

# Effects of Using a Nonverbal (Musical) Cue on Recall and Playback of Television Advertising: Implications for Advertising Tracking

David W. Stewart

UNIVERSITY OF SOUTHERN CALIFORNIA

Girish N. Punj

UNIVERSITY OF CONNECTICUT

*The purpose of this research is to understand the influence of nonverbal (musical) elements on long-term memory for advertising and relationship of memory for such elements to memory for verbal elements of advertising elicited by traditional verbal cues. The study uses the dual coding framework as the basis for generating specific hypotheses about consumer memory for a television advertising campaign in response to both a verbal and a nonverbal (musical) cue. These hypotheses are tested using data generated from a representative sample of prospective buyers who were within the target audience for a broadcast television advertising campaign in a natural viewing environment. The analysis focused on the verbatim playback of the ad "trace" generated in memory in response to both verbal and nonverbal cues. The findings suggest that the responses to the nonverbal (musical) cue evoke more responses involving images and visual associations. More important, the ad "trace" retrieved from memory in response to the nonverbal (musical) cue adds power to a model predictive of the consumer's consideration set of alternatives. The results have important implications for understanding advertising response and for the design of advertising tracking research. J BUSN RES. 1998; 42:39-51. © 1998 Elsevier Science Inc.*

Research on how consumers process advertising continues to be of great interest to advertising and marketing researchers. Processing of advertising has been examined in a variety of contexts and with numerous methodologies. One common approach for examining how consumers process and store the content of advertising is the use of advertising tracking studies that focus on the effect of individual advertising executions or full advertising campaigns. Such studies typically investigate the number of persons in the

relevant target audience who recall the advertising, its content, and who exhibit specific effects of advertising such as attitude change, increased preference for the advertised product, or greater purchase intention. Tracking studies are generally longitudinal and provide a means for examining how advertising effects are manifest in the marketplace over time and offer a means for examining the contents of consumers' memory and related effects at any given point in an advertising campaign.

Advertising tracking studies most often employ verbal measures of advertising effects. Such measures as top-of-mind recall and cognitive associations related to the advertised product or the advertising itself can be very useful for understanding how consumers store product information in memory. Unfortunately, verbal measures may not always provide a complete understanding of consumers' memory for advertising and other effects when the advertising is not predominantly verbal in nature. For example, Zielske (1982) found that traditional measures of advertising recall, measures that use verbal cues to elicit recall, tended to underestimate the actual effect of advertising that was more emotional or "feeling" in its content. Similarly, Stewart, Farmer, and Stannard (1990) found that a nonverbal cue (music) tended to provide a more sensitive measure of the cumulative effects of advertising over time when the advertising contained a strong musical theme. These findings suggest that the use of nonverbal cues in advertising tracking studies might provide information that is different from that obtained using more traditional verbal cues, especially when the advertising contains strong nonverbal elements.

Until recently research on advertising has tended to focus on the verbal elements of advertising, but there has been growing interest in the effects of nonverbal elements in advertising (see Hecker and Stewart, 1988). Advertising professionals have long been aware that nonverbal communication is a powerful tool, and that the nonverbal elements of a message

Address correspondence to Girish N. Punj, Department of Marketing, University of Connecticut, Box U-41M, Storrs, CT 06269-2041 (e-mail: girish@sbaserv.sba.uconn.edu).

are at least as important as the verbal message. Nonverbal cues also play an especially important role in "image" advertising and advertising that is intended to be more feeling or emotional in tone and appeal. Despite their importance, these elements have received relatively little attention (Haley, Staffaroni, and Fox, 1994; Stewart, Hecker, and Graham, 1987). While nonverbal elements of advertising may take many forms, one particular stream of research on nonverbal communication in advertising has explored how consumers process various aspects of advertisements that contain music (Kellaris and Cox, 1989; MacInnis and Park, 1991; Yalch, 1991). Music is a common element in broadcast advertising, and as such, is an especially useful exemplar of nonverbal communication.

Like research on the effects of verbal elements in advertising, research on nonverbal effects can be studied at three different points of the persuasion process: (1) how consumers encode nonverbal information during initial exposure to advertising; (2) how nonverbal elements in advertising influence consumers' attitudes and behavioral intentions following exposure to advertising; and (3) how consumers elaborate on memory for advertising in response to a nonverbal retrieval cue. Examining the process by which consumers encode nonverbal information at the time of exposure requires the use of a highly controlled viewing environment, with sophisticated recording instruments that measure EEG or other psychophysiological variables contemporaneously with exposure (Rothschild et al., 1988). Various attitudinal measures, such as  $A_{ad}$  and Purchase Intention, can be used to understand both verbal and nonverbal effects immediately following exposure. Under this approach, the attitudinal scales used need to be sensitive enough to isolate the nonverbal influence (MacInnis and Park, 1991).

The third approach to understanding nonverbal advertising effects is to study how consumers elaborate on memory for advertising in response to a nonverbal retrieval cue. In other words, the ad "trace" generated by the original nonverbal stimulus can be content analyzed to assess the effect of the original exposure(s) (Friestad and Thorson, 1993). By providing adequate temporal separation between the exposure and retrieval events, this procedure may provide a better understanding of how nonverbal elements of ads are stored in memory. Also, such a methodology may be particularly appropriate for tracking the long-term effects in memory of an advertising campaign that consists of multiple ad executions (Batra, Lehmann, Burke, and Pae, 1995). This article reports the use of an advertising tracking approach to study nonverbal advertising effects. The study described here is specifically concerned with examining the effects of using a nonverbal retrieval cue on recall and verbatim playback of TV advertising. The study also examines the interaction between nonverbal and verbal elements in ad retrieval and elaboration.

