

RAJESH K. CHANDY, GERARD J. TELLIS, DEBORAH J. MACINNIS, and
PATTANA THAIVANICH*

The authors study how ad cues affect consumer behavior in new versus well-established markets. The authors use theoretical insights from consumer information processing to argue that the same ad cues can have different effects on consumer behavior, depending on whether the market is new or old. The authors then test these hypotheses in the context of a toll-free referral service, using a highly disaggregate econometric model of advertising response. The results indicate that argument-based appeals, expert sources, and negatively framed messages are particularly effective in new markets. Emotion-based appeals and positively framed messages are more effective in older markets than in new markets.

What to Say When: Advertising Appeals in Evolving Markets

Does advertising affect behavior? If so, which particular creative appeal or ad cue works best? Researchers have tried to answer these questions for several decades. Research to date can be broadly classified into two streams: laboratory studies of the effects of ad cues on cognitions, affect, or intentions and econometric studies of the effects of advertising intensity on purchase behavior. Table 1 lists a sample of articles in these streams.

Laboratory studies have covered a variety of advertising elements, including emotional cues (e.g., Holbrook and Batra 1987; Singh and Cole 1993), types of arguments (Etgar and Goodwin 1982), humor (Sternthal and Craig 1973), and music (e.g., MacInnis and Park 1991; Park and Young 1986). These studies emphasize experimental control and are almost exclusively lab-based (see MacInnis and Jaworski 1989; Meyers-Levy and Malaviya 1999). Dependent variables studied include attitude toward the ad, attitude toward the brand, memory, and purchase intentions (see Stewart and Furse 1986). An important finding from this

research is that the effects of various executional cues often depend on consumers' motivation and/or ability to process ad information.

In contrast, econometric studies focus on the role of advertising intensity on consumer behavior. Typically, researchers measure advertising intensity as dollars; gross rating points; or, more recently, ad exposures. Researchers measure behavior as sales, market share, or consumer choice (for reviews, see Sethuraman and Tellis 1991; Tellis 1998; Vakratsas and Ambler 1999). These studies emphasize the precise modeling of the sales response to advertising and are largely field-based, often in specific empirical contexts such as toilet tissue, laundry detergent, vegetable juice, and other consumer packaged goods (Eastlack and Rao 1986, 1989; Krishnamurthi, Narayan, and Raj 1986; Lodish et al. 1995a, b; Raj 1982; Tellis 1988; Tellis and Weiss 1995). One finding from this research is that a change in the ad used has a stronger effect on sales response than changes in advertising intensity alone (Blair and Rosenburg 1994; Eastlack and Rao 1986; Lodish et al. 1995b; Lodish and Riskey 1997).

Although these two research streams have contributed greatly to the current understanding of advertising, each has focused on different variables and has operated largely in isolation of the other. For example, lab-based studies of consumer behavior focus on the effects of an ad's executional cues on attitudes, intentions, and memory (see Wells 1993; Winer 1999). They rarely examine how or whether these cues affect actual behavior. Many authors suspect that theories of the role of advertising on consumer attitudes and persuasion may also explain consumers' behavioral response to ads. However, other authors suggest that some commonly used measures of attitude and persuasion may not relate to behavior at all (Lodish et al. 1995b). Furthermore, despite

*Rajesh K. Chandy is Assistant Professor of Marketing, Carlson School of Management, University of Minnesota (e-mail: rchandy@csom.umn.edu). Gerard J. Tellis holds the Jerry and Nancy Neely Chair in American Enterprise (e-mail: tellis@usc.edu), and Deborah J. MacInnis is Professor of Marketing (e-mail: macinnis@mizar.usc.edu), Marshall School of Business, University of Southern California. Pattana Thaivanich is Senior Statistical Associate, Custom Research Incorporated, Minneapolis (e-mail: pthaivanich@customresearch.com). The authors appreciate the valuable comments of Ed Blair, Michael Houston, Debbie Roedder John, Partha Krishnamurthy, Joan Meyers-Levy, and participants at a research seminar at the University of Houston and the research assistance of Chris Pruszko and Nicholas Yoong. The authors are also grateful for the helpful feedback from the three anonymous *JMR* reviewers.

Table 1
REPRESENTATIVE STUDIES

Dependent Variables	Independent Variables	
	Ad Intensity	Ad Cues
Attitudes, Memory, Intentions	<ul style="list-style-type: none"> •Petty and Cacioppo (1979) •Craig, Sternthal, and Leavitt (1976) •Pechmann and Stewart (1988, review) 	<ul style="list-style-type: none"> •Sternthal and Craig (1973) •Holbrook and Batra (1987) •Singh and Cole (1993) •Etgar and Goodwin (1982) •MacInnis and Park (1991) •Park and Young (1986) •Weinberger and Gulas (1992, review)
Behavior	<ul style="list-style-type: none"> •Raj (1982) •Krishnamurthi, Narayan, and Raj (1986) •Eastlack and Rao (1986, 1989) •Lodish et al. (1995a, b) 	<ul style="list-style-type: none"> •The present study

extensive econometric modeling of advertising response, little is known about why some ads drive consumer behavior more than others and whether variation in behavioral response to ads relates to specific executional cues of those ads. Therefore, many researchers have called for an integration of these two research streams (e.g., Cook and Kover 1997; Stewart 1992; see also Wells 1993; Winer 1999).

This article addresses this call. It contributes to the literature in three ways. First, it attempts to develop deeper insight into the relationship between the executional cues of ads and consumers' behavioral response to those ads. On the basis of the behavioral literature, we develop a set of hypotheses on how these cues may affect behavior in actual markets. Second, we conduct our tests using data from real ads aired in real markets, a setting that enables us to explore the contextual boundaries of advertising theories. In particular, our data cover executional cues used in ads and actual response to those ads in real markets. The context, medical service, is also different from that typically used in prior research.

Third, we assess consumer response to ads across different levels of market age. *Market age* refers to the length of time a product or service has been available and advertised in a particular market. For a particular product or service, one market is said to be older than another if the product or service has been available and advertised longer in the first market than in the second. Thus, a young market is one where the product or service was introduced only recently; an old market is one where the product or service has been available and advertised for a long time. We argue that different cues work differently in younger markets than in older ones because of intrinsic differences in consumers' motivation and ability to process information in those markets. Knowledge of these differences can help marketers design ads that are tailored to the age of individual markets.

The remainder of this article is organized as follows. The next two sections present the theory and hypotheses of the study. The following three sections describe the study's empirical context, method, and results. The last two sections discuss the implications and limitations of the research.

HOW ADVERTISING CUES AFFECT BEHAVIOR IN EVOLVING MARKETS

Many advertising researchers have noted that the effects of advertising change as markets grow older. The empirical

evidence suggests that ad elasticities decline significantly in older markets (Parsons 1975; Tellis and Fornell 1988). The focus of the research so far has been on the amount of advertising (in the form of exposures or expenditures); the results indicate that the same amount of advertising is less effective in older markets than in younger ones. But in the quest for higher effectiveness, the marketer has control over more than just the amount of advertising; the marketer also controls the type of ad creative or execution. We focus on the type of advertising execution and ask how different executional cues work at different stages of market evolution.

We organize the theoretical discussion of advertising effects in evolving markets around the theme of consumers' motivation and ability to process ads. In the next section, we first highlight the role of consumer motivation and ability. We then use these constructs to develop hypotheses about the role of various advertising cues in different stages of market evolution.

Consumer Motivation and Ability to Process Ads

Considerable research in consumer behavior suggests that consumers' motivation, ability, and opportunity to process information from ads affects their responses to those ads (see MacInnis and Jaworski 1989; Petty and Cacioppo 1986). *Motivation* is typically defined as the extent to which consumers are interested in information in an ad and willing to expend effort to process it, given its relevance to their personal goals. *Ability* relates to the extent of knowledge consumers have about the brand and its usage. *Opportunity* is typically defined as the extent to which situational factors facilitate ad processing. In our discussion of advertising effects, we focus on consumers' motivation and ability. We do not consider opportunity, because it often reflects idiosyncratic factors that vary both within a consumer and across situations.

Researchers often conceptualize motivation and ability as independent factors influencing consumers' responsiveness to marketing communications. However, MacInnis, Moorman, and Jaworski (1991) propose that motivation and ability may be related. For example, consumers who are highly knowledgeable about a product may have such well-developed knowledge structures and extensive product experience that they consider brand information from ads largely irrelevant. Therefore, highly knowledgeable consumers may also lack the motivation to process information from ads. In

contrast, consumers who lack prior knowledge may be motivated to acquire knowledge as a way of reducing purchase risk. So one can imagine contexts in which an inverse relationship exists between motivation and ability to process information from ads.

Role of Market Age

Market age represents an important context in which this inverse relationship between motivation and ability to process ads may be evident. In young markets, consumers are likely to have little information about the product in prior memory. Indeed, because the market is young, few customers are likely to be aware either of the product or its differentiating attributes. Because prior knowledge is limited, consumers are likely to be more motivated to process information about the product from ads when the product and ad represent novel stimuli (Grunert 1996). Furthermore, because the effects of word of mouth are not yet established, consumers may be uncertain about product quality and features. Advertising is therefore a key source of product information. In young markets, consumers' lack of product knowledge, limited prior experience, and limited communication by word of mouth can make the choice of the product risky. This perceived risk, coupled with the inherent novelty of the product and the ad, enhances consumers' motivation to process information about the product. The notion that young markets may be characterized by high motivation and limited ability is consistent with classic models of buyer behavior (Howard 1977; Howard and Sheth 1969) that posit that when decision making is novel (as when markets are new) consumers exhibit considerable motivation to learn about novel product features and benefits about which they have no prior knowledge, and they spend time gathering information to acquire this knowledge. It is further consistent with classic conceptions of advertising decisions over the product life cycle, in which an emphasis is placed on reaching as many members of the target audience as possible to inform them of the existence and features of the product.

