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The Journal of Consumer Research, Vol. 18, No. 4 (Mar., 1992), 411-424.

Stable URL:
http://links.jstor.org/sici?sici=0093-5301%28199203%2918%3A4%3C411%3ALOSCIA%3E2.0.CO%3B2-8

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DAVID GLEN MICK*

Two fundamental orientations toward message comprehension have appeared in advertising research: the traditional *objective* view, which applies an accuracy criterion to conceptualize and evaluate comprehension, and the *subjective* view, which applies other criteria related to the individual comprehender and the actual experience of the message. This article develops a framework for four levels of subjective comprehension on the basis of an elaboration criterion. Comprehension levels are hypothesized to differ in their relations to ad perceptions, attitudes, and memory. Results from an empirical study provide initial support for the framework, including new theoretical insights and explanatory ability beyond the objective orientation. Discussion focuses on implications for advertising theory and consumer research.

Persuasion theorists have long maintained that message comprehension is prerequisite to formation or change in attitudes, memory, intentions, and behavior, particularly during the central or systematic processing route (Ratneshwar and Chaiken 1991). Comprehension itself is a function of several factors, including message characteristics, opportunity to process the message, and the recipient's motivation and ability.

Advertising researchers have tended to adopt one of two basic orientations toward message comprehension, which are labeled as *objective* and *subjective* comprehension in this article. The historically dominant view, *objective* comprehension, stems mostly from communication research during the first half of this century in electrical engineering and psychology. Research in the former area is epitomized in Shannon and Weaver (1949); they modeled communication mathematically, as a process wherein an information source selects a desired message that is transmitted as a signal through a channel to a receiver (an inverse transmitter) that, depending on the presence of noise, recovers the original message for the destination. In psychology, researchers investigated communication processes as immigration, war, and propaganda raised trenchant questions about the conveyance of specific ideas and the malleability of public opinion (e.g., Hovland, Janis, and Kelley 1953). In the 1960s these research streams converged in McGuire's Markovian information-processing model, which remains a widely adopted theoretical basis for persuasion research (see McGuire 1978; also Jacoby and Hoyer's [1987] discussion).

In advertising research, objective comprehension is normally conceptualized as the grasping or extracting of prespecifiable meanings from the message; typically these meanings are considered given (i.e., intrinsic to or directly implied by the message) and intended by the advertiser. Hence, comprehension is essentially a unidimensional construct with its principal criterion being the amount of meaning accurately drawn from the message. For intuitive and practical reasons, this view is appealing. Objective comprehension measurement has usually taken the form of postexposure quizzes about message claims and their logical implications (see, e.g., Jacoby and Hoyer 1987) or recall of message claims (see, e.g., Thorson and Snyder 1984), up to 72 hours afterward (Stewart 1986). As a result, objective comprehension is often indistinguishable from message learning. This orientation can be criticized for its overemphasis on message-based meanings, while disregarding or depreciating receiver-based meanings, and its tendency to confound memory effects (retention, retrieval) with comprehension assessment.

*David Glen Mick is assistant professor of marketing, University of Florida, Gainesville, FL 32611. He is indebted to several individuals for their advice and commentary at various stages of this project: Richard Olshavsky, John Summers, Scott MacKenzie, David Pisoni, Joe Alba, Rich Lutz, John Lynch, Kalyan Raman, S. Ratneshwar, Hans Stubbe Solgaard, and the three reviewers. He also gratefully acknowledges computing assistance from Gail Seeger and financial support from the Graduate School and Marketing Department of Indiana University. A longer version of this article is available from the author.

The *subjective* orientation toward message comprehension has several origins and manifestations (e.g., sociology, literary studies). Generally it holds that the most important meanings are those emanating from the individual recipient within a specific processing context, irrespective of whether those meanings were intended by the source or, in some sense, contained in the message. Subjective comprehension is conceptualized as the generation of meanings by a particular individual through the activation of mental concepts related to the message and the processing context. Criteria for analyzing subjective comprehension meanings have varied. For example, in empirical work these criteria have included the correspondence of meanings with the recipient's social knowledge (Livingstone 1990) or cultural heritage (Griswold 1987) while conceptual articles have recommended the amount of inferences (Dascal 1981). Thus, in the subjective orientation, message comprehension is more context-dependent, more phenomenological, and more open-ended than it is in the objective orientation.

Compared with objective comprehension, the subjective orientation has been much less evident in advertising research (e.g., Celsi and Olson 1988). Its most recognizable roots are found in Greenwald's (1968) seminal work on cognitive responses. His main contribution was to prioritize recipient-generated meanings over rote recall of message content, and his coding technique attempted to capture "the various *subjective* bits of information or thoughts a person processes" (Calder, Insko, and Yandell 1974, p. 72, emphasis added). While most cognitive-response researchers have not associated their work with comprehension processes, a few have speculated that their measures (usually retrospective thought listings) may reflect message comprehension (e.g., Calder et al. 1974; Olson, Toy, and Dover 1982). Critically speaking, however, there remains little correspondence between cognitive-response coding schemes and any theory-driven conceptualization of comprehension. And the tendency to collect thought reports after message processing may also confound comprehension and memory.

The purpose of this article is to formalize and appraise a framework for levels of subjective comprehension (LSC). First, the subjective orientation and levels-of-comprehension theory are linked to insights from advertising research. From this discussion a framework emerges that provides a theoretical basis for categorizing message-related cognitions in terms of comprehension while also yielding hypotheses about comprehension effects. The hypotheses are then tested in a laboratory study. The incremental value of the framework is assessed by comparing the pattern and magnitude of results with those obtained with an objective-orientation measure and an alternative measure of subjective comprehension. A partial comparison is also made to common cognitive-response analysis.

CONCEPTUALIZING LEVELS OF SUBJECTIVE COMPREHENSION

Subjective Comprehension and the Message Receiver

The subjective orientation appears to various degrees in several fields outside of advertising research. For example, in educational psychology, Wittrock (1981, p. 251) has written that

> reading comprehension consists of more than a reconstruction of the authors' intended meaning. Within the constraints of the vocabulary and syntax of the sentences of a passage, a reader can legitimately construct meanings at multiple levels of abstraction, or with reference to multiple issues of interest to the reader. The context and the reader's background of information and mental set contribute significantly to reading comprehension. If these multiple constructed meanings derive from the text, or are permissable transformations or inferences from it, then they evidence comprehension. Reading comprehension is not an idiosyncratic, anarchic phenomenon. But neither is it a monolithic, unitary process where only one meaning is correct.