## Literature Review

The use of music in marketing has been widely investigated (Bruner, 1990; Stewart, Farmer, and Stannard, 1990; Kellaris, Cox, and Cox, 1993), although much of the research has treated it in isolation from other stimuli (Scott, 1990). Research on music has considered its effects on such consumer behaviors as shopping and consumption in restaurants (e.g., Smith and Curnow, 1966; Milliman, 1982, 1986; Yalch and Spangenberg, 1988). This research has demonstrated that the volume, tempo, and type of background music can influence the actual amount of time consumers spend in retail establishments, consumers' perceptions of the amount of time they spend in retail establishments, and the amount purchased. These effects appear to be related to the arousal (or soothing) and affect properties of music. Music may have many other effects, however. These effects are especially obvious in advertising where music can play many roles (Hecker, 1984). It may attract attention, carry the product message, act as a mnemonic device, create excitement or a state of relaxation.

Among the effects of music that have been suggested by empirical research in an advertising context are: classical conditioning (Gorn, 1982); transfer of affect, whether by classical conditioning or other forms of paired-associate learning (Kellaris and Cox, 1989); changes in mood (Bruner, 1990; Alpert and Alpert, 1990); distraction (Park and Young, 1986); and changes in information processing (Kellaris, Cox, and Cox, 1993). While there is little doubt that all of the effects may occur, there is substantial disagreement on when such effects may be manifest and which ones dominate when multiple effects are present. For example, there is a debate on whether product preferences can be influenced by music through a classical conditioning mechanism (Gorn, 1982; Kellaris and Cox, 1989).

Although there have been numerous studies of music in an advertising context, few studies have focused on the cognitive and affective processing that occurs in response to exposure to music and still fewer have examined the role of music in memory for advertising claims. Rather, the presentation of music has more often been used as an independent effect that gives rise to changes in such dependent variables as recall and attitude change, without consideration of the mediating cognitive processes (Boltz, Schulkind, and Kantra, 1991). Research that has examined information processing in the presence of music has found a complex interaction between music and the verbal message carried by the advertising. For example, Kellaris, Cox, and Cox (1993) found that recall and recognition were enhanced when the music and the message in the ad were congruent, as opposed to the condition where music was solely used as an attention getting device. Similarly, MacInnis and Park (1991) found (unexpectedly) that the fit between the music and ad theme was directly related to attitude toward the ad.

Researchers have also examined the influence of music on affective response. Studies in this area have consistently found complex links between music and affect. Park and Young (1986) studied the effects of music on attitudes toward the ad, attitudes toward the brand, and behavioral intention. They found that under low involvement conditions music facilitated favorable attitudes toward the brand and increased behavioral intentions. When consumers were highly involved cognitively, music appeared to be distracting and both brand attitude and behavioral intention were lower than when the ad involved no music. Thus, past research suggests that music can both enhance and interfere with memory for the advertised brand, when measured using traditional recall and attitude measures, depending on the larger context of the advertising message and characteristics of the recipient. These complex research findings suggest that there is a need to better understand the role that music, and other nonverbal cues, play in memory for products and product claims. Such an understanding would be well informed if music and verbal cues were used to elicit consumer associations in contrast to prior research that has tended to use only verbal cues.

Advertisers and film directors frequently associate music and visual images. In fact, the link between music and imagery appears to be a natural one. The concept of a "musical image" is well known among psychologists, and the processing of music is viewed as an image processing function (Roederer, 1982). Such a conceptualization provides a useful link for understanding how the two most important nonverbal elements in advertising operate in conjunction with one another. Curiously, however, there has been rather little empirical study of what people experience or "see" when they hear music. Edell and Keller (1989) suggest that music might serve as a particularly effective retrieval cue in coordinated advertising campaigns involving the use of television and radio. Although they did not test music as a cue, they offer empirical support for the proposition that auditory cues can elicit visual imagery contained in a television ad to which consumers had been previously exposed.

Image processing, or at least the influence of pictorial stimuli, has received more attention than music processing among consumer researchers (Unnava and Burnkrant, 1991; Heckler and Childers, 1992; Scott, 1994). A review of imagery in the context of consumer behavior (MacInnis and Price, 1987) identified numerous influences on image processing, such as the effects of pictures, concrete words, instructions, vividness of imagery, and individual processing style. This review observed that research on imagery is still in its infancy and that such fundamental issues as how to stimulate image processing and how to measure it remain unresolved. It also noted that little research has been carried out in settings more natural than the laboratory. One of the problems of particular concern to imagery researchers in the lab is the provision of such a

large number of cues as to create the image at the time of measurement.

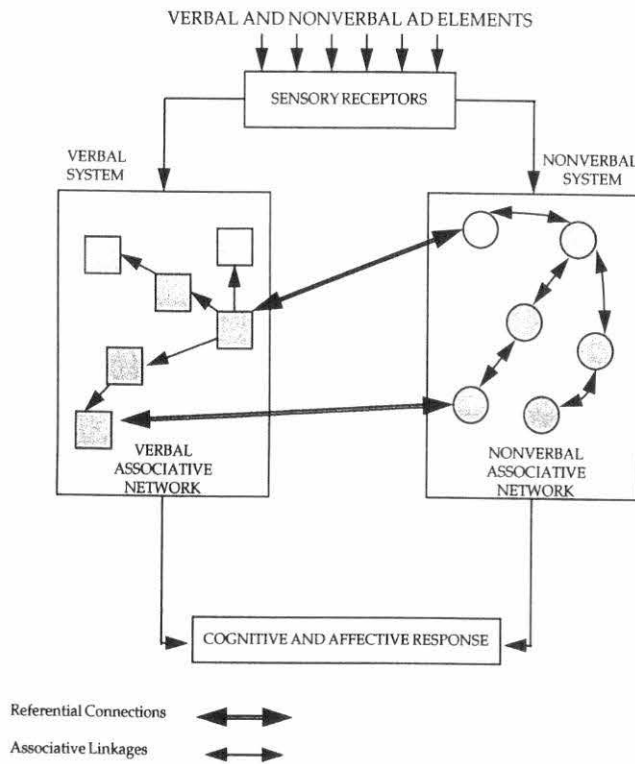
Review of the relevant literature suggests several conclusions. First, it appears that the encoding, storage, and retrieval of the two main elements of nonverbal communication in advertising, music, and imagery, involve similar psychological processes. Both are frequently employed in advertising and are potentially powerful tools for persuasion. While these elements have been examined in previous research, it has usually been in isolation from one another, despite their frequent complementary use. Hence, there is a conspicuous need to study how these two nonverbal elements interact. Second, music may serve as a more appropriate retrieval cue for visual images stored during exposure to advertising where the two have been previously coupled. Hence, there is a need to know the power of using one of the nonverbal elements as a retrieval cue (music) to cause elaborative processing in the other (imagery).