In contrast to younger markets, in markets where the product is old and well known, consumers may have had more opportunities to gather and store product knowledge through prior advertising exposures, personal experiences, and word of mouth. However, the very existence of this prior knowledge may reduce consumers' motivation to attend to and process key aspects of an ad. Classical models of buyer behavior are consistent with the notion that consumers may exhibit limited motivation and high ability in older markets. When markets are old, consumers have already acquired product and market information and have completed their decision making, which limits their motivation to evaluate new information. Their decision making may be routinized, characterized by limited information processing and habitual purchasing.

On the basis of this theoretical structure, we focus on how executional cues differentially affect consumer response to advertising in markets at different stages of evolution. Note that within a particular market, different consumers may respond very differently to the same ads (see Cacioppo and Petty 1982). However, this within-market variation is not the focus of this study. Our emphasis is on understanding variation in consumer behavior across markets of different age levels.

Myriad executional cues may interact with market age to affect consumer response. We strive for a balance between

breadth in the choice of advertising cues and control over confounding factors (e.g., brand, product category). As such, we focus on a select set of cues that can be classified into four types: (1) appeal mode, (2) appeal prominence, (3) appeal frame, and (4) appeal source. In the context of appeal mode, we study the role of arguments and emotions. In the context of appeal prominence, we study the prominence of key product or service attributes. In the context of appeal frame, we study the role of positive and negative goal framing. In the context of appeal sources, we study the role of expert endorsers. The following discussion presents hypotheses on how the effects of each cue vary by market age.

Within each of these areas, we focus on specific variables that have both a strong theoretical background and adequate variation in our empirical context. For example, there is a large theoretical literature on ad length and on celebrity endorsers. However, we are unable to test the effects of ad length because our data contain only 30-second ads. Similarly, we are unable to test for celebrity endorsers because they are not used in our ads. Therefore, we do not include these variables in the theoretical discussion.

HYPOTHESES

Appeal Mode: The Role of Argument and Emotion

Scholars have long examined the role of arguments relative to emotions in driving behavior (Agres, Edell, and Dubitsky 1990; Cohen and Areni 1991; McGuire 1969; Petty and Wegener 1998). Early research in marketing focused on whether emotional ads are more effective than argument-based ads (Friestad and Thorson 1986; Golden and Johnson 1983; Ray and Batra 1983). This research shows conflicting findings; some authors argue that emotions are more effective (e.g., Edwards 1990; Edwards and von Hippel 1995; Friestad and Thorson 1986), and others argue that arguments are more effective (e.g., Golden and Johnson 1983; Millar and Millar 1990).

More recent research suggests that both emotions and arguments can be effective, but their effectiveness varies by context (see Olson and Zanna 1993; Petty and Wegener 1998; Stayman and Aaker 1988). Specifically, when consumers have little information about a product, they are more motivated to attend to and process arguments in the ads. Then, if ads are to be persuasive, they need to provide compelling arguments that reduce purchase risks and differentiate the product from competitors. Because consumers are motivated to process ads when prior knowledge is lacking, they should find ads more compelling when the ads provide a credible reason for buying the product. However, when consumers are already aware of the product and have preexisting attitudes toward it, they are less motivated to process information about it. Indeed, they may respond negatively to argument-focused ads because of satiation, boredom, or irritation (Batra and Ray 1986; Pechmann and Stewart 1988; Petty and Cacioppo 1979; Rethans, Swasy, and Marks 1986; Schumann, Petty, and Clemons 1990). In the context of market age, this theory suggests that argument-based ads would be more persuasive in younger markets than in older ones, because consumers would be more motivated to process their content.

The opposite effect may hold for emotion-based ads. Such ads rarely convey factual information about a product. Therefore, they may not reduce consumers' percep-

tions of risk. As such, they may have limited effects on consumers who have limited prior knowledge. Although emotions may convey warm feelings and stimulate favorable brand attitudes, attitudes formed by such processes may not lead to choices of products about which consumers are not well informed. The reason may be that such ads may neither provide a credible reason for buying the product nor change fundamental beliefs about it. Furthermore, when consumers lack product knowledge, emotional ads may distract consumers from critical product content (Moore and Hutchinson 1983). Thus, consumers are less likely to encode or transfer product information to long-term memory.

However, in older markets, where motivation is lacking but product knowledge is present, emotion-laden ads may win consumers' attention and help the retrieval of prior product knowledge from memory. Because such ads make the product more accessible, bringing it to the forefront of consumers' memory, they are likely to affect behavior. Furthermore, emotion-based ads may be more user oriented and therefore more capable of enabling high-knowledge consumers to imagine themselves interacting with the product. This usage-oriented imagery may stimulate consumers to elaborate on the benefits of personal usage, thus motivating behavior.

This logic suggests the following hypotheses:

- H₁: Argument-based ads are more effective in younger markets than in older markets.
 H₂: Emotion-based ads are more effective in older markets than in younger markets.

Note that we are not equating emotional ads with peripheral cues. Several models of persuasion (e.g., MacInnis and Jaworski 1989; Rossiter and Percy 1987; Vaughn 1980) presume no necessary relationship between ad content (emotional versus rational) and peripheral versus central route processing. Nor are we arguing that emotional and information ads represent two ends of a continuum. Rather, we are conceptualizing them as independent entities. Nor are we comparing emotional to rational arguments. Rather, we argue that ads that contain rational information will be more effective in younger markets than in older markets, whereas ads that contain emotional information will work better in older markets than in younger markets.

Appeal Prominence

In young markets, consumers are unfamiliar with the product and its key attributes. Therefore, they are less efficient at assimilating key ad information into memory. Consumers in younger markets may therefore take longer to assimilate key message information than those in older markets. As such, anything that increases attention to and assimilation of message information should facilitate ad effectiveness. One variable that should influence attention and assimilation is appeal or attribute prominence. Attributes and appeals can be prominent by virtue of their size (e.g., a large font versus a small font), their duration on screen, or the number of times they are shown (Stewart and Furse 1986). Indeed, Gardner (1983) finds that consumers pay more attention to and process more deeply attributes that are more prominent than those that are less so. Furthermore, her results indicate that prominence increases consumers' abil-

ity to recall attributes. Attributes are also more likely to affect brand attitudes, particularly when consumers consider themselves knowledgeable about the category (Gardner 1983).

Stewart and Furse (1986) find positive relationships between brand prominence in ads and recall, persuasion, and comprehension, but only for products in the early stage of the product life cycle. These results are consistent with the notion that prominence may affect behavior more in younger than in older markets. In older markets, brief prompting may be adequate to access the relevant memory structures. As such, making key information salient by virtue of its prominence may be less critical in older than in younger markets. Thus,

- H₃: Ads in which key attributes are prominent are more effective in younger markets than in older markets.

Appeal Frame

Kahneman and Tversky (1979) have stimulated a large literature on the effect of framing on consumer decisions. Although decisions can be framed in many different ways, advertising messages often involve the use of a specific type of frame: goal framing. In this case, advertisers can frame the uses of a product in a positive manner, highlighting the potential of the product to provide gains (or obtain benefits), or a negative manner, highlighting its potential to avoid loss (or solve problems) (see Levin, Schneider, and Gaeth 1998; Meyerowitz and Chaiken 1987). Literature on goals and goal framing is limited in consumer research, as is any research on the efficacy of this cue by market age (see Bagozzi and Dholakia 1999; Roney, Higgins, and Shah 1995). Therefore, our empirical efforts in this regard reflect a unique contribution of the research.

Since many products introduced to a market are initially developed to solve consumption problems, stating how a product or service can avoid or solve a problem (negative goal frame) is likely to be particularly effective in younger than in older markets because the message appeals to those consumers for whom the problem or its potential existence are already a reality. In this case, the problem is already at the top of a consumer's mind, and advertising provides necessary information about how that problem can be avoided or eliminated. Therefore, ads that contain information for avoiding or removing the problem will immediately motivate such consumers to process the message (see Maheswaran and Meyers-Levy 1990; for an exception, see Shiv, Edell, and Payne 1997) and use the service. As the market ages, however, knowledge of how a product or service resolves the problem diffuses through the population. Thus, the pool of those consumers who are motivated by such a message declines. Furthermore, consumers may be irritated by repetition of negatively framed messages (as would occur as markets age) that focus on problem avoidance, because these ads focus on things that are unpleasant to think about (Aaker and Bruzonne 1981). Therefore, negatively framed messages may be more successful in younger markets than in older ones.