More radical formulations of the subjective orientation appear in such areas as literary studies in which the individual seeks a reading that "*feels right*" (Holland 1985–1986, p. 436). In essence, this orientation maintains that the subjective experience of a message takes precedence over intended meanings or objective features as the individual attempts to generate meanings that fulfill psychosocial needs.

More than two decades ago Krugman (1966–1967) characterized high advertising involvement as conscious connections that the viewer makes between his own life and the ad. Although a few studies have since examined personal references in advertising response (e.g., Shavitt and Brock 1986), to date their conceptual relation to message comprehension has been unaddressed.

Levels of Comprehension

Drawing from memory research based on levels-of-processing theory (Craik and Lockhart 1972), some psychologists have maintained that comprehension has varying levels (e.g., Monaco and Harris 1978). Whereas surface levels concern mental associations related to message assertions and logical implications, deeper levels reflect increased activation of relevant knowledge structures, producing elaborated meanings for the stimulus information. This view constitutes an elaboration explanation for depth of comprehension that is based on the spreading activation of mental concepts (Anderson and Reder 1979). Thus, from this perspective it is axiomatic that comprehension depends on knowledge (cf. Alba and Hutchinson 1987).

In consumer research Wright (1980) has suggested that Greenwald's (1968) original cognitive-response

scheme had elements of an elaboration hierarchy (externally originated thoughts, recipient-modified thoughts, and recipient-generated thoughts). However, since Wright (1973), the most widely used scheme has consisted of support arguments, counterarguments, source derogations, and curiosity statements. Despite the predictive insights this scheme has provided for persuasion research, it is largely atheoretical and in no way reflects levels of cognitive functioning. In fact, different comprehension levels may be identified within some categories. For example, support arguments can include reaffirmations of an ad claim that may indicate only surface comprehension, whereas support arguments mentioning favorable consequences of product use may be wholly receiver-based and therefore indicative of deeper comprehension. Thus, research based on Wright's (1973) cognitive-response scheme cannot be unambiguously interpreted in terms of message-comprehension levels.

A recent advertising model has promoted the notion of comprehension levels (MacInnis and Jaworski 1989). However, empirical research ostensibly based on comprehension levels has been sparse. Harris (1977) found that consumers readily draw pragmatic comprehension inferences that have no direct substantiation in the ad message. Celsi and Olson (1988) showed that higher felt involvement and higher product knowledge lead to increases in comprehension elaborations.

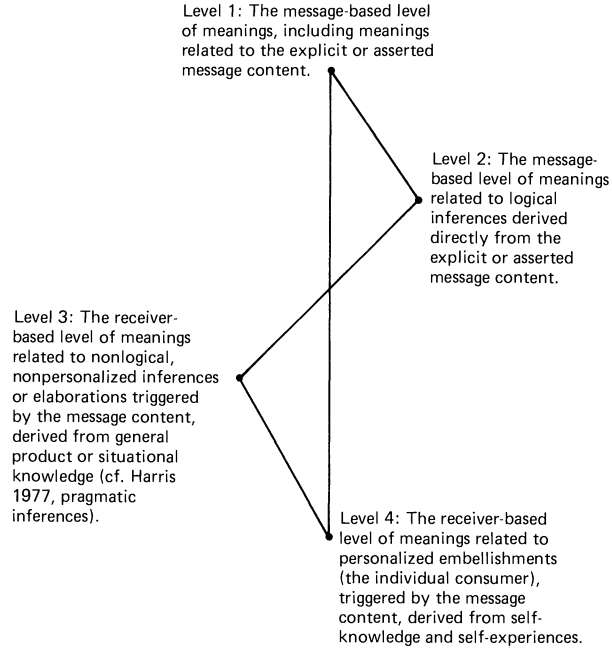
An LSC Framework

The subjective orientation adopted here builds on the previous discussion and specifies four comprehension levels in terms of their respective outcome meanings, with no necessary recourse to a criterion of accuracy (see Fig. 1). The LSC framework seeks to rejuvenate and extend Greenwald's (1968) original ideas by drawing selectively from Langer's (1986) notion of levels of envisionment. The number of comprehension levels is admittedly a matter of speculation at this developmental stage, although the four identified here are implicated in MacInnis and Jaworski's (1989) model. For now the LSC framework applies most directly to ad-language comprehension.

Levels 1 and 2 in Figure 1 are message-based, surface-level comprehension, whereas levels 3 and 4 are receiver-based and reflect deeper comprehension levels. The deep levels differ from surface levels according to the amount of message content–related meanings produced during comprehension as a function of the spreading activation of relevant knowledge. The LSC framework does not contain a strong assumption about complete serial processing from level 1 down to level 4. However, level 1 is assumed to be necessary to some degree before any remaining levels are engaged. That is, without minimal concept activation for the explicit message content, further relevant elaborations are not possible. Finally, the framework maintains a principle

FIGURE 1

FOUR LEVELS OF SUBJECTIVE COMPREHENSION IN TERMS OF MEANINGS GENERATED



of deeper-level dominance; that is, in single message-exposure settings, effects associated with deep comprehension levels should be stronger than those related to shallow levels (cf. Greenwald and Leavitt 1984).

Empirical evidence continues to support the Rogers, Kuiper, and Kirker (1977) claim that self-related elaborations (level 4) are among the richest possible (e.g., Reeder, McCormick, and Esselman 1987). However, whether level 4 always involves more activation than level 3 is an unresolved issue in psychology. This study was not designed to address this issue, although its results contribute to the discussion as they relate to memory for information.

Unlike the objective comprehension orientation that focuses exclusively on the accuracy of meanings, in the subjective orientation the valence of comprehension meanings can be considered significant. In the LSC framework the valences of level 1 and level 2 meanings are dependent on the actual brand information expressed in the ad (which is typically positive except, e.g., in comparative ads). In contrast, levels 3 and 4 involve meanings in which the message receiver supplies his or her own valence through the additional knowledge and belief structures activated.

HYPOTHESES

This study addresses research questions about the central processing of advertising in a particular situation. Namely, given a group of consumers who will soon make brand choices for a comparatively involving

product and who are exposed to a linguistic ad for a well-known brand, what relations do subjective comprehension levels have to ad perceptions, attitudes, and memory for ad information?

Comprehension Levels, Ad Credibility, and Attitude toward the Ad

MacKenzie and Lutz (1989) conceptualize attitude toward the ad as an evaluative response to the commercial stimulus. It is affected, in part, by ad credibility, which they define as the extent to which the consumer perceives the ad's claims about the brand to be truthful and believable. As yet, neither ad credibility nor ad attitude has been examined empirically in relation to message comprehension. However, in their Figure 2B, MacKenzie and Lutz (1989) seem to suggest that, when the consumer focuses intently on the message content but not on the ad's executional aspects, there will be no relationship between specific cognitions about the brand (which could reflect comprehension levels) and attitude toward the ad. MacInnis and Jaworski (1989) further argue that, when highly constructive processes are at work (e.g., embellishments of message content that reflect deeper levels in their framework and mine), the individual's attention is turned inward, rather than externally toward the ad. At those times they predict a weak relationship to ensue between brand attitude and ad attitude. This argument implies a weak or null relationship between deeper comprehension levels and ad attitude.