A third conclusion that emerges from a review of the literature points to the need for research on nonverbal advertising in naturalistic settings. Previous research has mainly examined the effects of music and imagery in a laboratory setting. Such settings have important advantages and have yielded valuable insights. For instance, there is clinical evidence of a vividness effect (Kisielius and Sternthal, 1984; Mitchell and Olson, 1981), a picture superiority effect (Paivio, 1971; Shepard, 1967) and an interactive imagery effect (Lutz and Lutz, 1977; Childers and Houston, 1984). However, there is a need to understand how these effects are manifest in a natural environment, and whether they are adequately discernible from one another to be useful to advertising researchers and practitioners.

Since the nonverbal and verbal systems are likely to operate contemporaneously during ad processing, a conceptual scheme which allows us to postulate a linkage between these two systems is necessary to provide the theoretical foundation for this study. In the next section we present a framework that can be used to study the retrieval and elaborative processes generated by consumers in response to both verbal and nonverbal elements of an advertising stimulus. The dual coding models proposed by Paivio (1971, 1995) and Rossiter and Percy (1978) provide the conceptual background for this study. While the framework is insufficient to specify the precise psychological processes initiated as a result of retrieval cue exposure, it provides a basis for generating predictions relating to the ad "trace" left by these processes (Friestad and Thorson, 1993).

## Dual Coding Framework for Understanding Nonverbal and Verbal Advertising Effects

Theoretical formulations of the interdependence between the visual and verbal systems have previously been advanced in



**Figure 1.** A dual coding systems framework for understanding non-verbal and verbal advertising effects.

the advertising effects literature (Rossiter and Percy, 1978; Edell and Staelin, 1983; Mitchell, 1986). Such interdependence is based on the premise that consumers' memory for advertising retains both verbal and nonverbal aspects of the advertising stimuli that are present in the exposure situation. An extensive literature on dual coding theory exists in cognitive psychology. The main evidence in support of dual coding is provided by the work of Paivio and colleagues (Clark and Paivio, 1987; Paivio, 1986; Paivio and Linde, 1982). This body of research forms the basis for the framework proposed in this article.

A dual coding framework for understanding nonverbal and verbal advertising effects is depicted in Figure 1. Essentially, the framework posits that the nonverbal and verbal elements of advertising are encoded by separate systems. There are associative links within each system that connect related concepts through a series of nodes like in a network model of memory (Anderson, 1983). The associative links within a system constitute an associative network. The verbal and nonverbal associative networks, in turn, are linked through numerous referential connections between related verbal and nonverbal concepts, creating a referential network. Both associative links and referential connections can be activated through cues entering the verbal or nonverbal systems after being filtered through the consumer's sensory receptors.

The retrieval of information proceeds through a spreading

activation mechanism. It is the relative salience of the associative links (i.e., those within a system) versus the referential connections (i.e., those between systems) which determines how activation proceeds. The type of retrieval cue is key to the activation process. For instance, we would quite naturally expect nonverbal cues to primarily activate nodes in the nonverbal system. However, depending on the strength of the referential connections created during the ad encoding process, activation will also spread to the verbal system.

To the extent that certain elements of advertising are better encoded in one system, they will be more accessible through that system. Thus, we would expect the nonverbal ad trace to contain more depictions of imagery and the components of imagery (visual associations with action and motion). Furthermore, the model suggests that responses elicited from one system will supplement responses provided by the other system in terms of information originally encoded at the time of ad exposure. Thus, the dual coding framework of advertising response predicts that nonverbal and verbal retrieval cues will elicit quantitatively different frequencies of responses from the two systems. Also, these elaborations will be qualitatively dissimilar to one another.

The types of retrieval cues used to evoke responses dominated by one system may be inappropriate, (or less efficacious) for evoking responses dominated by the other system. It is the strength of the associative links (i.e., those within a system) in relation to the referential connections (i.e., those between systems) that determines the nature and content of the consumer's playback of information in long-term memory. For the verbal system, typical retrieval cues that may be employed include product names, ad slogans, and salient ad copy lines. For the nonverbal system, appropriate cues include musical jingles, visual ad elements, and product pictures.

Support for the dual coding framework in an advertising context is provided by a "dual effects/dual response" model proposed by Rossiter and Percy (1978). They propose that people primarily generate verbal comprehension and visual imagery responses to verbal and visual advertising stimuli, respectively. The extent to which each type of response is initially encoded in memory, depends on its "favorableness latency." While the framework also allows for verbal responses to be elicited by a visual stimulus (and vice-versa), it clearly suggests that responses within the verbal (or visual) system are typical and dominant. Thus, their model implicitly assumes the dual coding of verbal and visual stimuli.

## Hypotheses

Based on the description of the dual coding framework and the related discussion on the use of nonverbal and verbal retrieval cues to activate the two systems in long-term memory, we formulate specific hypotheses regarding consumer response to advertising. First, we predict that nonverbal and verbal cues will elicit responses from consumers that are quali-

tatively different and which reflect the different roles of the two systems. Since we are using both types of retrieval cues in conjunction with one another, we hypothesize that the playback elicited from a musical retrieval cue will be incremental to that elicited with a verbal cue alone, that is, the use of two different cues should elicit greater verbatim responding than the use of a single cue.