In contrast, messages that state positive and appetitive goals may be more successful in older than in younger markets. As consumers become more aware of products' abilities to solve consumption problems, added motivation for product use may be provided by information about how the product fulfills appetitive and positive states. Thus, a cleaning product that focuses on the product's fresh scent may appeal

to consumers in older markets who are already aware of and convinced about the product's core cleaning abilities. But when the market is young, such messages may fail to address consumers' concerns with the problem, the brand, or the category. As the market ages and these messages are repeated, consumers' motivation to process the ads declines, but their belief in ad claims that do not explicitly highlight solutions to problems may rise (Hawkins and Hoch 1992). In addition, positively framed messages may be more effective than negatively framed messages in older markets because they contain fewer aversive stimuli that could create wearout.

Given the limited work on goal framing, our hypotheses about its potential interaction with market age are tentative, but they suggest the following:

- H₄: Negatively framed ads are more effective in younger markets than in older markets.
- H₅: Positively framed ads are more effective in older markets than younger markets.

Appeal Source: The Role of Expertise

Expert sources are characters in an ad whose knowledge or experience with the product category makes them highly knowledgeable about product attributes and their benefits for consumers. The impact of an expert source on behavioral responses at different ages of the market is somewhat difficult to understand. Prior laboratory studies suggest that when consumers' motivation and ability to process the advertised message are low, expert sources enhance the credibility of the ad and thus its persuasive impact. Given their low motivation and/or ability to process the message, consumers rely on source expertise as a peripheral cue. They infer that the brand or service must be good if it is endorsed by the expert (Petty and Cacioppo 1986; Petty, Cacioppo, and Goldman 1981; Ratneswar and Chaiken 1991; Yalch and Yalch 1984). Other research suggests that expert sources can also be important when motivation and ability to deeply process a message are high. When consumers deeply process a message, they may interpret an expert source as an additional argument in favor of the service (Kahle and Homer 1985; Petty and Cacioppo 1986). This research suggests that an expert is always more valuable than a nonexpert.

However, we expect that source expertise is likely to have a larger impact in younger markets than in older markets. In younger markets, where category and brand knowledge is limited, consumers are likely to rely on the opinions of others. The expert in the ad provides an important source of such information. Prior research suggests that consumers' susceptibility to informational influence is high when the source is regarded as an expert and the consumer lacks expertise (French and Raven 1959; Hovland and Weiss 1951; Park and Lessig 1977)—as would be the case when markets are younger. Furthermore, because consumers in younger markets may be more motivated to process the advertised message, these motivated recipients are likely to scrutinize the entire ad deeply before arriving at a judgment. Expert sources can enhance persuasion for consumers who process a message deeply, because they serve as strong arguments that enhance the persuasion of a deeply processed ad (Homer and Kahle 1990). This logic suggests the following:

- H₆: Expert endorsers are more effective in younger markets than in older ones.

Role of Market Age

All else being equal, do ads become more or less effective as markets age? This section explores the main effects of market age. Two countervailing forces influence the effects of market age: increased consumer reach and product familiarity on the one hand and increased consumer tedium and tapping out on the other.

In young markets, only a fraction of the potential consumer pool is likely to be aware of the product. Furthermore, tedium may not yet have occurred, because consumers may not yet be fully familiar with the product. Thus, ads are likely to increase in effectiveness when the product is first introduced in the market. Subsequent airing of ads, though, leads to fewer consumers who have not yet learned about the product, while increasing the probability of tedium with the product. Therefore, additional advertising about the product becomes less and less effective. Therefore, we propose the following:

- H₇: The relationship between market age and ad effectiveness follows an inverted U shape.

The next two sections present the context of the study and the models we use to test these hypotheses.

RESEARCH CONTEXT

There are at least two approaches to study the effects of ad cues in evolving markets. One approach would be to collect market data from various ads for many brands across categories and code the ads for their executional cues. Such an approach would maximize the number of potential cues. However, it would introduce potential confounds due to variations in brands, marketing mix, and category, whose effects cannot be easily measured or controlled. Another approach would be to examine a set of ads for a single brand over a long period of its history. This approach would eliminate confounds due to brand and category. However, it would limit the number of potential cues. Moreover, it would introduce history as a confound, because the effectiveness of various cues could be due to changes in ads used over time.

Our unique database attempts to maximize the benefits of both approaches while minimizing their negative aspects. The database contains a set of ads that have been used repeatedly, in the absence of marketing variables, to promote one service in several markets at different known stages of market age, in one historical time period. We first explain the service and then elaborate how the unique database enables a strong test of our hypotheses.

The data record consumers' response to ads for a toll-free referral service for a medical service. Consumers watch the ads for the medical service on television and call the toll-free number highlighted in the ads. A service advisor who responds to the calls first queries callers on their needs and preferences. The service advisor then searches through a database of service providers and connects the customer directly with the office of the service provider with the closest match. We use the term "referral" to define this connection of a consumer to a service provider. The referral is the key variable of interest to the firm. It is the basis for its revenues and profits. The firm also assesses its performance on

Table 2
DESCRIPTIVE STATISTICS

Market	Age (Months)	Number of Creatives Used	Creative Coefficients (β_c)	
			Minimum	Maximum
Chicago	86	27	-.010	.025
Cincinnati	16	19	-.037	.048
Cleveland	10	13	-.024	.077
Columbus	16	19	-.008	.099
Dallas	77	28	-.014	.044
Denver	82	30	-.021	.033
Detroit	83	28	-.019	.034
Fresno	115	26	-.012	.063
Honolulu	8	12	-.024	.044
Houston	77	30	-.027	.049
Kansas City	35	26	-.033	.033
Los Angeles	144	28	-.018	.013
Miami	81	28	-.028	.035
Milwaukee	78	27	-.031	.029
Minneapolis–St. Paul	16	28	-.023	.033
Phoenix	89	32	-.026	.023
Portland	81	27	-.016	.060
Sacramento	120	27	-.012	.028
St. Louis	20	25	-.043	.048
San Diego	141	29	-.015	.032
San Francisco	143	27	-.004	.019
Seattle	86	27	-.021	.013
Washington, DC	17	19	-.015	.033

the basis of referrals. As such, referral is the key dependent variable in this research.

This context controls for many potential confounds. Television advertising is the primary means of marketing, though the firm also advertises a little in radio, billboards, and yellow pages in a few cities. Thus, television advertising is the main trigger for referrals for the firm. Pricing is irrelevant because the referral service is free to consumers. Service providers who sign up for membership in the firm's database pay the firm a fixed monthly amount for a guaranteed minimum number of referrals. Distribution does not affect response, because referrals are made completely over the telephone. Product type does not affect response, because there is only one type of service. Sales promotions do not affect response, because the firm does not use sales promotions. Effects due to the competitive environment are limited, as the firm has virtually no direct competition in the cities in which it operates.

The firm began operations on the West Coast in 1986 and now operates in 62 markets throughout the United States. A *market* is a well-defined metropolitan area in which the firm solicits clients, advertises to consumers, and processes consumers' responses into referrals to those clients. Our data involve 23 of these markets (see Table 2). They vary considerably in age, from 8 months in Honolulu to 144 months in Los Angeles. Variation in market age at a single point in historical time controls for the effects of history. During the period covered in this research, the firm did not systematically vary the executional cues used in old versus new markets. Therefore, the executional cues used in each market are not confounded with market age.

The firm draws on a library of 72 different television ads developed over the years. Each ad involves a unique configuration of ad executional cues that we call a "creative." Thus, we use the term "ad" generically and the term "creative" to refer to a particular ad with unique content. During

the period covered in this research, the firm used 39 creatives across the 23 markets. The existence of 39 creatives provides sufficient opportunity to find variation on many executional cues, though the set in no way represents the myriad executional cues discussed in the literature. The continued use of the same ads in markets of different ages enables us to determine how market age moderates the effect of the cues. Thus, the study provides a relatively clean test of the hypotheses.

In a recent article, Tellis, Chandy, and Thaivanich (2000) use a small data set from this context to decompose the instantaneous and carryover effect of advertising due to television station, time, and ad repetition. That study focuses on ad scheduling issues, covers only 5 markets, and considers neither the executional cues of the ads nor the role of market age. In contrast, the current study covers 23 markets, codes the ads for their executional cues, and uses market age as a moderator.

CODING OF AD CUES

Constructs and Operationalization

Table 3 presents the instrument we designed to operationalize each cue. Here, we define each cue and explain its coding.

Appeal mode. Argument-based ads are those that highlight at least one factual benefit, and emotional ads are those that highlight at least one emotional benefit. The greater the number of factual claims made about the service, the more the ad is argument focused. The greater the number of references to emotional benefits or circumstances surrounding use of the service, the more the ad is emotionally focused.