Nonetheless, given a consumer who faces a brand decision in a product class in which he or she is sufficiently involved, it could be equally proposed that the more deeply a relevant ad is comprehended, particularly if in a positive light, the more credible the ad will be perceived and the more it will be liked. Recall that deep comprehension levels (3 and 4) concern more strictly receiver-based meanings (self-generated). Hence, as more positively valenced meanings are activated at deep levels, the individual consumer is increasingly endorsing the ad claims explicitly or implicitly, which should result in the ad's being judged as more credible. Similarly, the semiotician Barthes ([1968] 1989) suggests that the "pleasure of the text" (its aesthetic enjoyment) is a function of positive connotative meanings generated during interpretation (related to levels 3 and 4). Thus, as more positively valenced meanings are activated at deep levels, the consumer should also develop a more positive attitude toward the ad. These ideas and the principle of deeper-level dominance lead to the first hypothesis:

H1: Compared with surface comprehension levels, deep comprehension levels have stronger relations to ad credibility and attitude toward the ad, and those relations are positive when the deep-level meanings are indexed according to their valences.

Comprehension Levels and Brand Attitudes

MacInnis and Jaworski (1989) have noted that self-generated thoughts about an attitude object lead to relatively firm beliefs about the object (e.g., an advertised brand). In turn, such beliefs affect the overall attitude toward the object. Thus, as the meanings from receiver-based levels 3 and 4 are increasingly positive (negative), the overall attitude toward the brand should be more positive (negative). This process may hold for both attitude change (i.e., positive-attitude shift) as well as attitude polarization (i.e., moderate attitudes, both positive and negative, becoming more extreme; see Tesser 1976). Since attitude polarization has not been previously explored in consumer research, both attitude change and attitude polarization were examined. Given the principle of deeper-level dominance and MacInnis and Jaworski's (1989) discussion, the second hypothesis is

H2: Compared with surface comprehension levels, deep comprehension levels have stronger relations to postexposure brand attitudes, and those relations are positive when the deep-level meanings are indexed according to valence.

Comprehension Levels and Delayed Recall of Ad Claims

In psychology a long-standing finding has been that deeper processing outperforms surface processing in leading to more durable memories of stimulus information. The basic explanation has been that deeper processing aids subsequent recall because of the impact that extra elaboration has in creating additional potential retrieval paths back to the original information (Anderson and Reder 1979). Work by Rogers et al. (1977) has suggested that the richest and most effective elaboration for subsequent recall may involve relating the information to oneself. In contrast, if the individual elaborates very little, then fewer cues will be available to reconstruct the stimulus information at a later time. Thus, the probability of reconstructing ad information on a delayed basis would appear to be a direct function of prior processing elaborations, with deep comprehension levels involving more elaboration than surface levels.

Nonetheless, Krugman (1966–1967) found an inverse relationship between ad recall and the number of thoughts connecting the ad message to one's personal life (level 4 comprehension). This result seems counter to the findings of Rogers et al. (1977) on self-referencing. However, these two studies differed in terms of the type of information used and the manner in which it was presented. Still, an intriguing possibility is that deep-comprehension elaborations have a positive impact on information recall up to some point but then become dysfunctional. In fact, text linguists have found that

elaborations may have a curvilinear relation with recall (Mandl and Ballstaedt 1982). They argue that an individual who elaborates intensively may be a distractive message learner. That is, as Wright also intimated (1980, n. 8), storage of stimulus information in long-term memory may be disrupted rather than facilitated by excessive elaboration. Given these conflicting perspectives and findings, along with the principle of deeper-level dominance, a third hypothesis with competing predictions is put forth.

H3: Compared with surface comprehension levels, deep comprehension levels have stronger relations with delayed ad-claim recall, although these relations may be positive throughout or curvilinear (i.e., inverted U or inverted J).

METHOD

Study Overview

Subjects were recruited for a study on compact disc (CD) players. They consisted of 161 undergraduates at a large United States university (76 males and 85 females). For participation, subjects received extra course credit and became eligible for a raffle of a new CD player. Because college students tend to be highly involved in music, CD players were selected as the product class to draw and sustain subjects' interest in the study. Moreover, when the data were collected in early 1987, involvement was growing rapidly among students with respect to CD players specifically.[1] However, at that time, knowledge of this new music technology was still quite varied: prestudy interviews indicated that not all students had operated a CD player yet and fewer still already owned one. Thus, it was expected that subjects' involvement in CD players would enhance participation and that varied knowledge levels would lead to comprehension variability during ad exposure.

The study was designed as a pretest-posttest laboratory investigation, with phases one and two occurring about four weeks apart. One hundred thirty-seven subjects made up the verbal protocol group (to be discussed), and 24 randomly selected subjects served as a nonverbalizing control group. Except for verbalizations, all data were collected interactively on personal computers. In both phases subjects were processed individually by a research assistant.

In phase one subjects were first familiarized with the computer routine. Then the program began by asking subjects whether they were current owners of a CD player, how many times they had previously operated a CD player, and which brand names they recognized from a list. Their personal involvement in CD players was assessed next. Last, subjects indicated their attitudes toward five national brands of CD players, with the target brand (Magnavox) appearing second.[2]

Phase two (posttest) began with subjects' being informed that this second session was similar to the first but that it also included advertising. They were informed that at the end they would indicate from a list (not yet revealed) which brand they wanted in the event their name was chosen in the raffle. They were told that time constraints prevented the showing of more than one CD-player ad but that they could ultimately choose any brand. They were encouraged to process the ad with the goal of determining whether the advertised brand was right for them. The raffle and these instructions were intended to elevate subjects' motivation to attempt to process the ad information. Given that subjects also had unlimited opportunity to view the ad, phase two was designed as a central processing event.

Protocol subjects were then told that to retain their reactions to the ad they were being asked to verbalize their spontaneous thoughts and feelings. To get them comfortable with speaking into a tape recorder, they were asked to verbalize their immediate reactions to two topics (spring break and final exams) that were presented sequentially on the screen, each remaining as long as they kept speaking. The total number of words spoken in response to these prompts served as an independent measure of subjects' verbosity (which would later serve as a potential covariate). Then, using a short ad text for a 35-mm camera, subjects were familiarized with the protocol method along with the technique of pressing the return key to reveal successive ad components (to be discussed). The research assistant remained as unobtrusive as possible, only saying "speak your thoughts" if a subject remained silent for five seconds after a new ad component was exposed. After the warmup ad, the target ad was processed, during which the assistant remained silent and refrained from further protocol prompts. Control-group subjects received the same instructions but were not asked to verbalize their cognitions.

