

Chapman University

Chapman University Digital Commons

Business Faculty Articles and Research

Business

Spring 1998

How Super Are Video Supers? A Test Of Communication Efficacy

Noel Murray

Chapman University, nmurray@chapman.edu

Lalita A. Manrai

University of Delaware

Ajay K. Manrai

University of Delaware

Follow this and additional works at: https://digitalcommons.chapman.edu/business_articles



Part of the [Advertising and Promotion Management Commons](#), [Communication Technology and New Media Commons](#), [Marketing Commons](#), and the [Public Relations and Advertising Commons](#)

Recommended Citation

Murray, Noel M., Lalita A. Manrai, and Ajay K. Manrai. "How super are video supers? A test of communication efficacy." *Journal of Public Policy & Marketing* (1998): 24-34.

This Article is brought to you for free and open access by the Business at Chapman University Digital Commons. It has been accepted for inclusion in Business Faculty Articles and Research by an authorized administrator of Chapman University Digital Commons. For more information, please contact laughtin@chapman.edu.

How Super Are Video Supers? A Test Of Communication Efficacy

Comments

This article was originally published in *Journal of Public Policy & Marketing* in 1998.

Copyright

American Marketing Association

How Super Are Video Supers? A Test of Communication Efficacy

Noel M. Murray, Lalita A. Manrai, and
Ajay K. Manrai

Interest in the role of video supers—superimposed video presentations of verbal information—has grown among consumers, advertisers, the television networks, and public policymakers, as supers have become prevalent in television commercials. The authors empirically address the communication efficacy of video supers in a sample of 200 different commercials that contain video supers. Drawing on a theory of modality effects, the authors examine the comprehension of video supers relative to commercial content. The authors develop hypotheses and analyze structural determinants of video super comprehension, such as presence of a voice-over, rate of presentation, and presentation size. The findings are supportive of the predictions and suggest that viewer opportunity to process information in a video super might be a critical element in any strategy to increase viewer comprehension rates.

Video supers refer to the visual presentation of verbal material in commercials. Supers play several different roles in commercials. Some provide supplemental information in addition to commercial copy—the spoken words of an off-camera announcer or the dialog of talent in a drama. A video super can refer to, for example, a list of retail stores at which the product is available. Other supers contain detailed disclosure information that often places restrictions on the offer conveyed in the commercial copy, such as the conditions for a car lease agreement.

The increased frequency of video supers in recent years is evidenced by articles in the press on the surge of supers in network television advertising (King 1990), skits mocking supers' usefulness on late-night talk shows (Leno 1992), editorials to regulators in *Advertising Age* (1995), and even by commercials poking fun at other commercials that contain video supers (an Isuzu Trooper commercial shown in 1995). Indeed, the 1990s have been referred to by one source as "the decade of the disclosure" (Hoy and Stankey 1993). However, little empirical research has addressed the communication efficacy of commercial supers. The studies to date have focused on content analyses of video super format (e.g., Hoy and Stankey 1993; Kolbe and Muehling 1992; Stern and Harmon 1984), legal disclosures (Murray, Manrai, and Manrai 1993; Wilkie 1986), specific topic areas such as public service announcements (Manrai, Manrai, and Murray 1994), or particular demographic segments, such as children (Stutts and Hunnicutt 1987), or have been restricted to a particular product category, such as prescription drugs (Morris, Mazis, and Brinberg 1989).

Most recently, Barlow and Wogalter (1993) stated that research on the effects of video supers in television adver-

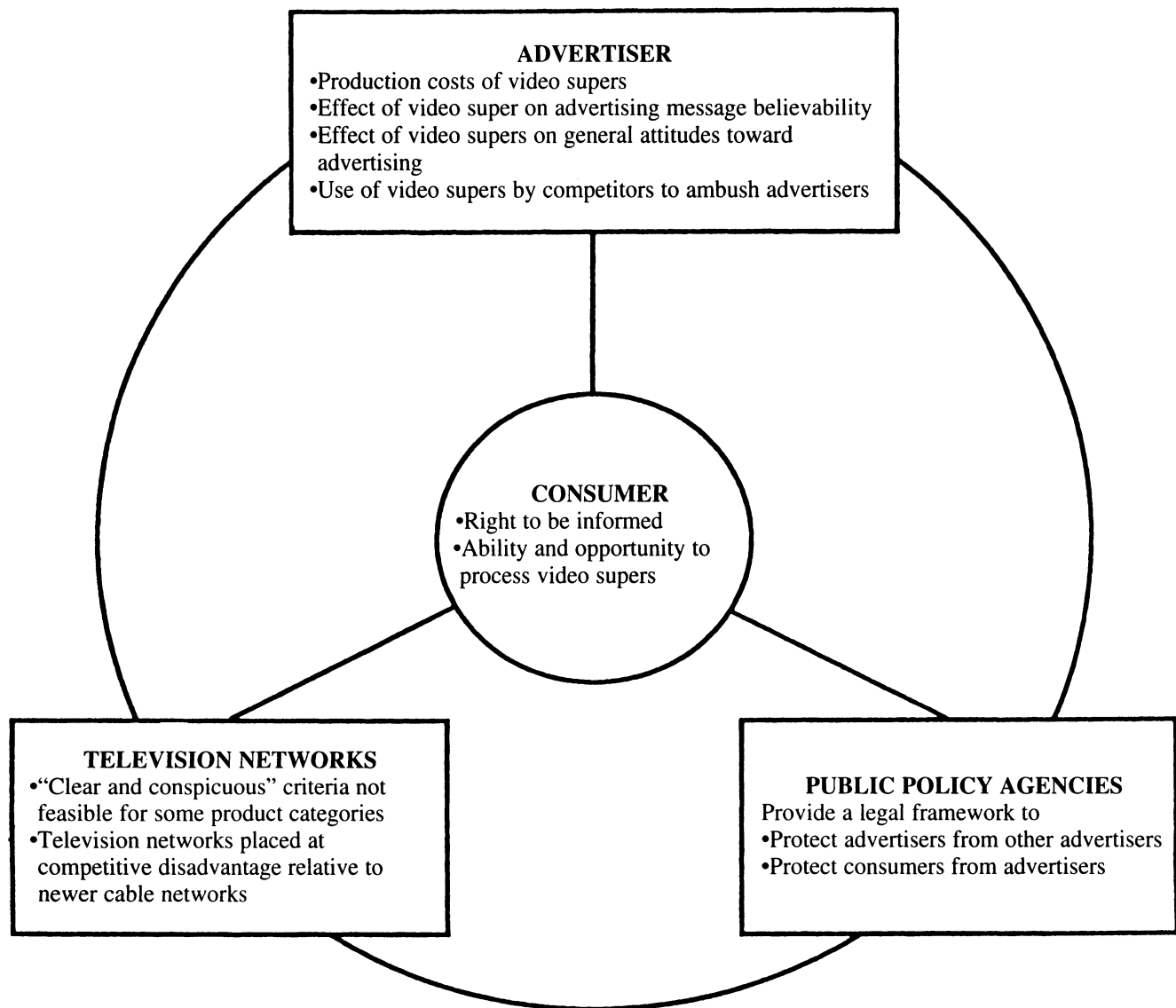
tising is virtually nonexistent. Indeed, Jacoby and Hoyer (1989) suggest that we need to examine the features of commercials that might cause comprehension difficulty, such as video supers. They also recommend studying a large variety of commercials to ensure representativeness. To date, no study using a large sample of televised commercials has addressed empirically the issue of viewer comprehension of video supers.