For factual claims, coders were instructed to count the number of times the ad mentioned such factual information as consumers' ability to obtain information (1) that is reliable, trustworthy, and unbiased; (2) that is free of charge; (3) that is thorough, specific, and complete; (4) that has been used by others; (5) that can be accessed in a convenient way; and (6) that they cannot get elsewhere. The firm chose to

Table 3
EXECUTIONAL CUE VARIABLES: THEIR MEANING AND INTERCODER RELIABILITIES

<i>Appeal Mode</i>	
<i>Emotion</i>	
Inter-coder agreement = .80	Count the number of emotional benefits mentioned They understand me: <ul style="list-style-type: none"> •my fears about this medical service. •my desire to avoid pain (I've got to have pain relief). •my discomfort in asking service provider for credentials. •my desire to have confidence in my service provider. •my desire to find a provider who cares about me (caring, takes time with me, attentive). After using the service I will feel better (e.g., less guilt, happier, healthier, like a better parent).
<i>Argument</i>	
Inter-coder agreement = .64	Count the number of factual benefits mentioned I can get information: <ul style="list-style-type: none"> •that is reliable, trustworthy, and unbiased (list contains referrals from other providers and patients). •for free. •that is thorough, specific, and complete (list contains information on licensing, standing with medical board, education, specialties/special services, who performs new services, insurance provider, financing plans, personal characteristics, length of time as a service provider, hours, pain prevention techniques, days of the week open, location in relation to my work or home). •that has also been used by others (the service refers thousands of people per month to providers). •in a convenient way. •that you can't get elsewhere.
<i>Emotion Type</i>	
Love Inter-coder agreement = .90	The ad shows warmth, care, love: for a dear one. (0 = "no," 1 = "yes")
Pride Inter-coder agreement = .88	The ad shows pride: in being responsible, of having beautiful features, beautiful children. (0 = "no," 1 = "yes")
Guilt Inter-coder agreement = .84	The ad suggests guilt: of not being good, caring, dutiful, etc. (0 = "no," 1 = "yes")
Fear Inter-coder agreement = .89	The ad suggests fear: of consequences of not using service. (0 = "no," 1 = "yes")
<i>Argument Type</i>	
Refute Inter-coder agreement = .82	The ad presents any contrary feeling or belief and then tries to assuage or destroy it. (0 = "no," 1 = "yes")
Compare Inter-coder agreement = .85	The ad compares the service to another service. (0 = "no," 1 = "yes")
Unique positioning Inter-coder agreement = .61	The ad restates attributes so as to reposition an existing belief or option. (0 = "no," 1 = "yes")
<i>Attribute Prominence</i>	
800 Visible Inter-coder agreement = .77	Total duration for which 800 number is visible (in seconds) in all appearances.
<i>Appeal Frame</i>	
Negative goal frame Inter-coder agreement = .67	The ad shows how use of the service can avoid or prevent a potential problem, remove or solve an existing problem. (0 = "no," 1 = "yes")
Positive goal frame Inter-coder agreement = .55	The ad shows how using the service enables the consumer to be a better parent, care for others, look more beautiful, gain approval. (0 = "no," 1 = "yes")
<i>Appeal Source</i>	
Service provider Inter-coder agreement = .98	Endorser is a medical service provider. (0 = "no," 1 = "yes")
Service advisor Inter-coder agreement = .93	Endorser is a service advisor. (0 = "no," 1 = "yes")

highlight these arguments because it believed such arguments drive consumer preferences.

For emotional claims, coders were instructed to count the number of times the ad mentioned such emotional benefits or motivators as the service's understanding of (1) consumers' fears, (2) consumers' desire to avoid pain, (3) the discomfort consumers feel in asking for credentials, (4) consumers' desire to have confidence in the service provider, and (5) the feelings consumers will have after they use the service.

Coders were also asked to rate the ad for the type of argument. Superficially, they were asked to rate (0 = "not present," 1 = "present") whether the ad used a refutational appeal, comparative appeal, or unique positioning. An ad is coded as using a *refutational appeal* if it presents a premise or belief and then tries to destroy it with contrary evidence or arguments. The ad uses a *comparative appeal* if it compares the service with another service. The ad uses a *unique positioning* if it attempts to change the criteria of evaluation so consumers would then assess the service more favorably than they did before they saw the ad.

Similarly, the raters rated the ad for the specific emotional appeals it contained. The raters looked for the following specific appeals, which they rated either as present (=1) or not present (=0): love, pride, guilt, and fear. Note that the appeals are not mutually exclusive; a single ad can include more than one of the appeal types.

Appeal prominence. Appeal prominence is measured here as the length of time, in seconds, the 800 number is visible during an ad exposure. This issue is important, because in our context, the key message text is the 800 number consumers call to request a referral.

Appeal frame. Some ads show how the use of the service could avoid or prevent a potential problem or remove or solve an existing problem. In this case, consumers are shown a problem, and the ad suggests how this problem could be prevented, minimized, or eradicated. Consistent with Maheswaran and Meyers-Levy's (1990) focus on message framing and goals, we call this a negative goal frame because the message focuses on the goal of avoiding or eliminating a negative state (see also Shiv, Edell, and Payne 1997). Other ads show how the service enables the consumer to take a current (and potentially positive) situation and make it even better. For example, some ads suggest that consumers would be better parents, others suggest that they would look better, and still others suggest that the use of the service would evoke social approval. We call this a positive goal frame because the message focuses on the goal of achieving a positive state. Others in the literature (e.g., Rossiter and Percy 1987) refer to this framing of messages in terms of informational (problem solving) versus transformational motives. Coders were instructed to evaluate whether each ad used negative goal framing (0, 1) and/or the extent to which it used positive goal framing (1, 0). Theoretically, these are conceptualized as independent forms of goal framing, because a given ad could focus on one, the other, or both goals.

Appeal source. Service providers and service advisors are two types of experts used in our sample of ads. A *service provider* is a medical service professional who provides the actual medical service. The service provider offers expertise by virtue of his or her ability to perform needed medical serv-

ices and knowledge of the medical service domain. A *service advisor* is an operator who helps customers identify and access a suitable service provider. The service advisor offers expertise by facilitating a match between the patient and the service provider. Coders were asked to rate whether the ad contained a service provider (0 = "not present," 1 = "present") and whether it contained a service advisor (0 = "not present," 1 = "present").

Coding Procedure

Two paid coders familiarized themselves with the bank of 72 creatives and were trained in coding the content and executional cues of each ad. The coders were first provided with a written description of each cue and then were involved in a more detailed discussion of the meaning of each. Discussion between the authors and the coders ensured that coders understood the meaning of each cue. The two coders then independently watched a set of three ads and coded each. Two authors also viewed and coded these same ads independently. The authors then discussed these ratings of the ads with the coders and refined the instrument. The coders subsequently coded a set of three additional creatives and compared their responses. We discussed disagreements between coders to clarify the meaning of the cues and the ratings of the creatives. After this meeting, the coders independently coded the remaining commercials. We calculated intercoder reliabilities at the levels of the ad and the executional cue. Disagreements between the coders were resolved by discussion.

Two of the 72 ads have intercoder agreement levels above 90%; 30 have intercoder agreement levels between 80% and 89%; 33 have intercoder agreement levels between 70% and 79%; 6 have intercoder agreement levels between 60% and 69%. One ad has an intercoder agreement level of 52%. The average intercoder agreement across ads is 76%.

Intercoder agreements for executional cue variables are shown in Table 3. For the variables that did not involve counts, the intercoder agreement level ranges from a high of 98% to a low of 55%, with an average of 81%. For the variables that involve frequencies and counts (Emotion, Argument, and 800 Visible), the two raters are within one count from each other in 80%, 64%, and 77% of the cases, respectively; the data in Table 3 reflect these figures (for a similar method of assessing intercoder agreement, see Price and Arnould 1999). Lower intercoder reliabilities for goal framing may be attributable to the fact that evaluations of the ad's use of positive or negative goal framing require that coders focus on global aspects of the ad (the ad's theme or focus) as opposed to the more micro-level responses contained in some of the other coding categories. As expected, argument focus and emotional focus appear to be relatively independent, because they are not highly correlated ($r = .24$). As expected, positive and negative goal framing also are not highly correlated ($r = -.12$).

MODEL SPECIFICATION

We conduct our analysis at the hourly level, for two reasons. First, this level of analysis enables us to isolate the effects of the ad creative from other variables such as time of the day and the television station on which the ad was aired. Second, research has shown that aggregating temporal data to higher time intervals can upwardly bias the esti-

mated effects of advertising (Clarke 1976; Leone 1995). Analysis at the hourly level is most appropriate, because ads are aired within the hour and consumers are most likely to respond immediately (Tellis, Chandy, and Thaivanich 2000).

To test our hypotheses, we follow a two-step procedure. We first model consumer behavior as a function of advertising. For the sake of consistency, we use the same modeling approach in this step as Tellis, Chandy, and Thaivanich (2000) use. As in their research, our database includes detailed information, at the hourly level, on the ads aired by the referral service, the specific ad creative used, and the specific station used in each market, as well as the number of exposures of each ad, per hour, per television station. We measure behavior by referrals received and advertising by exposures to a specific ad in an hour in one medium. We use referrals as our dependent variable because this is the variable of interest to the firm's management. All analyses at this stage take place within a market, for each of the 23 markets. The model provides estimates of the response of each market to each ad.

In the second stage, we model the variation in the ad response coefficients (obtained from the first stage) as a function of ad cues and market age. We describe these stages in detail next. In principle, we can combine the two stages of our model and estimate a single reduced form. However, because of the complexity of our model and the large number of independent variables, such estimation is difficult to execute and interpret (Greene 1997). Therefore, we estimate the equations in each stage separately as explained next.

Stage 1: Estimating Response to Advertising

To allow the advertising response curve to take on a variety of shapes beyond the exponential form, we follow Tellis, Chandy, and Thaivanich (2000) and use a general distributed lag model of the form

$$(1) R_t = \alpha + \gamma_1 R_{t-1} + \gamma_2 R_{t-2} + \gamma_3 R_{t-3} + \dots + \beta_0 A_t + \beta_1 A_{t-1} + \beta_2 A_{t-2} + \dots + \epsilon_t,$$

where

- t = an index for time period,
- R = referrals per hour,
- α, β, γ = coefficients to be estimated,
- A = ads per hour, and
- ϵ = errors.