After the ad exposure, subjects responded to a series of items (adjective pairs) concerning the ad's (1) comprehensibility, (2) credibility, and (3) overall favorability (ad attitude). Next, to clear short-term memory, distraction and delay were interjected as subjects responded to a style-of-processing scale.[3] Brand-attitude measures were then repeated in identical fashion to phase one (pretest). Subjects were then given five minutes to verbalize into the recorder their memory for the

[1]Involvement is defined in this study in accordance with Zaichkowsky (1985), i.e., it is the person's perceived relevance of the object (CD players) based on inherent needs, values, and interests.

[2]Pretesting involved a search for an existing CD-player brand name that was well recognized among the subjects and had a wide variance of attitudes so that negative and positive attitudes would preexist the advertising exposure. Magnavox met both of these goals as well as or better than other brand names.

[3]This scale, developed by Childers, Houston, and Heckler (1985), was used as a potential covariate because the ad had only linguistic information. It ended up not correlating with the dependent variables and was dropped from the analyses.

EXHIBIT 1

ADVERTISEMENT

(1) Only the Magnavox CD Player
Puts You and Your Music in Perfect Harmony
(2) Our top-rated FD1051-BK lets you program up to 20 songs in any order. (3) It features sound audible with either fast-forward or reverse. (4) And you can skip forward. (5) Or skip back. (6) Or repeat tracks whenever you like. (7) Plus informative displays tell you the current song number, (8) time elapsed on the song, (9) and even time elapsed on the entire disc. (10) And the 10-function wireless remote control lets you direct your music from a more comfy command center—your couch. (11) Now that's perfect harmony!
(12) Our advanced single-beam laser keeps the music on track. (13) Add to that a frequency response rate as flat as any other CD available. (14) Accompanied by an astounding 101db dynamic range. (15) With 4 times over-sampling and digital filtering, all you hear is the absolutely flawless reproduction of sound. (16) What else would you expect from the people who invented CD technology?
(17) Nobody puts it together like Magnavox.

NOTE.—The numbers indicate the 17 components of the ad as they were revealed successively during processing. These numbers were not seen by the subjects. The number of copy points is larger (25) because some components have multiple copy points, e.g., component 15 includes both the over-sampling and digital filtering features plus the benefit of flawless reproduction.

information (copy points) they had seen earlier in the CD-player ad. Next, objective comprehension of the ad was measured using quiz items. Then, subjects' general arousal levels while participating in the study (e.g., sleepiness) were gauged (another potential covariate). Finally, in preparation for the raffle, subjects indicated from a list which brand of CD player they wanted, and then they were dismissed.

Target Ad[4]

With the help of audio specialists, a solely linguistic ad was created on the basis of a composite of features and benefits researched about the brand. The ad was worded to become more technical as it was processed to ensure a range of comprehension levels as it conjoined with subjects' varied familiarity with CD players.

Measures

With the exception of the cognitive-style scale, which used four-point items, all other scaled items consisted of nine points (1–9). Also, each item appeared separately on the screen and disappeared after the subject's response.

Phase One. Involvement in CD players was measured as the summated score on 16 of the 20 items in Zaichkowsky's (1985) Personal Involvement Inventory (α = .96).[5] Brand attitude was measured as the summated score on three semantic differentials (anchors: bad–good, pleasant–unpleasant, and worthless–valuable; α = .87).

Phase Two: Subjective Comprehension. A concurrent verbal protocol method was employed because it naturally aligned with the subjective orientation and the interest in limiting a confound of memory effects with comprehension assessment. Its use in comprehension research has grown (e.g., Olson, Duffy, and Mack 1984), although it is used infrequently in advertising research. Typically the verbalizations are believed to reflect a small but valuable portion of outcome meanings that, on close inspection, facilitate insights about comprehension processes. The verbalizations in this study were used to infer the deepest level to which each ad component had been comprehended, that is, the degree of elaboration that occurred.

After standard protocol instructions, subjects verbalized their cognitions as they processed the ad. Subjects set their own pace through the ad by pressing the return key to reveal 17 successive components of the ad that was initially blocked out on the screen (see Exhibit 1). As each component was revealed, it remained on the screen until the entire ad was exposed and processed. This special method has been used in educational psychology (Olson et al. 1984; Langer 1986), serving to highlight the nonautomatic aspects of comprehension and to ensure the subsequent matching of protocol statements to their corresponding ad components. Just as important, it maximizes the opportunity to detect comprehension aspects on-line that might otherwise be overlooked or underrecognized with a different method (including retrospective thought verbalizations or listings). Although this method sacrifices some ecological validity, it does not undermine the fundamental left-to-right linear process of reading English, which applies equally to advertising language.

Phase Two: Other Comprehension Measures. Ad comprehensibility was assessed by the summation of two items (easy–difficult and understandable–confusing; r = .63, $p < .0001$; cf. Alba 1983). In this study this score was considered an alternative measure of subjective comprehension because it reflects self-assessed comprehension (SAC). Objective comprehension (OC) was measured with eight quiz items (true/false/don't know), six of which were based on assertions in the ad and two on logical implications (cf. Jacoby and Hoyer 1987). These items were pretested with colleagues and audio specialists prior to the study. Correct answers

[4]See Exhibit 1

[5]Factor analysis of Zaichkowsky's (1985, p. 350) original scale resulted in a two-factor solution, with four items loading on the second factor (trivial/fundamental, vital/superfluous, essential/nonessential, and not needed/needed). The remaining 16 items loaded positively on the first factor and were subsequently retained to form the scores for involvement in CD players.

were scored as +1, incorrect as −1 (to compensate for guessing behavior), and "don't know" as 0.

Phase Two: Dependent Measures. Ad credibility was assessed as the sum of three items (unconvincing–convincing, believable–unbelievable, and uninformative–informative; $\alpha = .62$).[6] Attitude toward the ad was assessed as the sum of three items (good–bad, unpleasant–pleasant, and worthless–valuable; $\alpha = .85$). Brand attitude was measured the same as it was in phase one. Memory for the ad was assessed as the total number of 25 separate copy points accurately recalled, either precisely or in gist. In the latter case, for instance, the "reverse" feature on the CD player might be remembered as the ability "to go back" and, if so, would be scored as a correct hit.