Second, we expect the content of the playback elicited by the two cues to be qualitatively distinct from one another. This expectation relates to the manner in which spreading activation travels through the two systems. When "feeling/emotional" ad executions are dominant, we hypothesize that the playback elicited by a musical cue will contain more visual associations and images. Also, given that activation of memory in response to the two retrieval cues proceeds independently, we expect the content of the ad "trace" retrieved in response to the two cues to be unrelated.

Third, given the connectivity of the nonverbal and verbal systems in the dual coding framework, we can expect playback retrieved from one system to supplement that obtained from the other system in terms of being predictive of the consumer's product preferences. In particular, we hypothesize the information made available by the nonverbal retrieval cue will add power to a model predictive of the consumer's consideration set of alternatives. Thus, we derive the following hypotheses relating to the nature and amount of verbatim responses (playback) triggered by the use of nonverbal (musical) and verbal cues to retrieve ad information stored in long-term memory:

- H1:* The use of a nonverbal (musical) retrieval cue will elicit the playback that is incremental to that elicited from the verbal cue.
- H2:* The use of a nonverbal (musical) retrieval cue will elicit qualitatively distinct verbatim responses from that elicited by a verbal cue.
- H2a:* Responses elicited by a musical cue that has been paired with imagery should include more descriptions of visual associations such as action and motion than those available from a verbal product cue.
- H3:* The use of nonverbal (musical) and verbal retrieval cues will activate independent traces in long-term memory, causing the responses to the two cues to be unrelated.
- H3a:* Responses elicited by a musical cue will provide information predictive of the consumer's consideration set of alternatives. Further, this information will supplement information about product preference provided by responses to a verbal product cue.

The remainder of this article describes a study designed to test the above hypotheses. The research is part of a larger advertising tracking study carried out by a major manufacturer in conjunction with the start of a new advertising campaign. A key determinant of the design of the study was the use of

actual consumers in their natural settings. Thus, the present study included a content analysis of verbatim reports of typical buyers contacted in their homes by telephone. While this methodology carries its own limitations, as noted below, it represents an important and infrequently used approach to understanding consumer response to advertising.

## Method

### *Advertising Campaign*

The broadcast advertising campaign that served as the focus for the present study involved a series of ad executions that were cut from a common master tape approximately 20 minutes in length. The "master" featured a montage of scenes showing the product being used by various people in a variety of settings. There was considerable action and motion centered around the product. The visual images were supplemented by a hard rock musical accompaniment. The musical score was original and featured lyrics that reinforced a single psychological product benefit, namely, that the product was fun to use. No other product information was provided either visually or on the audio track.

The use of a single master from which specific executions were created assured that each individual execution was similar to all the others, thereby assuring the continuity of the campaign. Common to all the executions was the use of "action" scenes that reinforced the single psychological product benefit, the product name, an ad slogan, and the musical jingle. The differences across the executions primarily related to the setting in which the product was being used (e.g., a mountain road, on a beach, etc.) and the specific people depicted in the footage. Thus, the campaign was prototypical of "feeling/emotional" advertising.

It was important that the nonverbal components of the advertisements were salient so that their influence would be dominant. On the other hand, completely excluding verbal cues in research on nonverbal communication may be neither realistic nor desirable since understanding nonverbal and verbal effects necessarily requires an understanding of how the two domains interact during ad exposure, processing, retrieval, and elaboration (Mitchell, 1986; Houston, Childers, and Heckler, 1987). Indeed, it may not be possible to eliminate verbal effects by constructing stimuli that are distinct prototypes of nonverbal advertising. Nonverbal responses are often coded using "verbal" research instruments due to the paucity of reliable nonverbal measurement techniques (Dichter, 1988). Hence, some confounding between verbal and nonverbal influences may be inevitable.

As noted above, the data were part of a larger advertising tracking project. This project was begun approximately two weeks prior to the beginning of the new advertising campaign. Since the research objective of this study was to determine the extent to which different types of retrieval cues elicited different types of responses it was important to have a high

level of baseline advertising awareness. Our data were obtained approximately six months after the initial launch of the campaign. This assured a high degree of awareness and served to diminish any effects associated with differential frequency of exposure or changes in advertising awareness during the study period. Awareness of the advertising tended to stabilize in the month prior to the collection of our data. Longitudinal data obtained during this campaign has previously been reported in research by Stewart, Farmer, and Stannard (1990).

The methodology involved using a musical cue for eliciting advertising recall and playback. The verbal retrieval cue, consisting of the product name, was administered prior to the nonverbal cue. One purpose of the verbal cue was to "prime" respondents to the product category and brand.

### **Respondents**

Respondents for the study were selected through a random digit dialing procedure, then qualified to ensure that they were in the population of interest. Individuals between the ages of 18 and 54 who indicated that they planned to purchase a product in the advertised category were interviewed. In all cases, the respondent interviewed indicated they were the one in the household who would be most responsible for the purchase decision. Fifty-four percent of the respondents were male; 46% were female. The distribution of household income and education in the sample was comparable to that of buyers nationwide. Thus, the sample employed in the research was broadly representative of the target audience for which the advertising was intended.

### **Survey Design**

Respondents were contacted from a central telephone bank. Calls were made throughout the day on a daily basis. Approximately eight to nine calls were completed each day. Callbacks were employed to increase both the initial contact and response rate. The response rate for the study was approximately 80% for qualified contacts. This procedure resulted in a sample of 745 respondents over the 90-day period during which data reported in the present study were obtained.

During the period in which the data reported here were collected more than 70% of the respondents claimed to recall the product's advertising in response to a verbal (product name) cue. Ninety percent of the respondents claimed to recognize the music. These levels of awareness remained relatively constant throughout the study period. Further evidence of the high levels of advertising awareness is found in the fact that 90% of the respondents who claimed to recall the advertising in response to the verbal cue and 95% of the respondents who indicated that they recognized the music offered verbatim advertising associations in response to open-ended questions.