In this formulation, the number and position of lagged values of advertising affect the duration of the decay. The number and position of lagged values of advertising also affect the shape of the decay (e.g., the presence and shape of humps in the decay).

Advertising at different times of day can have different decay structures. Responses to morning ads may emerge a few hours later than ads at other times, because consumers are frequently rushed in the morning and may therefore take longer to respond to morning ads. To test for this difference, the basic model in Equation 1 also includes a variable for morning advertising and its corresponding decay. Furthermore, to properly isolate the effects of ad creatives from those due to other factors, we include several control variables (described subsequently) in Equation 1.

Control variables. The referral service is closed at night and during part of the weekend. Therefore, we control for the hours when the service is open. Furthermore, we interact

hours open with every other explanatory variable in the model, because no other variable can affect calls for referrals unless the service is open. Properly including that variable in the model can account fully for the truncation bias and eliminate the need for more complex models (Amemiya 1985; Judge et al. 1985).

Tellis, Chandy, and Thaivanich (2000) show that medical calls follow typical daily patterns. Calls peak around midday, when consumers have more spare time to make the calls. Calls tend to be lower in the early morning and late evening as consumers attend to other compelling activities. For this reason, we include dummy variables for each hour of the day when the service is open, from 8 A.M. to 9 P.M. Eastern Time. We drop 12 P.M. to serve as the reference level. Calls are higher after a holiday, especially at the beginning of the week, either because of pent-up demand when the service is closed or because consumers are more sensitive to pain when fun ends and work begins. Calls for medical service drop toward the end of the week, perhaps because consumers put off medical help to prepare for or enjoy the weekend. We therefore include dummy variables for each day of the week, excluding Sunday (when the service is closed) and Saturday (the reference level).

On the basis of this discussion, we test the following general model separately in each of the 23 markets for which we have data. Matrices representing sets of related variables measured by hour are denoted in boldface text.

$$(2) R = \alpha + (\mathbf{R}_{-1}\lambda + \mathbf{A}\beta_A + \mathbf{A}_M\beta_M + \mathbf{S}\beta_S + \mathbf{SH}\beta_{SH} + \mathbf{HD}\beta_{HD} + \mathbf{C}\beta_C + \mathbf{O}) + \epsilon_t,$$

where

- R = a vector of referrals by hour;
- \mathbf{R}_{-1} = a matrix of lagged referrals by hour;
- A = a matrix of current and lagged ads by hour;
- \mathbf{A}_M = a matrix of current and lagged morning ads by hour;
- S = a matrix of current and lagged ads on each television station by hour;
- H = a matrix of dummy variables for time of day by hour;
- D = a matrix of dummy variables for day of week by hour;
- O = a vector of dummies recording whether the service is open by hour;
- C = a matrix of dummy variables indicating whether a creative is used in each hour¹;
- α = constant term to be estimated;
- λ = a vector of coefficients to be estimated for lagged referrals;
- β_i = vectors of coefficients to be estimated; and
- ϵ_t = a vector of error terms, initially assumed to be i.i.d. normal.

A, the matrix of exposures of a particular ad per hour, and C, the matrix of creatives, contain many zeros, because many hours of the day have no advertising. Thus, at the disaggregate hourly level, these variables have limited distribu-

¹We use C to refer to the matrix of creatives here and c to refer to individual creatives subsequently.

tion, almost becoming zero/one variables. With the exception of current and lagged values of referrals, all the other variables are dummies. This characteristic of the independent variables greatly limits the possibility of and need for alternative functional forms (Hanssens, Parsons, and Schultz 1990). In addition, given the large number of independent variables and the inclusion of many of the exogenous influences on the dependent variables, we initially assume that the error terms follow a normal distribution identically and independently. As such, we estimate the model with ordinary least squares. (An empirical test of the model reveals no major deviations from the classical assumptions.)

In this study, our primary interest is in the coefficients (β_c) of the creatives (c) in each market. Note that we include the creatives as dummy variables, indicating whether a creative is used in a particular market for which we estimate Equation 2. We choose to drop the creatives that have an average effectiveness and to include only those that are significantly above or below the average. Thus, the coefficient of a creative in Equation 2 represents the increase or decrease in expected referrals due to that creative relative to the average of creatives in that particular market. This specification has the most practical relevance. Managers are not interested much in a global optimization of the best mix of creatives. Rather, they are interested in making improvements over their strategy in the previous year. For this reason, they seek analyses that highlight the best creatives (to use more often) or the worst creatives (to drop).

Stage 2: Explaining Effectiveness Across Ads

In this stage, we collect the coefficients (β_c) for each creative for each market (m) in which it is used, and explain their variation as a function of creative characteristics and the age of the market in which it ran. H_1 – H_7 suggest the following model:

$$(3) \beta_{c,m} = \phi_1 \text{Argument}_c + \phi_2 (\text{Argument}_c \times \text{Age}_m) + \phi_3 \text{Emotion}_c \\ + \phi_4 (\text{Emotion}_c \times \text{Age}_m) + \phi_5 800 \text{Visible}_c \\ + \phi_6 (800 \text{Visible}_c \times \text{Age}_m) + \phi_7 \text{Negative}_c \\ + \phi_8 (\text{Negative}_c \times \text{Age}_m) + \phi_9 \text{Positive}_c \\ + \phi_{10} (\text{Positive}_c \times \text{Age}_m) + \phi_{11} \text{Expert}_c \\ + \phi_{12} (\text{Expert}_c \times \text{Age}_m) + \phi_{13} \text{Nonexpert}_c \\ + \phi_{14} (\text{Nonexpert}_c \times \text{Age}_m) + \phi_{15} \text{Age}_m \\ + \phi_{16} (\text{Age}_m)^2 + \mathbf{\Gamma} \text{Market} + v$$

where

- $\beta_{c,m}$ = coefficients of creative c in market m from Equation 2,
- c = index for creative,
- Age = market age (number of weeks since the inception of service in the market),
- Market = matrix of market dummies,
- $\mathbf{\Gamma}$ = vector of market coefficients,
- v = vector of errors,

and other variables are as defined in Table 3 or in Equation 2.

Because we do not have a priori hypotheses for different markets, we insert the Market dummies in a stepwise man-

ner, such that only statistically significant dummies are included in the final regression equation.

RESULTS

Our results for the equations estimated in Stage 1 are generally consistent with the results reported by Tellis, Chandy, and Thaivanich (2000). For this reason, and because the hypotheses of interest relate to Equation 3, we focus here on the results of estimating Equation 3. Table 2 provides descriptive statistics on the creative coefficients, β_c , for each market m . These coefficients reflect the expected referrals from the most and least effective creatives in each market relative to the average creatives in that market.

Table 4 provides descriptive statistics for each independent variable of interest. Table 5 provides pooled regression coefficients for Equation 3. The model is statistically significant ($F = 20.52, p > .0001$) and explains a substantial variation in the dependent variable, referrals ($R^2 = 42.25\%$). We describe the results for each hypothesis subsequently. All reported coefficients reflect standardized values. Because all our hypotheses on ad cues relate to their interactions with market age, we focus only on these interaction effects.

Appeal Mode: Argument- and Emotion-Focused Ads

H_1 suggests that argument-based ads are likely to be more effective in younger markets than in older markets. The results in Table 5 support this hypothesis. The Argument \times Age interaction is negative and significant ($\phi_2 = -.17, p < .05$). Thus, argument-based ads become less effective as markets get older.

H_2 argues that emotion-based ads are more effective in older markets than in younger markets. The results in Table 5 also support this hypothesis. The interaction between Emotion and Age is positive and significant ($\phi_4 = .18, p < .05$). Thus, emotion-based ads become more effective as markets get older.

Figure 1 shows mean referrals for appeal mode by market age. It pictorially highlights the effects of emotion-based versus argument-based appeals in young versus old markets. The y-axis in the graph refers to the β_c values, obtained from Equation 2 and described previously. We dichotomize Age, Emotion, and Argument in Figure 1 using median splits. An overall analysis of variance (ANOVA) indicates a significant interaction between the type of appeal and market age ($F = 6.10, p < .001$), which also supports H_1 and H_2 .

To provide deeper insight into these effects, we identify specific types of argument- and emotion-based appeals (see also Frijda 1986; Russell 1978). As noted previously, the emotional appeals used include love, pride, guilt, and fear. The argument types include refutation, comparison, and unique positioning.

Figure 2 shows mean referrals for different emotional appeals in young versus old markets. Although ANOVAs comparing means across the different cells indicate that the interaction effects are not statistically significant, the effects are in the expected direction. Figure 3 describes the mean referrals for different argument types. An ANOVA comparing differences in means indicates that the interaction of Compare \times Market Age in Figure 3 is significant and in the expected direction ($F = 20.84, p < .001$). However, the interactions of Refute \times Position are not statistically significant,

Table 4
DESCRIPTIVE STATISTICS

<i>Appeal Mode</i>				
<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
<i>Emotion</i>	.3	.48	0	2
<i>Argument</i>	1.77	1.79	0	8
<i>Emotion Type</i>				
Love	.12	.32	0	1
Pride	.07	.26	0	1
Guilt	.17	.38	0	1
Fear	.09	.29	0	1
<i>Argument Type</i>				
Refute	.04	.19	0	1
Compare	.12	.32	0	1
Frame	.23	.42	0	1
<i>Attribute Prominence</i>				
<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
800 Visible	6.46	1.8	4	11
<i>Goal Frame</i>				
<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Negative	.66	.47	0	1
Positive	.34	.47	0	1
<i>Appeal Source</i>				
<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Service Provider	.09	.29	0	1
Service Advisor	.22	.41	0	1

though the interaction of Refute × Market Age is in the expected direction.