ANALYSES AND RESULTS

Protocols

The protocol records were transcribed and then coded by two independent judges (Ph.D. students in linguistics), according to the four-level comprehension framework. First, the entire remark by a subject in relation to an ad component was judged as having message content–related meanings or not. If so, the judge coded the entire remark for the deepest comprehension level achieved, that is, two or three levels might be suggested in a lengthy remark, but the deepest level achieved was the principal coding. A coding of level 3 or 4 was also judged for its primary valence, whether positive, neutral, or negative. Recall that message-based levels 1 and 2 are considered uniformly valenced (positive) in this study.

For illustration, consider the ad claim about the CD player's ability to program 20 songs in any order. Level 1 comprehension was evinced by mere repetitions or paraphrases such as "you can make it play 20 songs in any way you want" (paraphrase). Level 2 was evinced by logical message-driven inferences such as "I guess you can even play the songs in reverse order" (logical, deductive inference). Level 3 comprehension was indicated by nondeductive, nonpersonalized elaborations derived from the message, such as "that sounds interesting because lots of CD players can't program that many songs." This statement would also be coded as positively valenced. In it the subject has activated knowledge about other CD players and performed a comparison according to the programability feature. Level 4 comprehension involved personal elaborations, evinced by strong use of personal pronouns (I, me, mine) and/or own-based life references, such as "I wouldn't want that since I don't miss that option on my tape system." This statement would also be coded as negatively valenced. In this statement the subject has activated personal preferences and life experiences through a comparison with his taped-music system that does not have the programability feature. Note that the valences in these examples are not merely indications of the evaluation of ad information but are integral aspects of the comprehension meanings themselves.[7]

To estimate the reliability of the coding scheme, Winer's one-way, random-effects ANOVA approach was adopted (see Hughes and Garrett 1990). Results showed that interjudge reliabilities were acceptable, ranging from .70 to .94 and averaging .88 across the comprehension-levels-by-valence categories. All codings were reviewed, disagreements were discussed, and the following results are based on 100 percent resolution.

TABLE 1

DESCRIPTIVE STATISTICS FOR COMPREHENSION MEASURES

	Mean	SD
Level 1	4.5	2.8
Level 2	.3	.4
Level 3	6.2	3.3
Level 4	4.0	3.9
OC	1.3	2.1
SAC	8.9	3.8

NOTE.—Levels 1–4, subjective-comprehension levels (theoretical range of each level, 0–17); OC, objective comprehension (theoretical range, −8 to +8); SAC, self-assessed comprehension (theoretical range, 2–18).

Key Descriptive Statistics and Simple Correlations

Involvement in CD players had a mean of 112 (theoretical range: 16–144) and a standard deviation of 22. While only 11 percent of the subjects currently owned a CD player, 63 percent of them had operated one. However, the number of times subjects had operated a CD player varied considerably ($\bar{X} = 31$, SD = 123). Hence, as planned through the study design, subjects tended to be involved in CD players prior to seeing the ad, but their familiarity with this new product class differed widely.

Table 1 reveals that, although levels 1, 3, and 4 apparently had ample variability for the purposes of this study, level 2 codings were minimal. That is, few subjects reached and then stopped at level 2 comprehension while processing each ad component. This suggests that a range-restriction problem may attend further analyses involving level 2 comprehension in this study. Table 1 also shows that OC and SAC varied.

[6]MacKenzie and Lutz (1989) used these first two items, plus another that was anchored by unbiased–biased. This latter item was also included in this study, but factor analysis showed that it loaded on a different dimension than the other items did; therefore, it was eliminated and the remaining three items were used to form the measure of ad credibility.

[7]More detailed information about the coding scheme is available from the author.

TABLE 2

REGRESSION ANALYSES OF AD CREDIBILITY AND AD ATTITUDE

Dependent variable	Standardized parameter estimates (independent variables)						F	R^2	Adjusted R^2
	Level 1	Level 2	Level 3	Level 4	OC	SAC			
Ad credibility:									
Equation 1	−.24	−.13	.17	.17			5.6	.14	.12
	(.004)	(.12)	(.02)	(.02)			(.0003)		
Equation 2					−.07	.13	1.2	.02	.00
					(.41)	(.14)	(.30)		
Attitude toward the ad:									
Equation 3	−.25	−.03	.25	.21			7.7	.19	.17
	(.002)	(.72)	(.001)	(.006)			(.0001)		
Equation 4					−.01	.40	12.5	.16	.14
					(.93)	(.0001)	(.0001)		

NOTE.—df = 4, 136 for Eq. 1; df = 2, 136 for Eq. 2; df = 4, 136 for Eq. 3; df = 2, 136 for Eq. 4. All parameter estimates are standardized; t-tests on comprehension levels 3 and 4 parameter estimates are one-tailed, given the directional nature of the first hypothesis. Remaining t-tests are two-tailed. Significance values are in parentheses. Levels 3 and 4 are measured according to valence-indexed computations as described in the article.

Significant correlations among comprehension levels were all negative, given that an increasing amount of codings at one level necessarily means less opportunity for codings at another level. Also, none was larger than −.44, suggesting that collinearity is not a serious problem among the comprehension levels.[8] Significant intercorrelations among the different comprehension measures were small to medium, according to Cohen's (1988) standards for behavioral research. Surface, level 1 comprehension was negatively correlated with both SAC ($r = -.36$, $p < .001$) and OC ($r = -.26$, $p < .01$); deep, level 3 comprehension was positively correlated with SAC ($r = .15$, $p < .08$), and deep, level 4 comprehension was positively correlated with both SAC ($r = .19$, $p < .03$) and OC ($r = .20$, $p < .02$).

Ad Credibility, Ad Attitude, and Brand Attitudes

To test the first two hypotheses relating comprehension levels to ad credibility, ad attitude, and positive attitude change, a valence-sensitive index was formed for receiver-based levels 3 and 4 (levels 1 and 2 were considered uniformly valenced). In particular, the total number of negatively valenced codings was subtracted from the total of positively valenced codings for level 3 and also for level 4 (cf. Shavitt and Brock 1986).

Table 2 exhibits the results of regression analyses testing Hypothesis 1. Comparison models using the OC and SAC measures also appear. Findings partially confirm Hypothesis 1 in that deep comprehension levels are positively related to ad credibility and attitude toward the ad (Eqq. 1 and 3; all eqq. cited in article appear in tables). Specifically, the more net positive the meanings generated at both levels 3 and 4, the more credible the ad is perceived and the more it is liked overall. Results also show that level 1 is negatively related to ad credibility and ad attitude. That is, subjects producing larger amounts of surface, level 1 comprehension judged the ad as less credible and they liked the ad less. The level 2 estimate is also negative and approaches significance in Equation 1 (ad credibility) but not in Equation 3 (ad attitude), perhaps because of the range-restriction problem mentioned earlier. Contrary to Hypothesis 1, the deeper-level-dominance principle does not hold in Equations 1 and 3. That is, compared with surface, level 1 comprehension, the deep levels do not have stronger relations (i.e., larger coefficients) with either ad credibility or ad attitude. By Cohen's (1988) standards the levels-of-comprehension model explains a medium amount of variation (R^2) in ad credibility and ad attitude.

