

Research Note

How persuasive messages can influence behavior without awareness

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Abstract

A persuasive message that favors one option in a binary choice can enhance the apparent value of its target by biasing the interpretation of subsequent information. The message installs its target as the initial leader in preference and lets the predecisional distortion of information defend that leadership position. An experiment that contrasts showing TV commercials before and after objective product information demonstrates this process. Ratings of the importance of the commercials to the choice indicate that people are aware of advertising's direct effect on their choice but not of its indirect effect through the biased evaluation of the product information.

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Persuasive messages can succeed in many ways, including direct and indirect paths of influence and conscious and nonconscious ones. The present work focuses on the relation between a persuasive message and factual information. We claim that when the presentation order is persuasion first and information second, the persuasive message can have two distinct effects on subsequent behavior. The first is the expected direct effect – the message is, indeed, persuasive. The second is an indirect effect in which the persuasive message alters the interpretation of the factual information to create additional support for the behavior advocated by the message.

The claimed indirect path to persuasion amounts to a less common form of an order effect. The more familiar version is based on importance weighting, such as explaining primacy and recency effects by greater importance weights attached to early or later information, respectively (e.g., [Anderson, 1981](#); [Hogarth & Einhorn, 1992](#); but for a different explanation, see [Mantonakis, Rodero, Lesschaeve, & Hastie, 2009](#)). Instead, and less familiar, is the effect of early information on the interpretation of subsequent information, sometimes called

configural primacy. [Asch \(1946\)](#) showed this by reversing the order of positive and negative adjectives in an impression formation task. [Wallsten \(1981, pp. 150–151\)](#), in a medical context, described this biased interpretation of information as “the effect of early information is such that later information is subjectively distorted to support the opinion formed up to that point.” More recently a specific process that traces the impact of early information on the evaluation of later information has been demonstrated in the domain of consumer choice ([Carlson, Meloy, & Russo, 2006](#); [Russo, Meloy, & Medvec, 1998](#)). Our goal is to apply this process-based order effect to persuasion and to show that it constitutes one way in which a persuasive message can succeed.

To demonstrate this proffered process, we chose the domain of advertising, which offers two substantial advantages. First, it allows access to a large selection of naturally occurring stimuli that are judged in professional competitions by panels of acknowledged experts. Thus, we can be assured that the selected messages are genuinely persuasive. Second, associated with advertising is a natural observable consequence of successful persuasion, namely the choice of the advertised product. Note that a more commonly used measure of an advertisement's effectiveness is the resulting attitude toward the advertised product (and sometimes the attitude toward the advertisement itself). We preferred choice as the important final consequent of exposure to an advertisement rather than the

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more intermediate result of a changed attitude (which would presumably predict a subsequent observable behavior like a choice).

That advertising can influence product purchases is well established (e.g., Ailawady & Neslin, 1998; Tellis, Chandy, & Thaivanich, 2000). There are also multiple credible views of “how advertising works” (Vakratsas & Ambler, 1999) and some notable empirical demonstrations (e.g., Hoch & Ha, 1986). What there is not, to the best of our knowledge, is a specific process that clearly links the advertising message to product choice and whose operation can be observed over time. Our goal is to introduce such a process, one which we believe acts to influence subsequent behavior without any awareness and is, at the same time, general enough to apply to other kinds of persuasive messages.

Method

Stimuli

An experiment in which participants chose between two beach resorts was designed to track the impact of commercials for each resort on factual product information and then on the actual choice. Two 60-secs, award-winning TV commercials for beach resorts were selected, with neither being broadcast in the United States at the time of the study. The ends of both commercials were then altered in order to display our chosen names for the two resorts, Club Zephyr and Club Helios. The commercial for Club Zephyr showed a diverse series of beautifully photographed vacation scenes, complemented by slow, relaxing music. The Club Helios commercial began with an icon-filled computer screen and the background noise of a busy office. The icons were gradually removed to reveal a beach scene as the computer screen’s wall paper, while the office noise gradually disappeared leaving only the sound of gentle waves.

Our process for linking advertising to choice required a difference between the two commercials that would lead to one advertised resort becoming the more preferred or leading alternative for a majority of participants. Thus, besides being executed well enough to win awards, the two commercials were also selected for their differential affect compatibility with the product category. This meant that we wanted one of them (Club Zephyr) to be more affectively compatible with beach resorts and, in particular, with our participant population of students and the cover scenario of selecting a resort for a Spring Break vacation. Because the goal of such an experience focuses on relaxation, youthful fun, getting away from winter, etc., we sought two commercials that differed in positive affect. Note that Club Zephyr’s commercial was affectively positive throughout, while the Club Helios commercial was not. This was why we viewed the former as more affectively compatible with the choice setting.