Appeal Prominence

H₃ suggests that ads in which key message text is prominent (here operationalized as being visible on screen for longer periods of time) are more effective in younger than in older markets. The coefficient of the interaction of 800 Visible × Age in Table 5 is negative and significantly different from zero at the 90% level of significance ($\phi_6 = -.21, p < .10$). The results in Table 5 thus provide some support for H₃.

Figure 4 provides a pictorial description of the effects of the duration of message text in young versus old markets. To create Figure 4, we dichotomize both the 800 Visible variable and the Age variable using a median split. The figure shows that ads in which the key message text is visible for longer than the median number of seconds are much more effective in young markets than in older markets. An overall ANOVA of the dichotomous variables indicates a significant interaction between the duration of message text and market age ($F = 6.22, p < .001$). Furthermore, the difference in means in older markets between ads with short message text duration and those with longer message text duration is significant at the $p < .10$ level ($F = 3.30, p < .074$).

Appeal Frame

H₄ argues that negatively framed ads will be more effective in younger markets than in older markets, and H₅ suggests that positively framed ads will be more effective in

Table 5
REGRESSION RESULTS

<i>Variable</i>	<i>Standardized Coefficient</i>
Argument	.25***
Argument × Age	-.17**
Emotion	-.17**
Emotion × Age	.18**
800 Visible	.26***
800 Visible × Age	-.21*
Negative	.25***
Negative × Age	-.15**
Positive	-.33***
Positive × Age	.14*
Service Provider	-.05
Service Provider × Age	.00
Service Advisor	.43***
Service Advisor × Age	-.18**
Age	.55**
(Age) ²	-.26**
Columbus (market dummy)	.26***
Fresno (market dummy)	.14***
Phoenix (market dummy)	-.11***
Seattle (market dummy)	-.10**
R ²	42.25%

* $p < .10$.
** $p < .05$.
*** $p < .001$.

older markets than in younger markets. The results in Table 5 support these hypotheses. The Negative × Age interaction is negative and significant ($\phi_8 = -.15, p < .05$). The Posi-

Figure 1
EFFECTS OF ARGUMENT VERSUS EMOTION BY MARKET AGE



Figure 2
EFFECTS OF EMOTION TYPE BY MARKET AGE

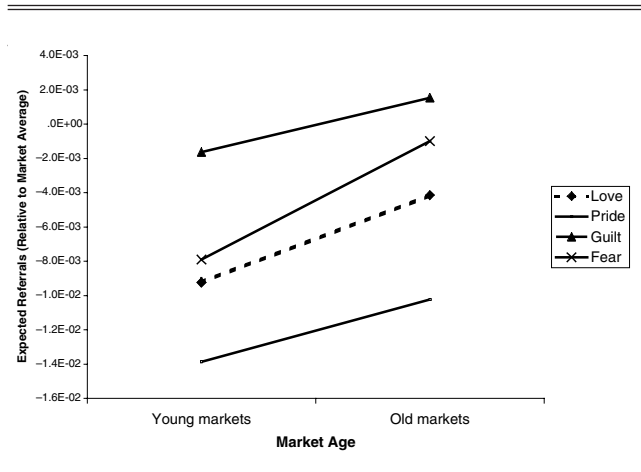


Figure 3
EFFECTS OF ARGUMENT TYPE BY MARKET AGE

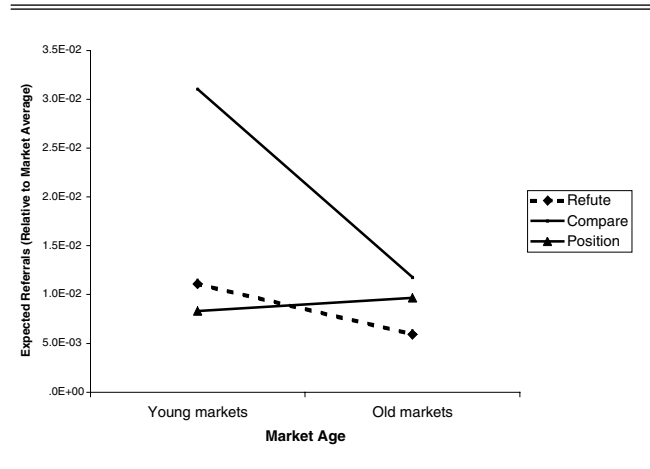
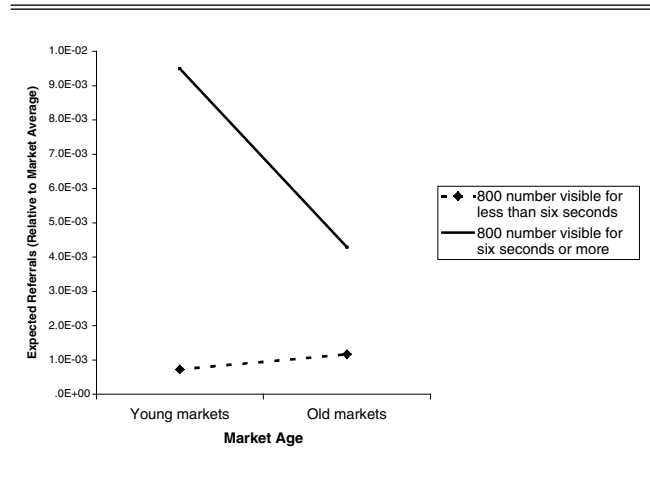


Figure 4
EFFECTS OF ATTRIBUTE PROMINENCE BY MARKET AGE



tive \times Age interaction is positive and significant at the 90% significance level ($\phi_{10} = -.14, p = .10$).

Figure 5 describes the mean referrals for negatively and positively framed ads in young versus old markets. The figure reinforces the regression findings and suggests that negatively framed ads are more effective in young markets than in old markets, whereas positively framed messages tend to be more successful in older than in younger markets. An overall ANOVA indicates a significant interaction between appeal frame and market age ($F = 22.81, p < .001$).

Appeal Source

H_6 suggests that expert endorsers are more effective in younger markets than in older markets. In our context, there are two types of expert endorsers: service providers and service advisors. The interaction of Service Provider \times Age is not significantly different from zero ($\phi_{12} = .00, p > .99$). The interaction of Service Advisor \times Age, however, is significant and in the expected direction ($\phi_{14} = -.18, p < .05$). H_6 is thus partially supported, indicating that endorsement by a service

advisor is more effective in younger markets than in older markets.

Market Age

H_7 argues that as a market gets older, opposing forces influence ads' effectiveness. Consumer response would likely increase initially because of increased market reach and growing brand awareness but decrease later because of tedium effects and potential reactance. Therefore, we hypothesized an inverted-U-shaped response to the effects of market age. The results in Table 5 support this hypothesis. The Age coefficient is positive and significant ($\phi_{15} = .55, p < .05$), and the squared Age coefficient is negative and significant ($\phi_{16} = -.26, p < .05$).

Figure 6 represents the effects of Age in graphical form. The model predicts that the diminishing returns to Age arise during the thirteenth year of operation. Note that this inverted-U response does not correspond directly to traditional wearout curves, because those curves generally track the effects due to repeated exposure to the same ads. Figure

6, however, tracks market age, which corresponds to repeated exposure to the service, using a variety of different ads and after controlling for the effects of ad repetition. Therefore, it is not surprising to see the inflection point appear later than is usual in traditional tests of wearout.

DISCUSSION

Summary and Contributions

Econometric literature on the real-world effects of advertising is extensive. However, rarely does this work rely on the vast information-processing domain or consider how an ad’s creative content affects consumers’ behavioral response. Analogously, there is a rich literature on how various executional cues of ads affect consumers’ responses at different levels of motivation, ability, and opportunity. However, rarely does this work examine the real-world, behavioral impact of ads. The present study is an attempt at bridging these two areas.

Building on work on motivation and ability to process information from ads, we argue that the behavioral impact of various executional cues depends on whether the market is young or old. Marketing researchers who study advertising elasticities have noted that an ad budget that is just right for one stage of product evolution may be inappropriate for another stage (one size does not fit all stages, so to speak; Tellis and Fornell 1988). Our research highlights the point that an ad cue that is just right for one stage of market evolution may be less appropriate for another stage (one style does not fit all stages).

In young markets, consumers’ knowledge of a product may be limited, making their ability to process information from ads low and their motivation relatively high. This situation should make them particularly responsive to argument-focused appeals, expert sources, and negatively framed messages. Also, they should have greater capacity to encode and act on message arguments when these arguments are prominent within the ad. In older markets, consumers may have gained knowledge, which reduces their motivation to engage in extensive ad processing. As such, factors that increase their personal involvement in the ad—

such as the use of emotion-focused appeals and positively framed messages—may be particularly likely to create a behavioral response. An empirical analysis of a set of ad creatives in real markets supports these predictions. The findings supplement the knowledge about the role of market age in understanding advertising’s effects. Just as advertising elasticities vary by market age, so too does the effectiveness of various executional cues.