Table 2 also shows that neither OC nor SAC predicts ad credibility (Eq. 2). On the other hand, SAC positively relates to ad attitude, while OC is again unrelated (Eq. 4); however, the amount of explained variation is less than it is in the LSC model (lower adjusted R^2).

Table 3 shows the results from testing Hypothesis 2. In Equations 5 and 6, the dependent variable is the posttest brand attitude, while the pretest attitude is used as a covariate. This approach is superior to using a simple difference score to measure attitude change (see Cronbach and Furby 1970). Equation 5 explains a large amount of variation in posttest attitudes ($R^2 = .44$), although the majority of the explained variation is attributable to pretest attitudes. Nonetheless, the results confirm that deep levels have positive relations with

[8]Multicollinearity was also checked and ruled out by inspecting tolerance estimates from the multiple regression analyses to be reported. Only the tolerance estimates in the subsequent polynomial model indicated potential multicollinearity. However, in that model the primary concern is the improvement of predictive ability resulting from considering a curvilinear relationship, not the interpretation of parameter estimates.

TABLE 3

REGRESSION ANALYSES OF BRAND ATTITUDE

	Standardized parameter estimates									
	Independent variables						Covariate			
Dependent variable	Level 1	Level 2	Level 3	Level 4	OC	SAC	Pretest brand attitude	*F*	R^2	Adjusted R^2
Posttest brand attitude:										
Equation 5	−.06 (.37)	.07 (.27)	.12 (.04)	.10 (.07)			.60 (.0001)	20.4 (.0001)	.44	.42
Equation 6					−.02 (.75)	.03 (.67)	.63 (.0001)	29.7 (.0001)	.40	.39
Brand attitude polarization:										
Equation 7	.07 (.40)	−.14 (.11)	.25 (.002)	.26 (.002)				4.3 (.003)	.12	.10
Equation 8					−.03 (.71)	.06 (.49)		.26 (.77)	.00	.00

NOTE.—*df* = 5, 136 for Eq. 5; *df* = 3, 136 for Eq. 6; *df* = 4, 124 for Eq. 7; *df* = 2, 124 for Eq. 8. All parameter estimates are standardized; *t*-tests on comprehension levels 3 and 4 parameter estimates are one-tailed, given the directional nature of the second hypothesis. Remaining *t*-tests are two-tailed. Significance values are in parentheses. Levels 3 and 4 are measured according to valence-indexed computations as described in the article.

postexposure attitude change, that is, positive attitude shift. Moreover, those relations are stronger than those with surface comprehension levels, which are nonsignificant. While the comparison model (Eq. 6) is also significant because of the inclusion of pretest brand attitudes as a predictor variable, neither OC nor SAC is related to posttest brand attitudes.

Some preliminary adjustments to the data were required to examine brand-attitude polarization. First, subjects with neutral or extreme pretest attitudes were removed (cf. Tesser 1976). Since the mean of the pretest brand attitudes was 17 (SD = 5.8; scale's theoretical range was 3–27), all subjects with a pretest attitude score of 17 were removed, in addition to those with extreme negative (3) and extreme positive pretest attitudes (27). As a result, 12 of the 137 protocol subjects were removed. Then, for the 64 subjects whose pretest brand attitudes were moderately positive (18–26), the total number of negative codings was subtracted from the total number of positive codings for level 3 and then again for level 4. For the 61 subjects whose pretest attitudes were moderately negative (4–16), the subtraction equation was reversed (negative minus positive) and performed for both levels 3 and 4. Thus, in the attitude-polarization analysis, comprehension levels 3 and 4 were computed to reflect the net extent to which the codings at those levels were valence-consistent with the initial attitude direction.

In terms of the dependent variable, to ensure comparability of these analyses to Tesser's work, polarization was determined according to a dichotomous index (cf. Tesser 1976). A posttest brand attitude that became more extreme in the same direction as the pretest attitude was scored as one (polarization), and an attitude that did not change or depolarized was scored as zero.

Results showed that after ad exposure 47 of the 125 protocol subjects in this analysis reported polarized attitudes, 15 negatively and 32 positively polarized. As also predicted in Hypothesis 2, Table 3 reveals that comprehension levels 3 and 4 have positive and stronger relations with attitude polarization as compared with levels 1 and 2, which are nonsignificant (Eq. 7). The total amount of explained variation (.12) approaches the medium threshold (.13) for behavioral research (Cohen 1988). As the bottom comparison model also shows (Eq. 8), neither OC nor SAC is related to attitude polarization.

Message Recall

Table 4 shows the results analyzing the relations between comprehension levels and delayed message recall; in accordance with Hypothesis 3 there are no valence adjustments for levels 3 and 4. The verbosity covariate allows for the recall effects attributable to each subject's (verbalized) comprehension levels to be separated from his or her inclination for talkativeness. Similarly, the arousal covariate permits the same relationships to be more accurately estimated, independent of the subject's general arousal state during the ad-processing session.[9]

As Equation 9 in Table 4 indicates, Hypothesis 3 is supported in that both levels 3 and 4 have stronger relations with recall as compared with levels 1 and 2, which are nonsignificant. Moreover, both levels 3 and 4 are related in a positive, linear manner to recall. However, level 4 has a smaller linear relationship to

[9]Neither the verbosity measure nor the general arousal measure correlated with ad credibility, ad attitude, or posttest brand attitude; this is why they were not included in the prior regression analyses.

TABLE 4

REGRESSION ANALYSES OF DELAYED MESSAGE RECALL

	Standardized parameter estimates												
	Independent variables								Covariates				
Dependent variable	Level 1	Level 2	Level 3	Level 4	Level 4^2	Level 4^3	OC	SAC	VB	GA	F	R^2	Adjusted R^2
Delayed ad-claim recall:													
Equation 9	−.05	.08	.32	.18					.19	.25	6.0	.22	.18
	(.59)	(.31)	(.002)	(.10)					(.01)	(.004)	(.0001)		
Equation 10	−.01	.05	.36	.39	.71	−.85			.19	.24	5.6	.26	.21
	(.89)	(.51)	(.001)	(.01)	(.01)	(.007)			(.02)	(.005)	(.0001)		
Equation 11							.32	−.04	.12	.27	8.3	.20	.18
							(.001)	(.63)	(.12)	(.001)	(.0001)		

NOTE.—df = 6, 136 for Eq. 9; df = 8, 136 for Eq. 10; df = 4, 136 for Eq. 11. All parameter estimates are standardized; t-tests on the estimates in every model are two-tailed. Significance values are in parentheses; *VB*, verbosity (total number of words spoken during two word-association tasks); *GA*, general arousal (sum of two items, wide awake/sleepy, unaroused/aroused, from Mehrabian and Russell 1974; r = .61, p < .001).

recall than does level 3, and this difference is significant (p < .08).