We checked this presumed difference by showing one commercial to each of 12 participants from the same subject population. After watching the commercial they responded to ten items (Burke & Edell, 1989; Edell & Burke, 1987) that evaluated its positive affect on a 5-point unipolar scale (1 = I did

not feel this feeling at all and 5 = I felt this feeling very strongly). A single measure of affect was computed by averaging the ten ratings, while reversing the sign for all negative feelings. Results confirmed that Club Zephyr’s commercial elicited greater affect (1.22) than did Club Helios’ (0.47; $t(10) = 1.87$, one-sided $p < .05$). We also checked that the two commercials were judged to be equally persuasive. Although they were both well executed award-winners, they might not have appeared equally persuasive to our subject population. Thus, in addition to the ten affect items, the same 12 participants responded to 10 items evaluating commercials’ persuasiveness on a seven-point semantic differential scale from -3 to +3 (MacKenzie & Lutz, 1989; Osgood, Suci, & Tannenbaum, 1957). The mean ratings did not differ significantly, with the persuasiveness of the Club Zephyr commercial (-0.03) not even greater than that of the Club Helios commercial (0.82; $t(10) = -0.87$, one-sided $p > .05$).

Product information

The factual product information on which the choice of a resort was based consisted of five separate units. Each one covered both resorts in a narrative of about 100 words (range: 78–135) that were devoted to the following topics: amenities, atmosphere, club activities, location, and a travel guide’s descriptions. Each piece of information was written, pretested, and rewritten as necessary until it favored neither resort, that is, until it was roughly neutral or nondiagnostic. The five units were presented in a random order that was reversed for half of the participants. This factor had no impact on any result and is not discussed further.

After each piece of persuasive information was displayed, participants were asked for two intermediate responses that tracked the progress of their decisions (Meloy & Russo, 2004). They first rated a unit’s persuasive value on a scale from 1 to 9, where the endpoints meant that in the participant’s judgment the piece of product information “strongly favored” one or the other resort and 5 meant “favored neither”. They then indicated which resort was tentatively leading in overall preference and by how much on a 50-to-100 scale. The first response provided an evaluation of each piece of product information; the second, a continually updated cumulative preference for one resort or the other.

Proposed process

The process that we predicted would generate an indirect effect of the commercials on choice relied on a phenomenon known as the predecisional distortion of information (Brownstein, 2003; Carlson et al., 2006; Russo, Medvec, & Meloy, 1996). The evaluation of a unit of information is biased toward whichever alternative is currently leading. If the advertising message for Club Zephyr is more persuasive, then it should install Zephyr as the leading resort for most viewers. Because of Club Zephyr’s presumed initial leadership for a majority of viewers, the five pieces of product information should be distorted, on average, to favor Zephyr. Without such a bias, any initial preference should gradually be diluted as one

nondiagnostic piece of information after another is encountered. Note that if the commercials were seen after the product information, they still might affect the choice. However, this effect would derive only from a direct influence of the commercials on choice, and not from their ability to induce the distortion of the product information (the indirect effect). Thus, the proportion choosing Club Zephyr should be greater when the two commercials are seen before the product information than when seen after that same information – but only so long as there was a nonzero indirect effect.

Also important was people's awareness of the pro-Zephyr distortion of product information. If people were unaware of this bias, that is, if the indirect effect was nonconscious, it was unlikely that they could eliminate or even reduce its influence on their decisions. Awareness could be determined from the rated importance of the commercials (relative to the five pieces of information) when the commercials were seen before versus after the product information. Thus, participants were asked to assigned importance weights to the two commercials and five pieces of information (by dividing 100 points among the seven items so as to "describe the importance of each... to your final choice"). If there was no difference in the commercials' rated importance when they were seen before versus after the product information, then people had to be unaware of the indirect influence of the commercials on choice derived from predecisional distortion.

Because the commercials were two of only seven units of information and because they were so well executed, participants were expected to be aware of the (direct) influence of the commercials on their choices. However, they might still have underestimated this effect. Because being influenced by advertising can be viewed as being manipulated by others (e.g., Calfee & Ringold, 1994), participants may have preferred to perceive a smaller effect. To test this, we also asked participants to estimate the importance that "a typical student" would assign to the two commercials and five pieces of information. If the work on naïve realism (Ross & Ward, 1995; 1996) applies to advertising messages and product choice, namely that "others...are more susceptible to biasing influences than we are ourselves" (Pronin, Gilovich, & Ross, 2004, p. 782), then the importance of the commercials to others might exceed the same ratings for the self. Thus, not only might the indirect effect of the persuasive advertisements have gone unrecognized, but there was reason to believe that the direct effect may have been underestimated.