This article has three main objectives. First, we offer a brief review of the role of video supers in advertising from the perspectives of consumers, advertisers, television networks, and public policymakers. Second, drawing on a separate processing streams theory of modality effects, we test several hypotheses relating to the comprehension of video supers. Specifically, we distinguish between processing effects for dual-modality video supers (video supers accompanied by a concurrent voice-over) and single-modality video supers (video presentation of verbal information). We next examine comprehension of video supers relative to commercial copy. Third, we analyze two structural determinants of video super comprehension—rate of presentation and presentation size. We then discuss the implications of these findings and offer directions for further research.

Previous content analysis studies of televised commercials containing video supers (e.g., Franke and Lee 1994; Hoy and Stankey 1993) suggest that many elements of the adverse presentation environment discussed by Richards (1990, p. 80) also exist for video supers. Content analyses, however, do not address viewer comprehension directly. Controlled experimental studies of video supers that use a small number of commercials, such as those by Barlow and Wogalter (1993), enable the study of controlled variations of structural format effects of video supers. However, these approaches provide little information about comprehension of video supers in a broad range of televised commercials. A large sample of televised commercials containing video supers will provide us with a better understanding of the determinants of video super comprehension.

NOEL M. MURRAY is Associate Professor and Fletcher Jones Chair of International Business and Marketing, School of Business and Economics, Chapman University. LALITA A. MANRAI and AJAY K. MANRAI are Associate Professors of Marketing, Department of Business Administration, University of Delaware. Debra Scammon served as editor for this article.

Figure 1. Video Super Stakeholders: An Integrated Framework



There are four groups of stakeholders that have an interest in the efficacy of video supers: consumers, advertisers and their clients, the major television networks, and public policymakers. Next, we review some of the policy issues relating to video super efficacy.

Video Super Stakeholders

We develop an integrative framework that captures some of the concerns of different stakeholders in the role of video supers in Figure 1.

Consumers

Accurate comprehension of commercial video supers is necessary if consumers are to be informed fully about commercial content. The right to be informed is one of four key consumer rights set out by President Kennedy (1962); the others are the right to safety, the right to choose, and the right to be heard. The right to be informed goes beyond mere pro-

tection against deception and includes giving the consumer sufficient information to make informed purchasing decisions (Aaker and Day 1982). Since the 1960s and 1970s, the concern over consumers' rights to know has expanded beyond consideration of legislation to correct specific cases of information abuse, to general approaches of providing the consumer with information in a usable format (Thorelli 1982). We make the assumption that video supers are useful to consumers if the supers provide information that facilitates the decision-making process. A necessary, but not sufficient, condition for this to happen is that consumers must have the ability and opportunity to comprehend the content of the video super. Richards (1990, p. 80), who adopts a legal perspective in his comprehensive discussion of deceptive advertising, advocates the study of the role of video supers as a mode for communicating information to consumers, stating that “the greatest need for additional work is regarding disclaimers, health warnings, and other affirma-

tive disclosures in *television commercials* ... where perceptual fields and exposure time are limited."

Advertisers

Advertising agencies and their clients increasingly have become critical of television network requirements on commercial video supers for several reasons (Rubin 1993). First, the task of meeting television network requirements for video supers is costly in advertising agency time and money. If a client decides to run commercials on both national and local/cable schedules, the television networks typically do not permit scrolling of video supers, whereas many independent television stations do. Second, advertising agencies and their clients believe that consumers might be suspicious of detailed video supers. Advertising agencies are concerned that consumer suspicion about the content of video supers might reduce the believability of the commercial message. Third, competitors can use the presence of a video super in a commercial to ambush another marketer legally by calling into question whether viewers comprehend disclosure information presented in video super format. Faced with such a challenge, the advertiser can be called on to substantiate whether a viewer processed the video super information. Because the burden of substantiation falls on the advertiser, it might be required to hire an independent research firm to document viewer comprehension. Therefore, the mere presence of information in a video super, per se, is not sufficient protection against legal liability.

Television Networks

The television networks are largely responsible for the day-to-day policing of video supers. The three major networks—ABC, CBS, and NBC—each have a slightly different set of published standards for video supers. Each television network's standard is modeled on the Federal Trade Commission's (FTC) "clear and conspicuous" standard (see FTC Staff Report 1979). The networks, however, make frequent exceptions to these standards. Automotive industry advertising is exempted from the prior requirements, "provided that they (video supers) are clearly readable (preferably employing a thin drop shading) and they are placed against a clear contrasting background" (ABC 1992). Content analyses of video supers, by both Hoy and Stankey (1993) and Franke and Lee (1994), conclude that video supers frequently violate standards for clear and conspicuous presentation. The television networks, increasingly aware of the more "flexible" commercial standards of cable networks, are interested in providing a cost-competitive and advertiser-friendly environment.

Public Policymakers

There are several agencies with jurisdiction over video supers, including the Food and Drug Administration and the FTC. The National Advertising Division of the Better Business Bureaus plays an important self-regulatory role but has no legal jurisdiction over commercial content. The FTC is concerned only with that subset of video supers that might be viewed as deceptive. The FTC has an influence on the role of video supers through its rulings, which are presented in a large body of case law, and through its "clear and conspicuous" standard. A commercial containing a video super

can be ruled deceptive if it falls under the FTC's general framework of deceptive advertising. The FTC finds an advertisement deceptive if there is a representation, omission, or practice that is likely to mislead consumers acting reasonably under the circumstances and if that representation, omission, or practice is material (Cliffdale 1984). One element in the FTC's notion of deceptiveness is the concept of an ineffective qualification (Preston 1989). *Ineffective qualification* refers to a situation in which there is a qualification to, or some restriction on, a claim made elsewhere in the commercial, but such qualification is so inconspicuous or ineffective that the situation remains as if no qualification ever had been conveyed. The FTC has regarded the ineffective qualification implication as one example of a category of implied deceptive claims that it considers a suppression of truth (Preston 1989).