A plot of recall scores against each comprehension level revealed that, unlike the first three levels, a partial curvilinear relation (inverted J) appeared to exist between level 4 and the number of ad copy points recalled. To examine the curvilinear relation more closely, the level 4 variable was formed into a polynomial equation identical to Mandl and Ballstaedt's (1982), after the data were normalized to minimize subsequent multicollinearity in the polynomial regression analysis (see Ofir and Khuri 1986). Then, for the purpose of comparing it with the upper nonpolynomial model of Equation 9, delayed message recall was regressed onto the original three comprehension levels plus the level 4 polynomial variables (Eq. 10). As Table 4 exhibits, the expanded model of Equation 10 outperforms the strictly linear model of Equation 9 (larger adjusted R^2). Thus, extensive level 4 comprehension is associated with lower amounts of delayed message recall, and the modeling of the curvilinear relation (inverted J) improves the predictive power of the comprehension-levels framework. The total amount of variation in recall explained by each model is moderate.

The comparison model in Table 4 (Eq. 11) shows that OC but not SAC is related to message recall. This model performs equally well (same adjusted R^2) as the nonpolynomial model of comprehension levels (Eq. 9) but not as well as the expanded polynomial model (Eq. 10). Data plots revealed no curvilinear relations between recall and either OC or SAC.

Comparisons with Control Group

A significant question surrounding these results concerns whether the act of giving a protocol led treatment subjects to report a different pattern of responses to the dependent variables than did the nonverbalizing control subjects. To examine this the dependent measures were utilized in regression analyses that incorporated a dummy independent variable indicating whether the subject was a protocol- or a control-group subject. Results showed that the dummy variable was not related to ad attitude, positive shift or polarization of brand attitude, or delayed message recall but was significantly related to ad credibility (p < .01). On average, protocol subjects found the ad *less* credible. However, because there is no pattern of variation in the dependent variables between protocol and control groups, it does not appear that the protocol method itself systematically altered subjects' postexposure reactions in this study.

Partial Comparison of Comprehension-Levels Analysis with Cognitive-Response Analysis

A strict comparison between the LSC framework and the most popular cognitive-response scheme (Wright 1973) was not possible because subjects' various cognitions were highly interwoven in the spontaneous protocol data. These data are quite unlike written retrospective data in which subjects itemize their thoughts and feelings on separate lines.

Nonetheless, a partial comparison was made. Cognitive-response researchers often predict attitudinal variables after totaling and subtracting subjects' negative reactions from their positive reactions (e.g., Shavitt and Brock 1986). This approach was applied to these data in two ways: (1) summing the positive codings for levels 3 and 4 and then subtracting from that amount the summated negative codings for these levels and (2) performing the same calculation after adding all level 1 and 2 codings to the summated total of positive codings for levels 3 and 4 (based on the premise that the message-based meanings of levels 1 and 2 in this study

were positive in their own right). Then ad credibility, ad attitude, and posttest brand attitude were regressed onto each of these two, valenced indices in separate analyses.

The results for the two cognitive-response approaches in predicting ad credibility were an R^2 of .07 in the first case (adjusted R^2 = .06) and a null regression model in the second case (F = 1.7, p = .19). In predicting ad attitude, the two approaches produced R^2s of .13 and .04, respectively (adjusted R^2s = .12 and .03). Thus, the LSC framework outperformed both of these approaches for these criterion variables, explaining more variance in ad credibility and ad attitude. When the criterion variable was posttest brand attitude and the pretest attitude was used as a covariate, the amounts of variation explained by the two cognitive-response approaches were similar (R^2s of .42 and .41, respectively) to that obtained with the LSC framework. However, pretest brand attitudes were again the strongest predictors of posttest brand attitudes, as compared with thoughts produced during the single ad exposure.

DISCUSSION

The data provide initial support for the LSC framework. In the context of this study's goals and design, the results showed that, unlike the LSC framework as operationalized with protocols, neither the OC measure nor the SAC measure had consistent, significant relations with the dependent variables. Overall, the LSC framework had more explanatory ability.

Specific findings related to the hypotheses point to key contributions. Prior researchers had speculated that brand-related cognitions (including those involving the self) would not be related to ad perceptions and ad attitude. However, it was found here that deep comprehension levels (receiver-based meanings) were positively related to both ad credibility and ad attitude when the valences of those meanings were taken into consideration (Hypothesis 1). Also, surface, level 1 comprehension was negatively related to both of these dependent variables. Thus, subjects who produced more deep-level, positive meanings relative to deep-level, negative meanings judged the ad more positively, whereas subjects who produced more overall surface-level meanings judged the ad more harshly. These findings suggest that message comprehension and ad judgments may be related in ways that have eluded prior theorizing about advertising processes. When the individual is focused on the message content, comprehension may also influence beliefs and feelings about the ad, and perhaps vice versa.

As Hypothesis 2 predicted, compared with surface comprehension levels, deep levels have stronger relations with brand-attitude shifts, and those relations are positive when the valences of deep-level meanings are considered. However, the magnitudes of the relations between deep comprehension levels and posttest brand attitudes were much smaller than those between pretest and posttest brand attitudes. Although this finding is not surprising in a single-exposure setting, it highlights the significant role that prior brand attitudes can play in advertising processing—a role that remains largely unexamined.

Because prior advertising studies have focused almost exclusively on attitude formation or positive attitude change, an array of compelling questions about attitude polarization has gone unanswered. In this study it was hypothesized and found that, compared with surface comprehension levels, deep levels have stronger relations with brand-attitude polarization and those relations are positive when deep-level meanings are valence indexed according to initial attitude direction. The results not only replicate and support Tesser's (1976) polarization research, they extend it into an advertising context and, in the process, give additional corroboration to his theory. His basic argument is that cognition about an attitude object leads relevant salient beliefs to become more evaluatively consistent. As a consequence, the attitude becomes more extreme. Unlike Tesser, who usually infers that elaborations are the driving force behind polarization, I adopted a process-tracing measure to assess them. Results supported his claim that it is the most cognitively elaborated thoughts that are related to attitude polarization, particularly when their valences are taken into account.