Our study contains several novel features. Most important, our focus on the behavioral impact of various creative elements by market age is novel. Indeed, a recent summary by Vakratsas and Ambler (1999) of 250 empirical studies of advertising reveals no empirical generalizations regarding this idea. Stewart and Furse’s (1986) work is a rare case that examines the efficacy of various executional cues—for new versus established brands. However, those authors do not study ad efficacy using a behavioral measure; their measure of efficacy is based on a persuasion score (similar to a purchase intention measure) provided by respondents who were recruited to view a single exposure of the ads in off-air test sessions (Stewart and Furse 1986, p. 39). Our study is also novel in its focus on a novel product (advertising for medical services). This focus adds to the bulk of work done experimentally and in the field on consumer packaged goods products. Finally, our study adds novel elements to the literature on goal framing. Given the limited work on this executional cue, our results suggest that further study and theory on goal framing and advertising is warranted.

Our study differs from Stewart and Furse’s (1986) in several regards. First, we focus on ads for a single brand in markets of different ages (versus many different brands at various stages of the product life cycle). We control for history effects by examining markets of different ages that exist at the same time. Recall that in our context, the same ads aired in new markets as well as in old markets. Second, we examine the behavioral impact of commercials for the service as the market ages. Finally, our model enables us to isolate the behavioral impact of advertising due to creative characteristics from other potentially confounding factors. Perhaps for these reasons, our results appear more robust than those of Stewart and Furse (1986).

Figure 5

EFFECTS OF NEGATIVE VERSUS POSITIVE GOAL FRAMES BY MARKET AGE

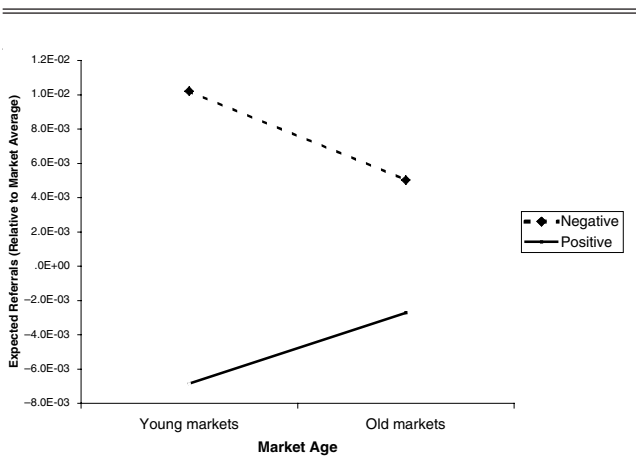
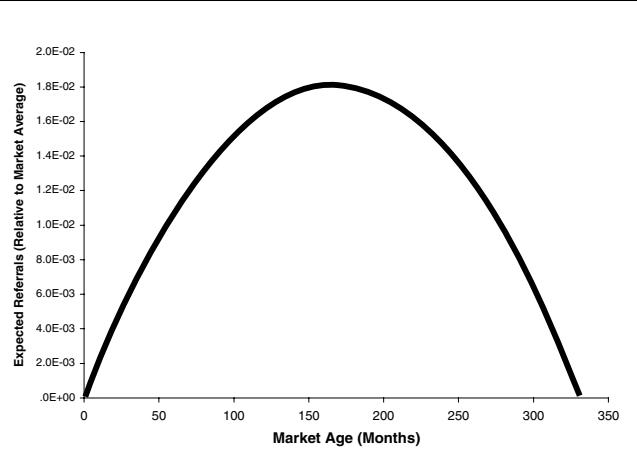


Figure 6

PREDICTED EFFECT OF MARKET AGE ON REFERRALS



Our research on market age also adds to the consumer information-processing literature by suggesting the importance of understanding the potentially negative relationship between motivation and ability to process information from ads (MacInnis, Moorman, and Jaworski 1991). Although traditional information-processing models focus on situations in which motivation and ability are low versus high (MacInnis and Jaworski 1989; Petty and Cacioppo 1986), the fact that in real markets these two factors may be negatively related complicates predictions about advertising's effects. We focus on the efficacy of executional cues when motivation is high and ability low or when motivation is low and ability high. This approach is relatively novel to the consumer information-processing literature.

Our results are particularly relevant for managers dealing with products that involve rollouts over a relatively extended period of time. Examples of such products are plentiful (e.g., digital subscriber lines, cellular telephone services, airlines, as well as toll-free services of the type studied in this article). Extended rollouts are often necessary because of the complexity and expense associated with building a local infrastructure to deliver the product or service in each market (Chandy and Tellis 1998, 2000). The extended rollout results in markets of widely varying ages: some that are quite mature and others that are brand new. Anecdotal evidence suggests that the current practice (except perhaps in cross-national situations) is to show roughly the same set of ads across all markets. Indeed, this was the strategy followed by the firm studied here. Our results suggest the need to tailor ads to fit the age of specific markets and use different ads for different ages.

Limitations and Further Research

As with any study, our results should be viewed as tentative. This article tests the simple premise that market age moderates the relationship between executional cues in ads and their behavioral impact. One strength of our study is that its narrow context enables us to control for a variety of confounding factors while incorporating real-world advertising and actual consumers. Although this context serves us well in terms of internal validity and extends experimental work done on advertising effects, generalizations would depend on additional work that incorporates competitive effects and uses other products and services, different sets of ads, and a larger body of executional cues.

For example, because we studied a market in which competitive pressures are limited, it is reasonable to determine whether the effects generalize to contexts in which competitive pressures are high. Furthermore, the context we examined was one in which there was limited time between exposure and potential consumer response. Although current models of persuasion (e.g., the theory of reasoned action model or theory of planned behavior) suggest that attitudes are capable of predicting behavior marked by long periods between exposure and behavior (see Sheppard, Hartwick, and Warshaw 1988), it is possible that predicting behavior from advertising will require richer theoretical models that incorporate both competitive effects and exposure-response durations.

Further work could also consider the intervening factors that underlie the effects we observed. Although our prediction was that a priori levels of motivation and ability would

explain why various cues may or may not be effective, our study did not measure the level of these variables. Work that more directly links these states to advertising outcomes is therefore in order. Also, the bulk of our analysis here is at the market level; there is the potential for heterogeneity biases when aggregating responses from the individual level. Future work with individual-level data can help address this issue.

Future work should also focus on additional process variables that mediate ad effectiveness for products of different market ages. One could expect, for example, that the high motivation level predicted for consumers in young markets would lead to deep processing with support and counterarguments to message claims. This deep processing would make ad claims more salient and render them easier to recall. Because the product is new to the market, recall may be quite important. In contrast, the low motivation but high ability predicted for consumers in older markets would render them susceptible to emotional and approach-based messages that motivate them to imagine positive benefits from product use. Less cognitive response and more emotional response might be observed for consumers in older markets.

Further research should also focus on additional executional cues beyond those studied here. Stewart and Furse's (1986) study provides a rich basis for identifying cues different from those we studied that might vary across markets of different ages. For example, in younger versus older markets, congruence of commercial elements (e.g., the extent to which the brand name reinforces a brand benefit), attributes as the main message, and demonstrations would be more important. These cues would facilitate brand name and attribute learning—important effects when the product is new and consumers are limited in their prior product knowledge. In contrast, when product knowledge is high but motivation low, as would be the case in older markets, the use of humor, comfort appeals, sex appeals, scenic beauty, surrealistic visuals, and aesthetic claims might be effective. These cues might enhance consumers' motivation to process the ad by their appetitive and emotional nature.

Finally, further research should examine the effectiveness of advertising executional cues in other types of product-markets. For example, competition may moderate the effects studied here—the effects of advertising cues in highly competitive markets may well be different from those in the current context. Perceived risk in product purchase or use may be another moderating factor. For a medical service, consumers may perceive risk to be high, making them more susceptible to arguments, negatively framed messages, and expert sources in young markets. The effects may be different when consumers perceive the risk in product purchase or use to be limited.

REFERENCES

- Aaker, David A. and Donald E. Bruzonne (1981), "Viewer Perceptions of Prime-Time Television Advertising," *Journal of Advertising Research*, 21 (October), 15–23.
- Agres, Stuart, Julie A. Edell, and Tony M. Dubitsky (1990), *Emotion in Advertising: Theoretical and Practical Explorations*. New York: Quorum Books.
- Amemiya, T. (1985), *Advanced Econometrics*. Cambridge, MA: Harvard University Press.
- Bagozzi, Richard P. and Uptal Dholakia (1999), "Goal Setting and Goal Striving in Consumer Behavior," *Journal of Marketing*, 63 (Special Issue), 19–32.