Design

The experimental design consisted of five conditions. In the first (commercials before) participants saw the two commercials, read and evaluated the five pieces of information, made a final choice, and assigned importance weights. The second condition (commercials after) replicated the first with the single change that the commercials followed rather than preceded the product information. These two experimental conditions formed the core of the design.

They were augmented by three control conditions. In the first (no commercials), only the product information was shown. Because this information was nondiagnostic, the proportion choosing Club Zephyr should not have departed significantly from .50. Besides confirming the overall neutrality of the five pieces of information, this control condition also provided baserates for the amount of predecisional distortion and two other process measures that are introduced below.

A second control condition (commercials only) showed only the two commercials and asked only for a preference between the two advertised resorts. Its purpose was solely to confirm our presumption that a majority of participants would lean toward Club Zephyr after seeing the two commercials in the commercials-before condition.

Finally, a third control condition (no measures) replicated the first experimental condition, but without the measurement of diagnosticity and the identification of a tentatively preferred or leading alternative after each unit of information. This no-measures condition allowed a test of whether requiring participants to provide these two measures contributed in any way to the actual choice. That is, it tested for any demand effect caused by the measurement procedure.

Participants

The experimental participants were 203 students who volunteered for a cash payment. Six participants failed to complete the entire questionnaire and were removed from all analyses.

Results

Brand choice

The results from the first control condition (no commercials) confirmed a neutral baseline for the proportion of participants choosing Club Zephyr, .49 (22 of 45) when only nondiagnostic product information was provided. The results of the second control condition (commercials only) confirmed that, after participants saw the two commercials (and only the two commercials), a majority of them, .68 (15 of 22), preferred Club Zephyr.

We turn now to the main results. The first test of the claimed process of advertising's influence on choice was whether the commercials-before condition yielded a greater choice proportion than the baseline. As shown in Table 1, this value was .68 (30 of 44), a proportion significantly above the .49 of the control (Fisher's exact test, one-sided $p < .05$). Note that the final proportion choosing Club Zephyr was identical to that in the control condition that showed only the two commercials (.68) and was designed to indicate the proportion initially leaning toward that resort. Thus, the proposed mechanism of information distortion to support the leading alternative seemed sufficient to prevent any dilution of the initial leaning toward Club Zephyr despite five units of neutral product information.

The second test of our main prediction compared the commercials-after group with the control. When the

Table 1

Condition	Proportion Choosing Club Zephyr	Mean Distortion	Mean Initial Confidence	Proportion Never Reversing	Importance Weights of Commercials
Control (no com'ls)	.49	.47	0.64	.42	–
Commercials before	.68	1.02	0.70	.70	19.2
Commercials after	.52	.41	0.61	.52	18.9

commercials followed the product information they could not have driven predecisional distortion and could only have exerted a direct effect on choice. The choice proportion of Zephyr in this condition was .53 (23 of 44), a value not reliably greater than the .49 of the control group (Fisher's exact test, one-sided mid- $p > .05$). For completeness, we compared the commercials-before and commercials-after groups. The .68 of the commercials-before group was marginally greater than the .53 of the commercials-after group (Fisher's exact test, one-sided mid- $p < .10$).

The comparison of the commercials-before (.68) to the control condition (.49) reflected the combined indirect and direct effects of advertising on product choice. The second comparison, commercials-after (.53) to the control captured only the direct effect on choice. Thus, the contrast between the two comparisons isolated the indirect influence, presumably through the commercials leading to the distortion of product information to support Club Zephyr. An examination of the levels of predecisional distortion should verify such an influence.

For completeness, the corresponding choice proportion in the no-measures condition was .69, nearly identical to the .68 of the commercials-before condition. Thus, requiring the two intermediate responses that tracked the predecisional distortion of information had no apparent effect on choice.

Information distortion

If predecisional distortion of information drove the observed differences in choice proportions, then distortion should have been significantly greater when the commercials came first than in either the commercials-after condition or in the first control (no commercials) condition. Distortion was computed as the signed absolute difference between the reported evaluation of a unit of information (on the 1-to-9 scale) and the neutral value of 5. This difference was signed positively when the evaluation fell on the same side of the scale as the leading resort and negatively otherwise. The mean distortions were: in the commercials-before condition, 1.02; in the commercials-after condition, .41; and in the control group, .47. An ANOVA with planned comparisons using a Tukey test revealed that the commercials-before condition differed significantly from both the commercials-after group ($t(529) = 2.69, p < .05$) and the control group ($t(529) = 2.47, p < .05$), but that the latter two conditions did not differ from each other ($t(529) = .23, p > .05$). This pattern of

distortions paralleled the pattern of choice proportions. It provided clear support for the proposed process of a commercial creating leadership for its brand and the predecisional distortion of subsequent information biasing the final product choice.