### **Survey Instrument**

The telephone interviews with each respondent required approximately 20 minutes. The interviewer used a funnel ap-

proach to questioning, beginning with very general questions about the product category and gradually moving to more specific questions regarding the advertising for the manufacturer's product. Thus, questions early in the interview asked respondents what products came to mind, what advertising for the product the individual had seen or heard in the past month, and which brand(s) the respondent would consider purchasing if they had to make an immediate choice. These more general questions were followed by aided recall questions mentioning brand names. Respondents were first asked if they were aware of particular brands (if not mentioned previously) and if they could remember having seen or heard of a particular manufacturer's advertising in the past month. Respondents were then asked to rate several manufacturer's products on a number of attributes.

Following the attribute rating task, all respondents who had indicated that they were aware of the particular manufacturer's advertising (the verbal cue in the study) were asked two series of open-ended questions regarding this advertising. Respondents were reminded that they had mentioned that they had heard or seen ads for the particular manufacturer's products and were asked to "briefly describe the ads that you have seen or heard." Respondents' verbatim responses were recorded. Probes were then employed to elicit any further response. Respondents were asked, "What else do you remember about the ads? What else?"

All respondents were then asked to listen to the 10-second musical jingle (the nonverbal cue in the study) used in all the executions in the advertising campaign under study. Upon completion of the recording, respondents were asked whether they recalled hearing the musical jingle on the tape. As with the verbal cue, only respondents who answered affirmatively were then asked to describe what they remembered hearing or seeing in the television commercials. Probes were employed following this initial question. Respondents were again asked "What else do you remember about the ads?" Probing was terminated when it was no longer productive.

A potential confounding factor in the present study is the fact that the verbal product cues were always evoked first. While rotation of the order of the questions would have been desirable, it was not accomplished during the administration of the questionnaire. There are two reasons to believe that the order of presentation would not have had a significant impact on the results of the study. First, a recent study by Friestad and Thorson (1993) found that when an executional cue preceded a product category cue, recall was enhanced for emotional and neutral ads. When the order of the cues was reversed, so that the product category cue preceded the executional cue, recall continued to be enhanced in the emotional ads, despite a predicted difference. This finding suggests that cue order may not be an important factor influencing retrieval from long-term memory.

Second, an external check on the effect of the order of presentation of the verbal and nonverbal cues was carried out

with 48 MBA students who were exposed to one of the ads included in the present study. This check also did not find a significant difference in the number or content of verbatim responses related to the order of the questions even at the  $p < .25$  level. Although the above evidence indicates that order of the cues was unlikely to be a confound, the fact that the order of questions was not rotated in the primary study still leaves open the possibility (however remote) that order affected the results.

### Coding Verbatim Responses

Verbatim responses to the open-ended responses were content analyzed. Two judges developed a categorization system that included counts of the total number of words used, number of different types of words used and their frequency (verbs, adjectives, etc.), and number of references to self, to the product, to the setting of the TV commercial, to people in the TV commercial, and to motion or action in the TV commercial. The latter three categories tended to capture the types of images that actually appeared in the advertising. In addition, the number of evaluative comments (positive and negative) regarding the product or the advertising was counted, as was the number of words with affective connotations. The coding was done on a respondent-by-respondent basis so that content codes could be matched to other information elicited from the respondents.

Two judges independently coded the verbatim responses of each respondent. There was 98% agreement between the two judges ( $\kappa = .97$ ) across all codes. Agreement for individual measures of verbatim responding ranged from 94% to 100% ( $\kappa$  ranged from .89 to 1.00). Thus, all of the measures derived from coding the verbatim responses of survey participants exhibited a very high degree of reliability. In cases of disagreement, a third judge resolved the difference.

## Results

### Hypothesis 1

The first hypothesis suggests that the nonverbal (musical) retrieval cue would provide incremental information regarding consumers' memory for the advertising. The results of the present study suggest that this is the case. Five hundred and thirty-two of the 745 respondents (71%) indicated that they remembered seeing advertising for the product in response to the verbal (product name) retrieval cue. In contrast, 716 of the respondents (96%) reported that they recognized the advertising after hearing the nonverbal (musical) cue, a statistically significant difference ( $p < .05$ ).

More interesting, however, is the finding that only 27 respondents (5%) who stated they had seen advertising for the product in response to the product name cue stated that they were unfamiliar with the musical cue. Two hundred and eleven of the 213 respondents (99%) who indicated that they had not seen the advertising in response to the product name

**Table 1.** Differences in Verbatim Response Associated with Verbal and Nonverbal Retrieval Cues

	Verbal Cue	Nonverbal Cue
Average number of words per respondent	21.8	13.8
Percent of respondents using motion or action words	28.0	48.6
Percent of respondents making evaluative statements	11.2	9.7
Percent of respondents using affect laden words	5.0	5.2
Percent of respondents making one or more mentions of people	7.5	22.3
Percent of respondents making one or more mentions of setting	11.9	27.5
Percent of respondents making one or more mentions of self (exclusive of references to remembering)	2.7	0.3
Percent of respondents making one or more mentions of product	14.8	17.0

cue indicated that they recognized the musical cue. The nonverbal (musical) cue appears to offer a more sensitive measure of advertising awareness, in the case of "feeling/emotional" advertising. Also, the two cues appear to differentially access the ad "trace" in memory suggesting that verbal and nonverbal ad elements were encoded separately at the time of original ad exposure. Hence we have preliminary support for the dual coding framework. Hence H1 is supported by the data. The implication from a dual coding perspective is that the nonverbal system provides greater access to memory for "feeling/emotional" advertising. These results are also consistent with earlier findings of Zielske (1982) who found that the use of verbal cues underestimated the effect of advertising when advertising was more feeling or emotional in its orientation.