From the FTC's perspective, the inability of a viewer to comprehend a video super would not be considered deceptive per se, unless such information were considered material, that is, likely to have an effect on purchase behavior. However, materiality often is assumed to exist. In *International Harvester Co.* (1984, p. 1056), the FTC states: "The Commission, however, presumes that all express claims are material"—including, presumably, suppressions of truth. In *Thompson Medical Company* (1984, p. 189), the FTC states: "The very existence of a claim ordinarily is sufficient for us to conclude it is material." If information in a commercial is found to contain deceptiveness due to the ineffective qualification requirement, the FTC shifts the burden of proof to the advertiser to demonstrate that the video super is not material. Hence, though the burden of proof is with the advertiser in a pragmatic sense, in the federal court system, it is technically on the regulator to prove materiality.

In summary, as can be seen from Figure 1, advertisers, consumers, media, and public policy agencies each have a stake in how information is communicated by video supers in advertising. It is not the purpose of this article to attempt to address all the concerns of these video supers stakeholders. A better understanding of how video supers are processed in televised commercials, however, will provide a useful first step in this direction. In the next section, we review the literature relating to the processing of video supers and apply a theoretical model to predict determinants of viewer comprehension of video supers.

Literature Review and Hypotheses

Barlow and Wogalter (1993) decry the lack of theoretical approaches to the study of format effects in communications. A theoretical model of processing visual presentations of verbal information is needed in this area of research that too often has been atheoretical in its approach. A processing model of format effects would offer the advantage of specifying an intervening process between the manipulation of structural elements, such as typography size or presentation rate, and the measurement of effects, such as recall or comprehension. Penny (1989) has developed a theory of verbal memory that might be useful for understanding format effects in the visual presentation of verbal information. Although there are other well-known models of modality effects (e.g., Paivio 1983), Penny's is unique because her

theoretical model was developed specifically to explain cognitive processing of visually presented verbal information. We show how this theory also might be used to study how viewers process video supers in commercials. This theory is referred to as *separate processing streams*.

Modality Effects and Recall

Video supers are a type of visual presentation of verbal material (visual stimulus). Therefore, video supers that are not accompanied by a simultaneous voice-over represent an example of a single-mode presentation of information. A video super accompanied by a simultaneous voice-over (audio stimulus) represents a dual-mode presentation. The non-video super part of a commercial—referred to hereafter as *other commercial content*—also might contain an audio stimulus (e.g., the spoken words of talent or the voice of a spokesperson) and/or a visual stimulus (e.g., the pictorial representation of multiple photographic images). According to the separate processing streams model (Penny 1989), the memory system is quite flexible. Information presented in any modality can be recoded into any other format. For example, a viewer seeing the video super “Use only as directed” in a commercial could visualize the typed phrase, silently articulate the phrase, read the phrase to themselves, or spell it out.

On exposure to visual presentation of verbal information, a sensory-based trace is formed and stored. This sensory-based trace is referred to as the *visual code*. The visual code is formed automatically, is transient, and is subject to interference effects from thematically different and competing information, such as ongoing dialog and pictorial representation in the commercial. However, if given sufficient opportunity, the sensory memory trace can be transformed or enriched. The viewer of a commercial might articulate a video super silently by, for example, visualizing an attribute of the product written in the super (“contains saccharin”). Visual presentation of verbal information is encoded semantically only if the commercial viewer has an opportunity to articulate the video super silently. Therefore, the separate processing streams model nicely explains why exposure to visual presentation of verbal information is different than exposure to a picture image.

Penny (1989) refers to the code generated by the silent articulation of visually presented verbal information as the *phonological code*. The phonological code is semantic information, internally generated, enduring, and relatively resistant to interference effects. Auditory presentation of information results in the automatic production of a sensory-based code referred to as the *acoustic code*. The acoustic code is formed only for information that is heard. Penny (1980) argues that the acoustic code is enduring and increases recall of recent auditory information relative to visual presentation of verbal information. It is this persistence of the auditory code in short-term memory that is responsible for the widely found modality effect—the superior performance of auditory presentation over visual presentation of verbal information on recall tasks, particularly for difficult material (Penny 1989).

The phonological code is used for both auditorily and visually presented information. However, though the phonological code is an automatic product of auditorily presented information, it occurs for visually presented verbal information *only* when the presentation environment provides the

opportunity to transform the visual code (sensory information) into a phonological code (semantic information).

We apply this separate streams model to the domain of cognitive processing of video supers. We develop hypotheses that relate format effects of video supers to viewer levels of comprehension. We begin with the case of single- versus dual-modality video supers.

Comprehension of Single- Versus Dual-Modality Video Supers

Video supers might contain either a visual code (the typography of the super) or a visual and acoustic code (super accompanied by simultaneous voice-over). These are referred to as single- and dual-modality video supers, respectively. According to Penny (1989), auditory presentation of verbal information results in superior recall, relative to visual presentation. The acoustic code is said to be rich and enduring compared with the visual code. Similarly, Paivio (1983) suggests that presentation of information in dual modality might result in greater elaboration and comprehension of information relative to a single-modality presentation. Although much of the research reviewed by Penny (1989) relates to simple sets of words, other researchers, in more complex information environments, have found similar effects. Morris, Mazis, and Brinberg (1989) find that disclosure information in experimenter-created prescription drug advertising was comprehended better in dual- versus single-modality mode. The FTC (1979) recommends the simultaneous presentation of video supers in both visual and verbal modes to meet its “clear and conspicuous” standard. This leads to our first hypothesis:

- H₁: The comprehension of video super information will be higher when information is presented in both visual and auditory modalities than when information is presented in a visual modality only.

Comprehension of Single-Modality Video Supers in Comparison with Other Commercial Content

Commercials containing video supers can have up to four separate competing or complementary streams of information. The body of the commercial typically contains both a visual code (successive photographic images) and an auditory code (commercial narrative). There is an important distinction between the visual code for pictorial imagery and the visual code for visual presentation of verbal information. The former has been shown to lead to superior performance on immediate and delayed recall tasks, relative to verbal information (Childers and Houston 1984), whereas the latter has received little attention in consumer research literature. In visual modality, generation of a phonological code for video supers is not automatic and can be disrupted by simultaneous unrelated speech or pictorial information. This situation frequently occurs in commercials for visual-mode-only supers, because thematically unrelated commercial narrative and photographic images frequently are present while video supers are shown. Therefore, the single visual code of the super competes for processing resources with both the visual code of the commercial’s photographic images and the audio code of the narrative.

