can be increased by having subjects respond to multiple ads. Care should be taken to insure that subjects are from a comparable pool as those who will be involved in the future studies.
3. Include outcome variables of interest to insure that the different procedures do not generate reactivity (such as A_{brand} , A_{ad} , usage intentions).
4. Select the elicitation procedure that best achieves the objectives of the study without affecting outcome variables (relative to the control condition). For instance, an objective may involve selecting the procedure which maximizes usage-related thoughts while minimizing unrelated thoughts such as ad playback.

This general procedure, though illustrated in the context of advertising, can be extended to any experimental context where increased measurement sensitivity is a critical issue.

Summary

This paper emphasizes the importance of increasing the sensitivity of cognitive response elicitation procedures. Furthermore, it illustrates the steps a researcher must go through if he or she wishes to develop a stylized elicitation procedure for his or her own program of research.

It is clear that the types of cognitive thoughts that are communicated by subjects after having seen an ad are influenced by the way in which these responses are elicited. When exploring a specific construct, it is critical to have a cognitive response elicitation procedure that is sensitive to the related thoughts a person might generate, but that is not reactive. The study described here is taken from an ongoing program of research that suggests either pre-exposure elicitation exercises (such as practice trials or prior exposure) or directed post-exposure

instructions can increase this sensitivity without appearing to be reactive. The combination of the two procedures, however, provides no greater sensitivity than does either by itself.

The various elicitation options examined here are among several combinations that can be used to build up a tradition of measures and procedures development. Experimenting with different elicitation procedures provides a tremendous opportunity for researchers who are studying nontraditional cognitive responses and who are in the process of either exploratory research or model development. It must be underscored that major advancements in our understanding of measurement should not be the goal of a single study. A deeper understanding of the advertising process will be attained only as empirical research systematically focuses on measurement development.

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