### Hypothesis 2

The second hypothesis deals with the qualitative differences in the verbatim responses obtained by using a verbal and nonverbal cue. Of the 532 respondents who claimed to remember the advertising in response to the verbal cue, 90% elaborated on what they remembered in response to the open-ended question. On the other hand, 95% of the 716 respondents who claimed to remember the advertising in response to the nonverbal cue elaborated on what they remembered.

Table 1 provides a description of the results of coding the verbatim responses associated with each cue. The modal frequency of using any particular type of word was one, and for this reason only percentages of respondents using one or more words in a particular category are presented. It is quite evident from Table 1 that the verbal and the nonverbal cues elicited qualitatively different kinds of response. Hence H2 is supported by the data. An important difference in responses

to the two cues was related to the number and type of verbs used by the respondents. Surprisingly, more verbs were used in response to the product name cue than in response to the musical cue. The latter finding probably reflects, in part, differences in the number of words used in response to each cue, since the percentage of verbs relative to all words used was similar for the two types of cues (7.2% in the case of the product name cue and 8.7% in the case of the musical cue).

An analysis of the content of the responses suggests that the verbal cue elicited many more references to (or descriptions of) the process of remembering. In response to the verbal cue respondents often used phrases like "I think I remember," "I'm trying to recall," and "let me think." This finding suggests that the associative links in the verbal system (see Figure 1) may be weaker than those in the nonverbal system, for "feeling/emotional" advertising.

### **Hypothesis 2a**

A sub-hypothesis associated with H2 dealt with the types of differences in responses that will arise from use of the two cues. Hypothesis 2a suggests that the musical cue would elicit greater playback of the imagery contained in the TV commercials. As expected, respondents more readily provided playback of the advertising that involved descriptions of the settings, people, motion, and action in response to the musical cue. Respondents were two to three times more likely to use words referring to people, setting, motion, or actions in their verbatim playback. A t-test for differences in proportions reveals that these differences are statistically significant ( $p < .05$ ).

Also, respondents used fewer verbs associated with action or motion when given the verbal cue and instead used more passive verbs such as "is" and "was." In contrast, the incidence of action or motion oriented verbs relative to total words used, was greater in response to the musical cue (5% in the case of the musical cue versus less than 2% in the case of the verbal product cue). Hence, we have evidence that the nonverbal cue is causing consumers to retrieve imagery (i.e., action and motion) elements of the ad "trace" from long-term memory. Hence H2 is also supported by the data. Interestingly, there was no observed difference in the relative elicitation of affect laden words with the use of the two cues. Since the dual coding framework does not make the nonverbal system the exclusive domain for the encoding of "feeling/emotional" advertising, such a finding lends further support for the framework.

### **Hypothesis 3**

The third hypothesis suggests that the type of response to the verbal cue should be unrelated to the types of responses elicited by the nonverbal cue. Thus, for example, mentions of the product or the setting in the television commercial in response to the verbal cue should not be associated with similar mentions in response to the nonverbal cue. In order to test this hypothesis it is necessary to look at the pattern of

responses across both cues. This was accomplished via factor analysis.

The frequency with which respondents used the various verbatim response categories described above for each of the two open-ended questions were used as the raw data for a factor analysis. Thus, a total of 18 variables was employed in the factor analysis. These items are described in Table 2. The analysis consisted of a principal components analysis followed by a varimax rotation (several oblique rotation solutions using a promax procedure failed to improve the obtained solution). A scree test suggested a 6-factor solution as most appropriate. These six factors accounted for 51% of the total variance. Table 2 provides the rotated factor loading matrix.

Table 2 reveals an intriguing pattern of responses. There appear to be two factors that are loaded by imagery related items, one associated with the verbal cue, the other associated with the nonverbal cue. Thus, it appears that there is a tendency for respondents to make multiple references to the imagery related elements in the TV commercials. But, references to imagery in response to the product name cue appear to be independent of references to imagery in response to the musical cue. There appears to be a "verbal imagery" factor and a "nonverbal imagery" factor that are unrelated to one another. Hence H3 is supported by the data. An important implication arising from this result is that both systems appear to encode the imagery associated with the product at the time of exposure. But the imagery related ad elements in the two systems appear to be independent of one another.

Two other factors in Table 2 also suggest an independence of response to the product name cue and the musical cue. Responses that are evaluative or affect laden tend to be associated with one another. As in the case of imagery related responses, evaluative and affective responses elicited by the verbal cue were independent of those elicited by the nonverbal cue. This result lends additional support to H3. There were response categories that tended to be associated across the two types of cues, however. Mentions of self in response to the verbal cue tended to be associated with mentions of self in response to the nonverbal musical cue. While mentions of the advertised product also tended to co-vary across both types of cues, there is a small, but statistically significant difference ( $p < .05$ ) in the frequency with which the product was mentioned in response to the two cues. The nonverbal cue appeared to elicit more responses that mentioned the advertised product.

These findings may suggest that highly salient objects, such as the self or the product, may provide the referential connections (depicted in Figure 1) between the two processing systems. The present study does not provide a basis for a definitive test of the latter suggestion, but future research should provide further evidence on this issue.