Frick (1984) demonstrates that higher levels of recall are generated for the dual-mode condition than for either the

pure auditory- or the pure visual-mode condition. For video supers to generate a strong memory trace, there must be an opportunity to recode the visually presented verbal information through silent articulation into a phonological code for rehearsal (Baddeley 1986). Knoll (1975) demonstrates that a concurrent shadowing task—in this case, represented by attention to other commercial content—prevents articulatory recoding of visual stimuli so that subjects are left with a poorly performing, visually based memory code. Therefore, it is expected that comprehension of the single-mode video super will be less than that of other commercial copy. This leads to the first part of our second hypothesis:

H_{2a}: Comprehension of single-modality video supers will be lower than that of other commercial copy.

Comprehension of Dual-Modality Video Supers Compared with Other Commercial Content

Video supers with voice-overs are presented in the form of a visual mode and a concurrent auditory mode. Video supers with voice-overs (dual-modality video supers) do not compete for processing resources with an auditory presentation of other commercial content. This situation represents a reverse of the one described previously. In the case of the dual-modality video super, the audio code reinforces the video code and permits the viewer to engage in articulatory recoding of the visual stimulus into a phonological code. This phonological code is quite resistant to interference effects and should account for the superior recall of the dual-mode video super, relative to other commercial content. This leads to the second part of our second hypothesis:

H_{2b}: Comprehension of dual-modality video supers will be higher than that of other commercial content.

Structural Determinants of Single-Modality Video Super Comprehension

Presentation rate and typography size are two of many stimulus characteristics that might affect reading comprehension (Barlow and Wogalter 1993). These two stimulus characteristics were chosen because they have been shown to affect reading comprehension (Morris, Mazis, and Brinberg 1989), and previous content analyses of television video supers show that presentation rate and typography size vary widely in broadcast commercials (Hoy and Stankey 1993).

Presentation Rate

Bettman (1979) argues that, as long as consumers have the ability to control the rate of presentation, they can process large amounts of information. According to Muller (1985), the capacity limitations of the cognitive system in general, and of short-term memory in particular, might lead to information overload in nonprint media settings if information is presented at sufficiently high rates of speed. For this reason, Bettman (1979) suggests that, if there is a need to communicate substantial amounts of information, print advertising media are superior to television advertising media. In a similar vein, Koler and Roediger (1984) argue that comprehension of information, acquired by reading or listening, is a product not only of the cognitive skills of the receiver, but also of the salience of the message. Information salience can

be manipulated by variations in features of the message, such as typography, spacing, color, stimulus size, and presentation rate.

There is substantial empirical evidence to suggest that many televised single-mode video supers have the potential to cause difficulties in reading comprehension. Miyao and colleagues (1989) find that presentation rates of verbal information on a video screen in excess of 178 words per minute (wpm) can cause visual fatigue and readability difficulty. Notably, the FTC Staff Report (1979) on consumer information remedies recommends a presentation rate below 180 wpm for product warranties. In addition, in content analyses of broadcast commercial video supers, Franke and Lee (1994) note presentation rates as high as 2000+ wpm, and Hoy and Stankey (1993) find that more than a third of all video supers are presented at a rate higher than 180 wpm. Hence, a third of all video supers are at a rate of presentation empirically determined to have the potential to cause readability difficulty for viewers.

Some rehearsal of visually presented verbal stimuli is necessary before it can be recoded by silent articulation into a phonological code (Baddeley 1986). During this rehearsal period, the visual code is susceptible to interference from any auditorily presented distraction (Baddeley 1983). A combination of the high presentation rate found in single-modality video supers and viewer inability to control presentation rate might reduce the opportunity to engage in the necessary rehearsal process to transform the transient visual code into an enduring phonological code. Therefore, high presentation rate of single-modality video supers should result in poor comprehension. This leads to the first part of our third hypothesis:

H_{3a}: Faster presentation rate of single-modality video super information will be related negatively to the level of comprehension.

Presentation Size

Stimulus size, in addition to presentation rate, is one of many features that influences message salience and thus the ability of a receiver to process information (Koler and Roediger 1984). Many studies, in a variety of settings, have manipulated type fonts and have demonstrated that comprehension is associated positively with increasing stimulus size. Young and Wogalter (1990) find that larger font size in owners' manuals leads to better recall. Similarly, Viscusi, Magat, and Huber (1986), in an evaluation of hazard warnings, find that participants would have behaved more cautiously if visual warnings were made bigger. However, Popper and Murray (1989), in a print advertising context, were unable to detect any improvements in comprehension when chewing tobacco warnings were increased in size. In all of these studies, presentation formats were manipulated directly by the researchers, but no evidence was offered that the presentation formats selected approximated those that appear in televised commercials.

Of the studies reviewed, perhaps Barlow and Wogalter's (1993) comes closest to replicating the environment of televised video supers. Using alcoholic beverage commercials, they superimposed visual presentation of verbal warnings over the last frame of the commercial. They find that larger,

more conspicuous warnings are more likely to gain and maintain attention than smaller, less conspicuous warnings. The single-modality video supers used in Barlow and Wogalter's (1993) study were short (mean = 17 words), on the screen in large print (letter height = 1.5 centimeters), and were shown for a long duration (mean = 7.8 seconds). Indeed, Barlow and Wogalter (1993, p. 154) caution that their "commercials" should not be considered representative of commercials typically aired, because "[m]ost product-related information in television commercials today is presented in smaller print and for shorter duration. Under such conditions, the effectiveness of print (visual presentation of verbal information) may be negligible."

Rehearsal of visually presented verbal stimuli, necessary to permit the recoding of visual code into phonological code, might be impaired by any feature of a visually presented verbal message that makes it more difficult to comprehend (Penny 1989). Similar to fast presentation rate, small presentation size reduces the viewer's opportunity to translate transient sensory information (visual code) into enduring semantic knowledge (phonological code). Small presentation size also can reduce legibility and, in the extreme case of illegibility, reduces not only the opportunity, but also the possibility of comprehension. It is therefore expected that single-modality video supers of small presentation size will have lower comprehension relative to large presentation size, single-modality supers. This leads to the second part of our third hypothesis:

H_{3b}: Large presentation size of single-modality video supers will be related positively to the level of comprehension.

Interactive Effect of Presentation Rate and Presentation Size

Video super presentation rate and presentation size affect comprehension rates by increasing or reducing opportunity to process a message. The combined effect of fast presentation rate and small presentation size should have a more negative effect on message salience than the simple effects of either presentation rate or presentation size alone. Therefore, it is expected that the viewer's opportunity to translate the visual code by silent articulation into a phonological code will be lowest in the condition represented by a fast presentation rate and small presentation size. This leads to the third part of our third hypothesis:

H_{3c}: Comprehension of single-modality video supers will be lowest when presentation size is small and presentation rate is high.