Initial confidence and stickiness of preference

The process that we argue underlay the indirect effect of the commercials on product choice can be summarized as follows: The commercials provided a head start in preference that predecisional distortion then supported. If this was true, we should have observed two manifestations of the process in the commercials-before condition, greater initial confidence in the leading resort (the head start) and more participants staying with their initial leader as the product information was distorted to support the leading resort. We computed both the mean initial confidence and the proportion of participants who remained with their initial preference throughout. These values are shown in Table 1 for all three conditions.

Initial confidence was .70 in the commercials-before condition, .61 in the commercials-after condition, and .64 in the control condition. An ANOVA with Tukey planned comparisons revealed a difference between commercials-before and both other groups (for both, one-sided $p < .05$) but not between the commercials-after and the control conditions.

The proportion of participants who remained with their initial preference throughout was reliably greater in the commercials-before condition (.70) than in both the commercials-after (.52) and control (.42) conditions (Fisher's exact test, mid- $p < .05$ for both). Again, there was no reliable difference between the commercials-after and control conditions (Fisher's exact test, mid- $p > .05$).

Awareness

Were participants aware of the indirect effect of the commercials, that is, of their effect on product choice through their biasing the evaluation of product information? Of course, participants perceived a direct effect, possibly greater than normal because the commercials were award winners and the product information was nondiagnostic. That direct effect was manifest in the importance values collected in the commercials-after condition where only the direct effect could occur. In this condition the mean importance of the two commercials combined was 18.9 (out of 100). If people had been aware of the biasing effect of the commercials on product information and on their choice of a resort (i.e., aware of the commercials' indirect effect), then the corresponding value in the commercials-before condition should have been greater. This value was 19.2, not reliably different from that in the commercials-after condition ($t(98) = .096, p > .05$). Thus, there was no evidence that people recognized the indirect impact of the commercials on their choices.

Did participants' estimates of the commercials' importance differ from their corresponding estimates for "a typical student"? In accord with naïve realism, participants believed that the commercials affected others' choices (24.8)

significantly more than they influenced their own (19.1 over both conditions; $t(176)=2.50, p<.01$). In other words, even when assessing the direct influence of the commercials, of which the participants were quite aware, they underestimated their influence on themselves relative to others.

Discussion

We set out to verify the ability of a specific, observable process to explain the influence of a persuasive message on an important consequent behavior, namely choice. All observed results were compatible with the proposed process of a more effective message installing its target as the initial leader and letting the biasing of subsequent information help to preserve that head start through to the actual choice. Maybe just as important, individuals were shown to be unaware of this influence on their own behavior, increasing the difficulty of finding and fixing it.

The present work advances our knowledge of persuasive processes in at least two ways. First, unlike all previous demonstrations of a “head start” leading to biased evaluation of information, we have used naturally occurring persuasive messages, namely TV commercials, to provide that initial leadership. That is, instead of manipulating the cover story (Russo et al., 1996) or the order of information (Carlson et al., 2006), we used real world stimuli that are designed to influence choice and seen every day by TV viewers. Second, we showed that people are unaware of the indirect influence of those TV commercials, even though they are quite aware of their direct influence. Finally, there is a methodological contribution, namely revealing that the collection of the two intermediate responses that are necessary to track information distortion had no effect on the final choice. This null result helps to reduce one of the persistent concerns about process-tracing methods, namely their alteration of the process that they are supposed to reveal. It seems that although our method necessarily interrupted and undoubtedly slowed the choice process, those and any other changes did not affect the choices themselves.

We suggest that the process demonstrated in our study can occur with other persuasive communications that successfully create an initial leaning toward a targeted position. Might a political message create such a leaning, especially when a candidate or legislative initiative is new and largely unknown to voters? Might an implanted article in a magazine create an initial favorable image of a person, place or project, one that could bias the interpretation of later objective information? Finally, might word of mouth create an initial opinion on any range of message targets, from new neighbors to new products? These are only meant to illustrate some possible applications of the process that we have demonstrated. We wonder whether this process has, for a long time, been well understood and used by professionals who are paid to manipulate opinion. Of course, if

it were, it would also be in their best interest not to discuss their use of it. Might this be why it has not been described and documented before?

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