### **Hypothesis 3a**

Although a finding that different types of cues can produce different types of responses is important in itself, such a finding



**Table 2.** Factor Loading Matrix of Verbatim Playback Items

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Motion/action words (verbal cue)	0.80	0.05	0.02	0.08	-0.08	-0.08
Total verbs (verbal cue)	0.76	0.07	0.26	0.21	0.13	0.18
Mentions of setting (verbal cue)	0.68	0.09	-0.03	-0.13	-0.07	-0.15
Total words (verbal cue)	0.68	0.08	0.36	0.14	0.16	0.20
Mentions of people (verbal cue)	0.62	-0.01	-0.13	-0.15	-0.04	0.00
Motion/action words (music cue)	0.03	0.83	0.01	0.24	-0.12	-0.03
Total verbs (music cue)	0.06	0.81	0.01	0.29	0.09	-0.01
Total words (music cue)	0.06	0.76	0.01	0.19	0.31	0.09
Mentions of people (music cue)	0.07	0.50	-0.02	-0.31	0.12	0.01
Mentions of setting (music cue)	0.06	0.46	0.10	-0.25	0.12	0.12
Evaluative statements (verbal cue)	0.04	0.00	0.84	0.07	0.11	-0.06
Affect laden words (verbal cue)	0.05	0.07	0.81	-0.19	-0.08	-0.03
Mentions of self (verbal cue)	0.08	-0.15	0.23	0.68	0.38	0.35
Mentions of self (music cue)	-0.06	-0.02	-0.05	0.64	0.08	0.10
Evaluative statements (music cue)	-0.02	0.10	0.00	0.00	0.69	-0.09
Affect laden words (music cue)	-0.04	0.21	0.02	-0.06	0.65	-0.09
Mentions of product (verbal cue)	0.09	-0.04	0.01	0.03	-0.14	0.65
Mentions of product (music cue)	-0.05	0.23	-0.10	-0.13	-0.11	0.54

would take on added importance if it could be shown that such differences in playback also have predictive value. Hypothesis 3a states that imagery (visual associations with action and motion) responses should add power to a model predictive of the consumer's consideration set of alternatives. Several factors are known to be associated with membership in the consideration set. Among these are current ownership of the same brand, various beliefs about product attributes, and beliefs about the congruence between the product and self. A potentially important question, particularly for marketers who use "feeling/emotional" advertising, is whether such themes merely reinforce existing beliefs, or make a unique contribution to product information stored in long-term memory.

To examine this question, factor scores, reflecting the factors shown in Table 2, were computed for each respondent and entered into a stepwise discriminant analysis. A stepwise procedure was employed because the hypothesis under test is whether incremental information is contained in the verbatim playback items. The variables in this analysis included an indicator of whether a respondent currently owned the advertised brand, a rating of the degree to which a respondent regarded self as similar to the brand, three attribute ratings of the product which had been previously found to influence purchase, and the six factor scores obtained from the coded verbatim responses. One of the three attribute ratings was related to the single psychological product benefit that was the focus of the advertising campaign. These various factors were used as independent variables in the discriminant analysis. The dependent variable was whether or not the advertised product was included in the respondent's consideration set.

The results of the discriminant analysis are given in Table 3. Not surprisingly, the two strongest predictors of consideration set membership were current ownership and

the congruency rating between the self and brand. These two factors together accounted for 13% of the variance between consumers for whom the product was in the consideration set versus those for whom it was not. The single psychological product benefit emphasized by the advertising campaign was also indicative of consideration set membership, although it accounted for only 1% of the variance. More important, three of the factors derived in the factor analysis made independent contributions to predicting consideration set membership. These three factors were the two imagery factors associated with the verbal and nonverbal (musical) cues, and the evaluative/affective factor associated with the musical cue. Although the amount of variance that was accounted for by these three factors is small, the contribution is statistically significant. In addition, the discriminant analysis correctly predicted mem-

**Table 3.** Results of Discriminant Analysis Predicting Membership in Consideration Set of Alternatives

	Partial R <sup>2</sup>	F Statistic	Probability	Average Squared Canonical Correlation
Currently own advertised brand	0.09	40.6	0.0001	0.09
Product is similar to self	0.04	16.5	0.0001	0.13
Verbal imagery factor	0.02	6.7	0.01	0.14
Musical imagery factor	0.01	4.4	0.04	0.15
Evaluative/affective factor (musical)	0.01	4.2	0.04	0.16
Belief product is fun to use	0.01	3.7	0.05	0.17

bership (or non-membership) of the advertised product in the consideration set of 61% of the subjects in the study when only the prior ownership, the self/product congruency rating, and the product attribute rating were used as predictors. The inclusion of the two imagery factors and the evaluative affective factor increased the percentage of correct classifications to 65%. Thus, these items not only explain additional, albeit small amounts of variance, they also increase the accuracy of prediction. These results provide additional support for H3a.

Supplemental analyses were conducted to provide insights into the reasons the three verbatim playback factors contributed to the discriminant function. Two additional findings emerged from these analyses. First, the amount of elaboration in response to the verbal cue was strongly associated with awareness of the product's advertising; that is, the more a respondent said in response to the verbal cue, the higher the probability that they recalled the product's advertising. The "verbal imagery" factor identified in the factor analysis reported above had a correlation of .31 with unaided advertising recall and a correlation of .58 with aided recall. However, neither the "nonverbal imagery" factor nor the evaluative/affective factor was significantly associated with aided recall. Neither were these factors significantly associated with attribute ratings of the product. Thus, it does not appear that the verbatim playback factors' contribution to predicting membership in consideration sets can be explained through a simple awareness explanation.

## Summary and Conclusions

This research involved an investigation of the verbatim responses generated by consumers in response to both nonverbal and verbal ad retrieval cues. The results are consistent with the view that nonverbal (image and music) processing involves different psychological mechanisms than verbal processing. The evidence uncovered as a result of testing the hypotheses offers empirical support for the dual coding systems framework presented in Figure 1. Almost all of the predictions made by the framework are borne out by the analyses. For example, the musical cue elicited more imagery (visual associations with action and motion), thereby suggesting that such cues may be particularly useful for investigations of "feeling/emotional" advertising. The findings also make clear that information in the nonverbal system has value as a predictor of brand preference. Further, such information does not appear to be redundant with information obtained from the verbal system via traditional ad retrieval cues. Rather, the two different cues appear to retrieve complementary information.