Method

The primary objectives of this research are to determine if viewers comprehend video supers in broadcast commercials and to assess the effects of the structural characteristics of video super presentation on comprehension. Because of the great variability of video super presentation formats, our most important methodological requirement is that the sample commercials be representative of how video supers actually are used in broadcast commercials. Barlow and Wogalter (1993) caution that experimental manipulation of visual

presentation of verbal information in researcher-constructed commercials sacrifices ecological validity of the viewing stimuli for greater experimental control of commercial elements. Therefore, findings of experimenter-constructed video supers in commercials might not generalize to video supers in televised commercials.

There is considerable evidence from human-factors research that presentation format affects comprehension, but little direct evidence that presentation format in broadcast commercials affects comprehension. Broadcast commercials present a unique information presentation environment that is different from the presentation environments frequently studied in human-factors research. An important methodological requirement is, therefore, that the video super commercials be representative of most video supers in broadcast commercials. It is not operationally feasible to embed each of the 200 different commercials used in the study in naturally occurring programming content, because this would require a very large number of different treatment conditions. The use of a large sample of televised commercials presents methodological trade-offs between the heightened realism of using a large number of actually televised video super commercials and the reduced realism of the viewing environment. Because many research participants exposed to programming and commercials might be aware that the commercials are the focus of research, we believe it is an acceptable methodological trade-off to optimize commercial representativeness over programming environment representativeness. A similar methodological approach of testing a large number of communications without a surrounding programming environment was used in Jacoby, Hoyer, and Sheluga's (1980) landmark viewer miscomprehension study.

Sampling Plan for Video Super Commercials

The sample of commercials was drawn from the three major network affiliates, ABC, CBS, and NBC, for a period of seven consecutive days. Each of these television networks has a detailed, published policy statement regarding the use of video supers in its commercials (ABC 1992; CBS 1988; NBC 1992). To ensure that the most heavily watched day-parts were sampled, we taped 16 hours of consecutive programming for each of the seven days, from 8:00 A.M. to midnight, which yielded a total of 336 hours of television programming. This sample yielded more than 2600 commercials, from which we obtained 204 unduplicated commercials containing video supers. We randomly extracted 4 commercials, so that we could have 20 treatment groups, each group exposed to one tape, with each tape containing 10 commercials. The sample thus represents a wide array of product categories, with the most frequent categories being health and beauty aids, automotive, and food and snacks. The 200 commercials then were assigned randomly, edited in groups of 10 back-to-back commercials, to 1 of 20 videotapes. The order of commercials on a tape represents the naturally occurring order embedded in programming, after commercials without video supers and duplicate commercials were removed from the sample. A ten-second break was inserted between each successive commercial to permit the experimenter to pause the tape while respondents answered comprehension

questions. Although this is clearly an intrusive procedure, the alternative, to embed each of the 200 commercials in programming content and therefore run a large number of treatment conditions, was not feasible operationally.

Subjects were assigned randomly to 1 of 20 treatment conditions. Each condition contained 1 of the 20 tapes of video super commercials. Consequently, each participant was exposed once to each of the 10 commercials. The random assignment of subjects to experimental conditions and commercials to tapes enabled us to pool responses for repeated measures analyses. A Sony SLV-676UC frame-by-frame editing machine was used to edit commercials from tape recordings.

Subjects

Four hundred forty-three undergraduate business administration students at a midsize eastern university in the United States participated in the study for course credit. Participants were assigned randomly to 1 of 20 treatment groups. Fifty-five percent of the participants were men, and the average age was 20.4 years. Neither of the demographic characteristics were related to comprehension and are not discussed further.

Study Procedure

Sessions were run in small groups, ranging from 8 to 13 subjects, so that each set of commercials was run on different days and at different times. In each session, participants were seated in comfortable armchairs, in an arc shape, approximately three yards from a 22-inch/55.9-centimeter (diagonal measurements) Sony Trinitron stereo television monitor. The experimenter explained that participants would be watching a series of commercials, that the tape would be stopped, and that they would be asked some questions after each commercial. Following each commercial, the tape was stopped and subjects were instructed to turn to the research questionnaire and respond to questions that pertained to the last commercial they saw. After responding to questions relating to the tenth and final commercial, subjects indicated their age and sex.

Comprehension Measures

For each commercial, two comprehension items were given. Because a few of the commercials in our sample of 200 were as brief as ten seconds, showing more than two items for each commercial was not feasible. The first item related to the video super, the second to other commercial content. Statements relating to the video super and the main auditory copy were true 50% of the time. In cases in which there were two or more separate frames of video supers, one video super was selected randomly as the target video super. Examples of video supers and comprehension measures are included in the Appendix. To avoid the criticisms that Ford and Yalch (1982) leveled at Jacoby and Hoyer (1982), that the latter may have constructed (perhaps unknowingly) more difficult test items for the different types of messages, we took the caution of having video super content and other commercial material content transcribed on coding sheets. This precaution ensured that the test constructor was blind to the condition of video super versus non-video super content. Following the suggestions of Jacoby and Hoyer (1989),

we offered three possible response options: "true," "false," or "don't know," to reduce guessing.

Coding Scheme for Structural Elements of Video Supers

Operationally, video supers were defined as all superimposed video messages that appear in a commercial, excluding words on product packages, one-word supers such as "sale" or "value," one-word brand-name supers, and campaign slogans. Our intention was to focus on video supers that formed complete advertising sentences (though not necessarily grammatically correct English sentences). The number of words in the target video was counted by freezing the frame that contained the video super. Video super duration was assessed with a handheld electronic stopwatch and rounded to the nearest second. This yielded data for calculation of presentation rate. After viewing 30 commercials and discussing it among ourselves, we concluded that font size at half an inch or less, measured on a 22-inch television screen and viewed from a distance of three yards, had the potential to cause viewer comprehension problems due to poor legibility. Therefore, half an inch or less was chosen as the appropriate size to code the video supers into small and large size. Video supers also were coded for presence or absence of a voice-over to provide data for modality effects.

Results

Comprehension of Single- and Dual-Modality Video Supers

We computed comprehension rates for video supers by comparing the subjects' responses on the true/false/don't know questions with the objectively correct answer. The subjects' responses are classified as comprehension when the response and correct answers match.