Also, negative polarization was observed, despite the positivity of information expressed in the ad. Tesser (1976) has found that polarization is more likely to occur when cognition about the attitude object occurs in the absence of the object, as compared with when it is present, a so-called reality constraint. This study's results indicated that the ad itself was not such an overwhelming reality constraint that negative polarization was eliminated. Admittedly, twice as many polarized brand attitudes were positive as were negative, which might suggest that positive attitude shift was the major determinant of the observed polarization results. However, this suspicion does not fare well because the correlation between pretest attitudes and polarization was small (r = .17, $p < .06$).

It was also hypothesized (Hypothesis 3) and confirmed that, compared with surface comprehension levels, deep levels have stronger relations with delayed message recall. Moreover, a curvilinear relation (inverted J) was found between message recall and self-related meanings (level 4)—apparently the first of its kind in advertising research. This finding suggests that self-related associations are not simply conducive or detrimental to message recall. Instead, up to some point personalized elaborations have a positive influence on memory for information but may eventually become dysfunctional. Hence, advertising that stimulates level 4 comprehension may facilitate or impede message retention, depending on the amount of self-relevant elab-

oration in which the consumer engages. More research is needed to replicate or clarify this finding.

Although the construct validity of the LSC coding scheme could not be fully established in this single study, preliminary evidence is encouraging. The scheme has face validity and its reliability was reasonable in terms of interjudge agreements. Also, there is evidence of its convergent validity on the basis of correlations with the other subjective-orientation measure. That is, subjects with higher SAC scores should have produced fewer surface-level comprehension meanings and more deep-level meanings. In fact, as reported earlier, SAC negatively correlated with level 1 comprehension and positively correlated with level 3 and level 4 comprehension. In addition, the three hypothesis tests provided evidence for the nomological validity of the LSC scheme because the framework was shown to relate theoretically to other constructs, such as ad perceptions, attitudes, and memory for ad claims. Another aspect of nomological nets involving comprehension concerns the relation of knowledge to comprehension. Alba and Hutchinson (1987) conceptualize familiarity as an important component of consumer knowledge, and they define it as the number of product-related experiences that the consumer has accumulated. They propose that, as familiarity increases, the consumer's ability to elaborate on information also increases. Thus, in our study the number of times subjects previously operated a CD player (a familiarity measure) should have correlated negatively with surface-level comprehension (minimal elaboration) and positively with deep-level comprehension (greater elaboration). Although the correlational results are small, they are all in the expected directions for levels 1–4, respectively (one-tailed tests): $-.17$ ($p < .02$), $-.10$ ($p < .12$), $.12$ ($p < .07$), and $.13$ ($p < .07$).

Limitations

Because this study utilized only one ad (with varying technical language) and it was processed with a brand-evaluation goal, the results may only apply to similar ads and processing goals. Moreover, this study was correlational. Because there was no manipulation, conclusive evidence about the mediational role of comprehension levels with respect to ad perceptions, attitudes, and memory must await further research. Parallel treatment effects and covariance analysis, which are used in some cognitive-response research, would test mediation hypotheses about comprehension levels more rigorously (see Olson et al. 1982).

Another drawback was the range restriction on comprehension level 2 codings, which diminishes the trustworthiness of results concerning level 2. This outcome might have arisen because of an insufficiency of the protocol technique in capturing logical messaged-based inferences (level 2). On the other hand, it may be that consumers do not readily stop with such inferences when they are able and motivated to process the message more deeply. If so, then the value of keeping level 2 a separate category from level 1 may be limited (perhaps the distinction would only apply to lower processing-involvement settings).

Future Research

The categories and coding scheme for the LSC framework require further refinement. One approach could include a more definitive separation of explicit elaborated meanings from those that appear more purely evaluative (i.e., those implying underlying elaboration but not accompanied by additional verbalization). Lutz and MacKenzie (1982) have shown the diagnostic value of a similar approach by distinguishing supported from unsupported cognitive responses. Another possibility would be to bifurcate level 4 into elaborations that involve only semantic memory about the self (e.g., self-concepts) and those that involve episodic memory in which personal experiences with the product class or the brand are evoked. The latter may involve even more spreading activation of associations and, thereby, may prove to be not only the meanings most positively related to attitudes but also those most potentially dysfunctional for memory of the message.

Beyond coding refinements, the LSC framework also needs to be applied to different types of ads (pictorial print ads, television), different goal situations (brand vs. ad evaluation), and varied degrees of processing involvement.

Comprehension Orientations Revisited

The distinction drawn here between objective and subjective orientations was meant to highlight some characteristic differences in heritage, aims, theory, and method among comprehension researchers. In doing so, along with this empirical study, I sought to provoke further reflection on message comprehension and to challenge the objective orientation's unquestioned priority in advertising research. In fact, it is worth emphasizing that the objective orientation continues to face some thorny and unresolved issues. For example, while the intentions behind advertising messages and the accuracy of consumers' comprehension meanings are critical concerns to advertisers and public policy makers, it may be erroneous to assume that message intentions or meaning accuracy are always salient issues to consumers when they confront advertising (Mick and Politi 1989). Perhaps more serious, the idea that the important meanings of an advertising message can be preidentified by the advertiser or the researcher assumes that the ad has a "preferred reading" (Myers 1983). Yet the notion of prespecifiable meanings overlooks the context dependence of meaning (e.g., the given situation, the given individual) that inevitably introduces enormous diversity and novelty into the comprehension process (Shannon 1988).

These issues become even more problematic for the objective orientation in light of certain trends in contemporary advertising language, some of which appeared in the ad in this study. Among them are rhetorical questions as well as nongrammatical, irregular, figurative, and evaluative language. These stylistic developments appear to be superseding the factual and rational argumentation of conventional persuasion research to which the objective-comprehension orientation most readily applies. Moreover, with advertising becoming increasingly imagistic and engaging in drama, satire, self-parody, and surrealism, the objective orientation seems even less worthy of its encompassing position in advertising research.

To be sure, the subjective-comprehension orientation is not without limits and controversies. It privileges the subject (the comprehender) over the object (the message), and in doing so it appears to endorse a wholly relativistic or even anarchic comprehension process. But this critique is offset by the fact that the structure of the message and its basic topics constrain the range of relevant meanings that a comprehender from a given interpretive community could produce—albeit the range is wider and less predeterminable than objective comprehension researchers are accustomed to admit or accept. More research is needed—both conceptual and empirical, quantitative and qualitative—to cultivate the subjective orientation and to determine its relative merits and shortcomings for advertising theory and consumer research.

[*Received June 1990. Revised July 1991.*]

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