The present study used a methodology that offers potential for future studies of advertising effectiveness by using an approach that directly analyzes the content of the ad "trace" in consumer memory. The types of ad retrieval cues used in the study are easily administered in a telephone survey, which

provides a convenient and inexpensive means of collecting data from large samples of consumers in natural viewing environments. Although the effects reported in the present study are relatively small, they are not appreciably smaller than effects reported in many well-controlled laboratory settings. The results of the study are made all the more important by the fact that the study was carried out in the "real world" in which exposure to product advertising occurred naturally, and where the data were not obtained in rapid temporal proximity to the advertising exposures.

## Limitations

Although the results of the present study are intriguing, it should be noted that the study is descriptive and involved the investigation of a single advertising campaign for a lone durable product. Thus, the question of the generalizability of the results remains unanswered. Another limitation of the present study centers on the use of a content analytic procedure for creating data from verbatim responses. Such a procedure requires numerous coding decisions that could affect the results of the study. In addition, the use of a nonverbal cue for the elicitation of responses is a relatively untested procedure. It is likely that factors such as the character of the music itself and the length of the music used may influence the results obtained. Also, the study does not provide an answer to questions of why and how nonverbal processing has an effect on consumer preference. While the present study does not resolve these many issues, it does offer a novel and potentially useful approach to understanding advertising effects.

## Theoretical Implications

The dual coding framework assumes that the ad "trace" in memory is accessible from both the nonverbal and verbal systems. However, some components of the ad "trace" may be easier to access using nonverbal retrieval cues. Our results are consistent with such a prediction. The nonverbal (musical) cue evokes more responses involving images and visual associations. More important, the ad "trace" retrieved from memory in response to the nonverbal (musical) cue adds power to a model predictive of the consumer's consideration set of alternatives. The findings have implications for understanding how consumers encode and subsequently retrieve "feeling/emotional" advertising.

An important theoretical issue for research on the dual coding framework is how the nonverbal components of an ad (music and images) are "integrated" into the verbal information store. Previous research demonstrates the existence of both an "enhancement" and an "interference" effect during the contemporaneous processing of nonverbal and verbal information. The dual coding framework employed in this research allows us to understand the conditions under which these effects are likely to be manifest. For example, if the referential connections (between-system associations) are stronger than the associative links (within-system associations) then the en-

hancement effect is likely to be stronger (see Figure 1). On the other hand, interference effects are likely to dominate when nonverbal and verbal cues activate traces that are only independently accessible in memory.

Taken together the findings of our hypotheses suggest that overall memory for "feeling/emotional" advertising is enhanced through the combined use of both a verbal and nonverbal cue. However, there is also some evidence that memory for imagery related ad elements stored in the nonverbal system may be interfered with when a verbal retrieval cue is used (see Friestad and Thorson, 1993 for a similar result).

### Managerial Implications

The nature of the consumer's responses to advertising can either be measured through traditional ad performance measures such as recognition and recall, or more completely through a verbatim playback of the ad "trace" in memory. An important implication of the present study is that when both types of retrieval cues are used in conjunction, a more accurate playback of the ad "trace" stored in memory becomes available. Testing different types of ad retrieval cues is important to understanding the content and structure of memory, as well as for improving the measures available to understand advertising effects. Also, the purchase environment can be fashioned to facilitate retrieval of the ad "trace" in memory created by the initial exposure to advertising.

The primary contribution of the current study may lie in the possibilities it raises regarding the dual coding of verbal and nonverbal elements of advertising. Research in marketing and advertising has long been dominated by the use of verbal stimuli and measures. The present study suggests that new approaches to advertising response modeling are needed, and may be available. Also, it should be noted that prior research on imagery has almost always employed verbal cues for the elicitation of imagery. No study to date has examined the use of musical cues. It is likely that such a cue could elicit retrieval of visual associations, particularly when those images have been previously paired with the music. Indeed, a musical cue may be superior for image retrieval in the case of advertisements in which there is little or no objective product information, as would be the case for many "feeling/emotional" advertisements.

Our findings demonstrate that the nonverbal cue may be more efficacious for accessing ad imagery (visual depictions of action and motion), as predicted by the dual coding framework. The results are consistent with earlier research that has shown that verbal cues tend to underestimate the impact of emotional ads on memory (Thorson and Friestad, 1989; Stewart, Farmer, and Stannard, 1990; Zielske, 1982). As noted earlier, Zielske (1982) found that verbal measures of memory (such as day-after-recall) underestimated memory for "feeling/emotional" advertisements by as much as 50%. The results of this study are also in accord with the common belief among

advertisers that music is effective in creating favorable product associations, thereby enhancing memory for information about the product. However, previous research is not clear on whether this effect is the result of a conditioning process (Gorn, 1982; Kellaris and Cox, 1989) or due to the phonetic or mnemonic effect of music (Yalch, 1991).

Our study suggests that there may be another interpretation of why memory for ad slogans is enhanced when a jingle is incorporated into an ad campaign. While it does not directly address the conditioning or mnemonic effect of music in creating favorable associations, it provides evidence of the successful creation of a "cognitive link" between the nonverbal and verbal components of the advertisements consequent to initial exposure. The increase in memory for product information occurred even for the "feeling/emotional" ads used in this study reinforcing the importance of this result. Also, our findings are consistent with evidence suggesting that executional cues may be more effective in retrieving ad memory traces for emotional ads that are viewed under normal conditions (Friestad and Thorson, 1993), and are also consistent with research that indicates that scenes unavailable for recall can be recognized when cued by background music (Boltz, Schulkind, and Kantra, 1991).

Future research might explore the extent to which other nonverbal cues, such as visual imagery, paralinguistics, and body language, among others, produce the same kind of cognitive linkages as demonstrated in the present study. Such research would help determine the extent to which the effects demonstrated in the present study are unique to music as a cue or are more generally associated with nonverbal cues. Future research might also explore the differential sensitivity of various other nonverbal cues with the objective of identifying new ways to assess the impact of advertising. There are clearly numerous interesting and unanswered questions regarding the role of nonverbal cues in advertising that await future research. The present study suggests that such research has the potential to produce theoretically relevant and managerially practical results.

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