The overall comprehension for 200 target supers is 48.5%, versus 54.5% for commercial body copy. As we show in Table 1, dual-modality video supers have higher comprehension rates than single-modality video supers (77.1% versus 40.8%; $\chi^2(1) = 392.23, p < .001$). Therefore, H_1 is supported. We used a nonparametric sign test (Conover 1971) to assess whether the differences in comprehension for video supers versus commercial copy are significant at the individual level. Comprehension of single-modality video supers is lower than that of other commercial content (40.8% versus 54.5%; $Z = 11.64, p < .001$). However, dual-modality video supers are comprehended better than commercial copy (77.1% versus 54.5%; $Z = 9.88, p < .001$). Therefore, H_{2a} and H_{2b} are supported.

Structural Determinants of Single-Modality Video Super Comprehension

Presentation Rate

The number of words for each of the 200 target video supers and the number of seconds each video super was displayed were counted. From these two variables, the wpm was computed. The presentation rate ranged from 12 to 900 wpm. On the basis of this distribution, the video supers were divided into two categories, using a median split of 144 wpm. We are using a cutoff that is obtained empirically from the data

set. The results are provided in Table 2. The comprehension rate is 47.8% for presentation rate of <144 wpm compared with 33.5% for presentation rate of >144 wpm. The χ^2 for these results, as is reported in Table 2, was $\chi^2(1) = 73.23$, $p < .001$. Therefore, H_{3a} is supported.

Presentation Size

The 200 video supers were classified into two categories on the basis of font size, as follows: small (<1/2 inch/2.25 centimeter font size) and large ($\geq 1/2$ inch/2.25 centimeter font size). As is given in Table 2, the comprehension rate is 61.3% for a presentation size of $\geq 1/2$ inch/2.25 centimeter compared with 37.9% for a presentation size of $\leq 1/2$ inch/2.25 centimeter ($\chi^2 = 85.49(1)$, $p < .001$). Therefore, H_{3b} is supported.

Interactive Effect of Presentation Rate and Presentation Size

We expected that comprehension would be highest when single-modality video super information was presented at a low rate and in a large font size. Conversely, we predicted that comprehension would be lowest when video super information was presented at a high rate and in a small font size. To test this hypothesis, a 2×2 analysis of variance (ANOVA) was conducted with presentation rate (low ≤ 144 wpm versus high > 144 wpm) and presentation size (small $< 1/2$ inch font size versus large $\geq 1/2$ inch font size) as the two factors and

comprehension rate for video supers as the dependent variable. The data were analyzed with the method for nonorthogonal designs by Appelbaum and Cramer (1974).

As is revealed in Table 2, the interactive effect of presentation rate and presentation size on comprehension of video supers is significant ($F(1, 3482) = 10.94$, $p < .001$). The comprehension rates for four categories of supers (resulting from the 2×2 design) were in the predicted direction. The comprehension rate for low-presentation-rate, large-presentation-size supers is the highest (73.6%), and the comprehension rate for high-presentation-rate, small-presentation-size supers is the lowest (32.1%). Simple effects were analyzed for the four relevant comparisons that corresponded to this interaction, and all were significant. Overall, these results provide support for H_{3c} .

Discussion

To date, the separate processing streams model of modality effects has received empirical support from research that

Table 1. Comprehension Comparisons Based on Modality

Panel A Comprehension of Dual- Versus Single-Modality Video Supers		
Presentation Modality	Comprehension	N
Visual only	40.8%	3486
Both visual and audio	77.1%	943
Overall	48.5%	4429

Note: $\chi^2 = 392.23$, $DF = 1$, $p < .001$.

Panel B Comprehension of Single-Modality Video Supers Versus Other Commercial Content		
Presentation Modality	Comprehension	N
Single-modality video supers	40.8%	3486
Other commercial content	54.5%	4429

Note: $Z = 11.64$, $DF = 1$, $p < .001$.

Panel C Comprehension of Dual-Modality Video Supers Versus Other Commercial Content		
Presentation Modality	Comprehension	N
Dual-modality video supers	77.1%	943
Other commercial content	54.5%	4429

Note: $Z = 9.88$, $DF = 1$, $p < .001$.

Table 2. Comprehension Comparisons Based on Structural Determinants

Panel A Presentation Rate and Comprehension of Single-Modality Video Supers		
Presentation Rate	Comprehension	N
Low (≤ 144 wpm)	47.8%	1766
High (> 144 wpm)	33.5%	1720
Overall	40.8%	3486

Note: $\chi^2 = 73.23$, $DF = 1$, $p < .001$.

Panel B Presentation Size and Comprehension of Single-Modality Video Supers		
Presentation Rate	Comprehension	N
Small ($< 1/2''$)	37.9%	3057
Large ($> 1/2''$)	61.3%	429
Overall	40.8%	3486

Note: $\chi^2 = 85.49$, $DF = 1$, $p < .001$.

Panel C Interactive Effect of Presentation Rate and Presentation Size on Comprehension of Single-Modality Video Supers		
	Presentation Size	
	Small ($\leq 1/2''$)	Large ($> 1/2''$)
Low presentation rate (≤ 144 wpm)	43.7%	73.6%
High presentation rate (> 144 wpm)	32.1%	45.5%

Note: Interaction of presentation rate \times presentation size is significant at $F(1, 3,482) = 10.94$, $p < .001$.

focuses on relatively simple stimuli, such as small groups of words or simple phrases. Our findings lend support to the separate processing streams model and suggest that the model might have utility in more complex information environments. Research on modality effects in marketing communications, with few exceptions (e.g., Barlow and Wogalter 1993), has lacked a theoretical underpinning and could benefit from propositions derivable from the model.

Video supers share a common goal with the non-video super information contained in commercials: both must communicate. Across all video supers, comprehension rate is lower than it is for commercial copy. The overall pattern of findings, however, suggests that comprehension rates for video supers vary widely on the basis of presentation modality and structural format effects. In particular, dual-modality presentation—including video plus audio voice-over—is most effective in ensuring high comprehension. This finding is consistent with those of other researchers across a variety of communication settings (e.g., Barlow and Wogalter 1993; Morris, Mazis, and Brinberg 1989; Young and Wogalter 1990).

Our results also are consistent with those predicted from theories of modality effects (e.g., Paivio 1983; Penny 1989). When video supers are presented in dual modality, they lead to higher comprehension rates relative to commercial copy. However, single-modality supers perform poorly relative to commercial copy. The separate processing streams model suggests an explanation for this finding. A key determinant of viewer comprehension of single-modality video supers might be the ability of the viewer to rehearse the video code so that it is translated into a more permanent phonological code. Our findings support the FTC's (1979) views and recommendations that video supers should be presented in dual modality. Our data suggest that dual-modality supers outperform single-modality supers on comprehension by more than 37%. In our sample of 200 video super commercials, however, we found that the FTC guidelines were a rule more honored in the breach than the observance. Only 21% of all commercials containing video supers had dual-modality presentation.

Our findings provide empirical support for the concerns expressed in the *Advertising Age* (1995) editorial that addressed the efficacy of video supers. In particular, the data show that comprehension rates decline from 47.8% for video supers at less than 144 wpm to 33.5% for those at greater than 144 wpm. Comprehension rates similarly decline from 61.3% for video supers greater than a half inch in font size to 37.9% for those less than or equal to a half inch in font size.

Limitations

Interpretation of our findings should be tempered by several limitations in the scope of the study. The use of undergraduate students limits the generalizability of the results to other populations, as it is quite likely that students are not part of the target market for many of the products and services offered in these commercials. It is noteworthy, however, that in their study of comprehension of print advertising, Jacoby and Hoyer (1989) find no differences in comprehension for target versus nontarget audiences. They also find few meaningful differences in comprehension that are due to a wide range of sociodemographic characteristics. Any sample of subjects

could not be in the target audience for *all* the products and services advertised. A more significant limitation of this study, perhaps, is the lack of multiple advertisement exposures. Although Alpert, Golden, and Hoyer (1983) find that multiple exposures to televised communications did not improve comprehension, advertisement repetition might improve comprehension for low-salience presentation environments, which are characteristic of fast-paced, small-sized video supers.

All of the video super commercials were taped off the air. Consequently, it is reasonable to assume that the subjects might have had prior exposure to some of the commercials. The hypotheses for format effects relate only to the boundaries of the commercial sample and should not be projected, without further research, to other domains, such as product warranties on packages. The experimental environment was very different from the relaxed atmosphere of a home viewing situation and probably contributed to greater attention to processing video supers than would be normal for home viewers. Similarly, the cognitive strategies employed by viewers, that is, low-involvement advertisement scanning versus high-involvement advertisement processing, might affect comprehension levels. It also is possible that other unmeasured variables, such as message difficulty or video super color and/or background color, could affect comprehension levels. For these reasons, it would be inappropriate to accept comprehension levels in our study as a type of benchmark, or norm, for video supers. A more reasonable interpretation of the data should be confined to the relative effects of presentation modality and format structure.

Implications and Further Research

For advertisers and advertising agencies, the data indicate that small-font video supers, presented at a fast rate, might not be effective in communicating information and might leave the advertiser open to a legal charge of ineffective qualification of disclosure information. Therefore, it might be useful for advertising agencies to test comprehension of video supers prior to airing the commercial. Further research would be useful to address whether viewers are suspicious of detailed video supers and whether the presence of video supers negatively affects the credibility of other commercial content.

Many video supers are placed at the end of commercials. The commercial storyline has gathered momentum, which might make it difficult for the viewer to switch attentional resources to a video super. Consequently, the position of the video super in a commercial might be a key element for further research.

From a public policy perspective, our data indicate that for video supers more might be less. An effective program to ensure fair disclosure to consumers should encourage simplification, not merely more words and larger font, which further encroaches on an advertiser's space and freedom of expression. One method to determine disclosure accuracy would be to evaluate it using a performance test. A comprehension standard could be set for the target audience, whereby the advertiser has flexibility to choose the appropriate format and presentation method to meet this criterion.

The American Advertising Federation has encouraged federal agencies to investigate how 800 numbers and referrals to World Wide Web pages in commercials could supplement

the information requirements of consumers. Our findings suggest that such simplification of the message would be presented more appropriately with a dual-modality video super of large enough font size and sufficient duration to facilitate viewer processing. There is some evidence to indicate that shorter disclosure statements can be equally effective in influencing consumers' beliefs about an offer (Murphy and Richards 1992). The separate processing streams model would predict enhanced comprehension of video supers in a brief video plus audio presentation format. This strategy ensures that there would be no other competing visual or audio information to prevent rehearsal and encoding of visually presented verbal information into a long-lasting phonological code. For such a policy to be effective, however, advertisers also would need to communicate to viewers the importance of such disclosure information.

Appendix

Video Super Verbatim

Video Super Frame 1¹

Savings a combination of \$750 cash back, plus special discount. Savings based on options purchased separately. Must take delivery from stock. Limited time offer. See dealer for details.

Video Super Frame 2

No charge air-conditioning on select models.

Video Super Frame 3

MSRP and cash back direct from [Brand name], excluding taxes, destination charges, and carpet. Actual prices may vary. Must take delivery from dealer stock. Limited time offer. See dealer for details.

The video super question was "Savings are a combination of \$750 cash back, plus special discount." True/False/Don't Know.

Other Commercial Material Verbatim

Sure was a busy one yesterday. Here we go again. Quick reflexes are essential during the [Brand name] ready-to-roll sale. You get to move fast for cash back on special package [Model A] or try [Model B] wagon, or air at no extra charge, try [Model C] at a new low price. Hurry in today. When the smoke clears there will be nothing left.

The audio question was "Only model A is available at a new low price." True/False/Don't Know.

References

- Aaker, David A. and George S. Day (1982), "Preface to Fourth Edition," in *Consumerism: Search for the Consumer Interest*, 4th ed, David A. Aaker and George S. Day, eds. New York: The Free Press, vii-viii.
- ABC Advertising Standards and Guidelines (1992), Department of Broadcasting Standards and Practices, Visual Supers 1.
- Advertising Age* (1995), (December 11).
- Alpert, Mark L., Linda L. Golden, and Wayne D. Hoyer (1983), "The Impact of Repetition on Advertisement Miscomprehension and Effectiveness," in *Advances in Consumer Research*, Vol. 10, Richard P. Bagozzi and Alice M. Tybout, eds. Ann Arbor, MI: Association for Consumer Research, 130-35.
- Appelbaum, Mark I. and Eliot M. Cramer (1974), "Some Problems in the Nonorthogonal Analysis of Variance," *Psychological Bulletin*, 81, 335-43.
- Baddeley, A.D. (1983), "Working Memory," *Philosophical Transactions of the Royal Society of London*, B203, 311-24.
- (1986), *Working Memory*. Oxford: Oxford University Press.
- Barlow, Todd and Michael S. Wogalter (1993), "Alcoholic Beverage Warnings in Magazine and Television Advertisements," *Journal of Consumer Research*, 20 (June), 147-56.
- Bettman, James R. (1979), *An Information Processing Theory of Consumer Choice*. Reading, MA: Addison-Wesley.
- CBS Television Network Advertising Guidelines (1988), CTN35.
- Childers, Terry L. and Michael J. Houston (1984), "Conditions for a Picture Superiority Effect on Consumer Memory," *Journal of Consumer Research*, 11 (September), 643-54.
- Cliffdale (1984), 103 FTC supra note 40, at 165.
- Conover, W. J. (1971), *Practical Non-Parametric Statistics*. New York: John Wiley & Sons.
- Federal Trade Commission Staff Report (1979), *Consumer Information Remedies*. Washington, DC: U.S. Government Printing Office.
- Ford, Gary T. and Richard Yalch (1982), "Viewer Miscomprehension of Televised Communication: A Comment," *Journal of Marketing*, (Fall), 27-31.
- Franke, George R. and Renee G. Lee (1994), "The Use of Supers in TV Commercials: A Content and Correspondence Analysis," working paper, Department of Management and Marketing, University of Alabama.
- Frick, R.W. (1984), "Using Both an Auditory and a Visual Short-Term Store to Increase Digit Span," *Memory and Cognition*, 12, 507-14.
- Hoy, Mariea G. and Michael J. Stankey (1993), "Structural Characteristics of Televised Advertising Disclosures: A Comparison with the FTC Clear and Conspicuous Standard," *Journal of Advertising*, 22 (June), 47-58.
- International Harvester Co.* (1984), 104 FTC 949, 1056.
- Jacoby, Jacob and Wayne D. Hoyer (1982), "Viewer Miscomprehension of Televised Communication: Selected Findings," *Journal of Marketing*, 46 (Fall), 12-26.
- and ——— (1989), "The Comprehension/Miscomprehension of Print Communication: Selected Findings," *Journal of Consumer Research*, 15 (March), 434-43.
- , ———, and David A. Sheluga (1980), *Miscomprehension of Televised Communications*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kennedy, John F. (1962), "Consumers' Protection and Interest Program," *U.S. Congressional Code and Administrative News*, 4139-47.

¹Means that this video super frame was randomly chosen from the three available video super frames in this commercial to be the subject of the comprehension question.

- King, T.F. (1990), "In More TV Ads, the Fine Print Gets an Evil Eye," *The Wall Street Journal*, (July 12), B1.
- Knoll, N.E. (1975), "Visual Short-Term Memory," in *Short-Term Memory*, D. Deutsch and S. Deutsch, eds. New York: Academic Press, 153-79.
- Kolbe, Richard H. and Darrel D. Muehling (1992), "A Content Analysis of the 'Fine Print' in Television Advertising," *Journal of Current Issues and Research in Advertising*, 2 (Fall), 47-61.
- Koler, P.A. and Roediger, H.L. (1984), "Procedures of the Mind," *Journal of Verbal Learning and Verbal Behavior*, 23, 425-49.
- Leno, Jay (1992), *Tonight Show*, (October 15), NBC.
- Manrai, Lalita, Ajay K. Manrai, and Noel M. Murray (1994), "Comprehension of Info-Aid Supers in Television for Social Ideas: Implications for Public Policy," *Journal of Business Research*, 30 (May), 75-84.
- Miyao, Masaru, Selim S. Hacisalihzade, John S. Allen, and Lawrence W. Stark (1989), "Effects of VDT Resolution on Visual Fatigue and Readability: An Eye Movement Approach," *Ergonomics*, 32 (June), 603-14.
- Morris, Louis A., Michael B. Mazis, and David Brinberg (1989), "Risk Disclosures in Televised Prescription Drug Advertising to Consumers," *Journal of Public Policy & Marketing*, 8, 64-80.
- Muller, Thomas E. (1985), "Structural Information Factors Which Stimulate the Use of Nutrition Information: A Field Experiment," *Journal of Marketing Research*, 22 (May), 143-57.
- Murphy, John H. and Jef I. Richards (1992), "Investigation of the Effects of Disclosure Statements in Rental Car Advertisements," *Journal of Consumer Affairs*, 26 (2), 351-76.
- Murray, Noel M., Lalita A. Manrai, and Ajay K. Manrai (1993), "Public Policy Relating to Consumer Comprehension of Television Commercials: A Review and Some Empirical Results," *Journal of Consumer Policy*, 16 (2), 145-70.
- NBC (1992), *Broadcast Standards and Practice*, 17-18.
- Paivio, Allen (1983), "The Empirical Case for Dual Coding," in *Imagery, Memory, and Cognition: Essays in Honor of Allan Paivio*, J. Yuille, ed. Hillsdale, NJ: Lawrence Erlbaum Associates, 307-32.
- Penny, Catherine G. (1980) "Order of Report in Bisensory Verbal Short-Term Memory," *Canadian Journal of Psychology*, 34, 190-95.
- (1989), "Modality Effects and the Structure of Short-Term Verbal Memory," *Memory and Cognition*, 17 (4), 398-422.
- Popper, Edward T. and Keith B. Murray (1989), "Communication Effectiveness and Format Effects on In Ad Disclosure of Health Warnings," *Journal of Public Policy & Marketing*, 8, 109-23.
- Preston, Ivan L. (1989), "The Federal Trade Commission's Identification of Implications as Constituting Deceptive Advertising," *Cincinnati Law Review*, 57, 1243-310.
- Richards, J.I. (1990), *Deceptive Advertising: A Behavioral Study of a Legal Concept*. Hillsdale, NJ: Lawrence Erlbaum Associates
- Rubin, Ann (1993), personal communication. New York: Ayer Advertising Agency.
- Stern, Bruce L. and Robert R. Harmon (1984), "The Incidence and Characteristics of Disclaimers in Children's Television Advertising," *Journal of Advertising*, 13 (2), 12-16.
- Stutts, M.A. and G.G. Hunnicutt (1987), "Can Young Children Understand Disclaimers in Commercials?" *Journal of Advertising*, 16 (1), 41-46.
- Thompson Medical Company* (1984), 104 FTC, 789-808.
- Thorelli, Hans B. (1982), "The Future for Consumer Information Systems," in *Consumerism: Search for the Consumer Interest*, 4th ed., David A. Aaker and George S. Day, eds. New York: The Free Press, 115-26.
- Viscusi, W. Kip, Wesley A. Magat, and Joel Huber (1986), "Information Regulation of Consumer Health Risks: An Empirical Evaluation of Hazard Warnings," *Rand Journal of Economics*, 17 (Autumn), 351-72.
- Wilkie, W. L. (1986), "Affirmative Disclosure at the FTC: Strategic Dimensions," *Journal of Public Policy & Marketing*, 5, 123-44.
- Young, Stephen L. and Michael S. Wogalter (1990), "Comprehension and Memory of Instruction Manual Warnings: Conspicuous Print and Pictorial Icons," *Human Factors*, 32 (December), 637-49.