- Batra, Rajeev and Michael L. Ray (1986), "Situational Effects of Advertising Repetition: The Moderating Influence of Motivation, Ability and Opportunity to Respond," *Journal of Consumer Research*, 12 (March), 432-45.
- Blair, Margaret and Karl E. Rosenberg (1994), "Convergent Findings Increase Our Understanding of How Advertising Works," *Journal of Advertising Research*, 34 (May/June), 35-45.
- Cacioppo, John T. and Richard E. Petty (1982), "The Need for Cognition," *Journal of Personality and Social Psychology*, 42 (1), 116-31.
- Chandy, Rajesh K. and Gerard J. Tellis (1998), "Organizing for Radical Product Innovation," *Journal of Marketing Research*, 35 (November), 474-87.
- and ——— (2000) "The Incumbent's Curse? Incumbency, Size, and Radical Product Innovation," *Journal of Marketing*, 64 (July), 1-17.
- Clarke, Darryl G. (1976), "Econometric Measurement of the Duration of Advertising Effect on Sales," *Journal of Marketing Research*, 13 (November), 345-57.
- Cohen, Joel B. and Charles S. Areni (1991), "Affect and Consumer Behavior," in *Handbook of Consumer Behavior*, Thomas S. Robertson and Harold H. Kassarian, eds. Englewood Cliffs, NJ: Prentice Hall, 188-240.
- Cook, William A. and Arthur J. Kover (1997), "Research and the Meaning of Advertising Effectiveness: Mutual Misunderstandings," in *Measuring Advertising Effectiveness*, W. Wells, ed. Hillsdale, NJ: Lawrence Erlbaum Associates, 13-20.
- Craig, Samuel, Brian Sternthal, and Clark Leavitt (1976), "Advertising Wearout: An Experimental Analysis," *Journal of Marketing Research*, 13 (4), 365-72.
- Eastlack, Joseph O., Jr., and Ambar G. Rao (1986), "Modeling Response to Advertising and Pricing Changes for 'V-8' Cocktail Vegetable Juice," *Marketing Science*, 5 (3), 245-59.
- and ——— (1989), "Advertising Experiments at the Campbell Soup Company," *Marketing Science*, 8 (Winter), 57-71.
- Edwards, Kari (1990), "The Interplay of Affect and Cognition in Attitude Formation and Change," *Journal of Personality and Social Psychology*, 59 (2), 202-16.
- and William von Hippel (1995), "Hearts and Minds: The Priority of Affective Versus Cognitive Factors in Person Perception," *Personality and Social Psychology Bulletin*, 21 (October), 996-1011.
- Etgar, Michael and Stephen A. Goodwin (1982), "One-Sided Versus Two-Sided Comparative Message Appeals for New Brand Introductions," *Journal of Consumer Research*, 8 (March), 460-65.
- French, John R. and Bertram Raven (1959), "The Bases of Social Power," in *Studies in Social Power*, D. Cartwright, ed. Ann Arbor, MI: Institute for Social Research, 150-67.
- Friestad, Marian and Esther Thorson (1986), "Emotion-Eliciting Advertising: Effect on Long-Term Memory and Judgement," in *Advances in Consumer Research*, Vol. 13, Richard J. Lutz, ed. Provo, UT: Association for Consumer Research, 111-15.
- Frijda, Nico H. (1986), *The Emotions*. Cambridge, UK: Cambridge University Press.
- Gardner, Meryl P. (1983), "Advertising Effects on Attributes Recalled and Criteria Used for Brand Evaluations," *Journal of Consumer Research*, 10 (December), 310-18.
- Golden, Linda L. and K.A. Johnson (1983), "The Impact of Sensory Preference and Thinking Versus Feeling Appeals on Advertising Effectiveness," in *Advances in Consumer Research*, Vol. 10, Richard P. Bagozzi and Alice M. Tybout, eds. Ann Arbor, MI: Association for Consumer Research, 203-208.
- Greene, William H. (1997), *Econometric Analysis*. Upper Saddle River, NJ: Prentice Hall.
- Grunert, Klaus G. (1996), "Automatic and Strategic Processes in Advertising Effects," *Journal of Marketing*, 60 (October), 88-101.
- Hanssens, Dominique, Leonard J. Parsons, and Randall L. Schultz (1990), *Market Response Models, Econometric and Time Series Analysis*. Norwell, MA: Kluwer Academic Publishers.
- Hawkins, Scott A. and Stephen J. Hoch (1992), "Low Involvement Learning: Memory Without Evaluation," *Journal of Consumer Research*, 19 (September), 212-25.
- Holbrook, Morris B. and Rajeev Batra (1987), "Assessing the Role of Emotions as Mediators of Consumer Responses to Advertising," *Journal of Consumer Research*, 14 (December), 404-20.
- Homer, Pamela M. and Lynn R. Kahle (1990), "Source Expertise, Time of Source Identification, and Involvement in Persuasion: An Elaborative Processing Perspective," *Journal of Advertising*, 19 (1), 30-39.
- Hovland, C.I. and W. Weiss (1951), "The Influence of Source Credibility on Communication Effectiveness," *Public Opinion Quarterly*, 15 (Winter), 635-50.
- Howard, John A. (1977), *Consumer Behavior: Application of Theory*. New York: McGraw-Hill.
- and Jagdish N. Sheth (1969), *The Theory of Buyer Behavior*. New York: John Wiley & Sons.
- Judge, George G., W.E. Griffiths, R. Carter Hill, Helmut Lutkepohl, and Tsoung-Chao Lee (1985), *The Theory and Practice of Econometrics*. New York: John Wiley & Sons.
- Kahle, Lynn R. and Pamela M. Homer (1985), "Physical Attractiveness of the Celebrity Endorser: A Social Adaptation Perspective," *Journal of Consumer Research*, 11 (March), 954-61.
- Kahneman, Daniel and Amos Tversky (1979), "Prospect Theory: An Analysis of Decisions Under Risk," *Econometrica*, 47, 262-91.
- Krishnamurthi, Lakshman, Jack Narayan, and S.P. Raj (1986), "Intervention Analysis of a Field Experiment to Assess the Buildup Effect of Advertising," *Journal of Marketing Research*, 23 (November), 337-45.
- Leone, Robert P. (1995), "Generalizing What Is Known About Temporal Aggregation and Advertising Carryover," *Marketing Science*, 14 (3), G141-G150.
- Levin, Irwin P., Sandra L. Schneider, and Gary J. Gaeth (1998), "All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects," *Organizational Behavior and Human Decision Processes*, 76 (November), 149-88.
- Lodish, Leonard M., Magid Abraham, Stuart Kalmenson, Jeanne Livelsberger, Beth Lubetkin, Bruce Richardson, and Mary Ellen Stevens (1995a), "How TV Advertising Works: A Meta-Analysis of 389 Real World Split Cable TV Advertising Experiments," *Journal of Marketing Research*, 32 (May), 125-39.
- , ———, Jeanne Livelsberger, Bruce Richardson, and Mary Ellen Stevens (1995b), "A Summary of Fifty-Five In-Market Experimental Estimates of the Long-Term Effect of TV Advertising," *Marketing Science*, 14 (3), 143-40.
- and Dwight Risky (1997), "Making Ads Profitable," *Marketing Research*, 9 (4), 38-42.
- MacInnis, Deborah J. and Bernard J. Jaworski (1989), "Information Processing from Advertisements: Towards an Integrative Framework," *Journal of Marketing*, 53 (October), 1-23.
- , Christine Moorman, and Bernard J. Jaworski (1991), "Enhancing and Measuring Consumers' Motivation, Opportunity, and Ability to Process Brand Information from Ads," *Journal of Marketing*, 55 (4), 32-54.
- and C. Whan Park (1991), "The Differential Role of Characteristics of Music on High- and Low-Involvement Consumers' Processing of Ads," *Journal of Consumer Research*, 18 (September), 161-73.
- Maheswaran, Durairaj and Joan Meyers-Levy (1990), "The Influence of Message Framing and Issue Involvement," *Journal of Marketing Research*, 27 (August), 361-67.
- McGuire, W.J. (1969), "The Nature of Attitudes and Attitude Change," in *Handbook of Social Psychology*, Gardner Lindzey and Elliot Aronson, eds. Reading, MA: Addison Wesley, 136-314.
- Meyerowitz, B.E. and Shelley Chaiken (1987), "The Effect of Message Framing on Breast Self-Examination Attitudes, Intentions and Behavior," *Journal of Personality and Social Psychology*, 52 (March), 500-510.

- Meyers-Levy, Joan and Prashant Malaviya (1999), "Consumers' Processing of Persuasive of Advertisements: An Integrative Framework of Persuasion Theories," *Journal of Marketing*, 63 (Special Issue), 45–60.
- Millar, Murray G. and Karen U. Millar (1990), "Attitude Change as a Function of Attitude Type and Argument Type," *Journal of Personality and Social Psychology*, 52 (2), 217–28.
- Moore, Danny L. and J. Wesley Hutchinson (1983), "The Effects of Ad Affect on Advertising Effectiveness," in *Advances in Consumer Research*, Vol. 10, Richard P. Bagozzi and Alice M. Tybout, eds. Ann Arbor, MI: Association for Consumer Research, 536–31.
- Olson, James M. and Mark P. Zanna (1993), "Attitudes and Attitude Change," *Annual Review of Psychology*, 44, 117–55.
- Park, C. Whan and Parker Lessig (1977), "Students and Housewives: Differences in Susceptibility to Reference Group Influence," *Journal of Consumer Research*, 4 (September), 102–10.
- and S. Mark Young (1986), "Consumer Response to Television Commercials: The Impact of Involvement and Background Music on Brand Attitude Formation," *Journal of Marketing Research*, 23 (January), 11–24.
- Parsons, Leonard J. (1975), "The Product Life-Cycle and Time Varying Advertising Elasticities," *Journal of Marketing Research*, 12 (November), 476.
- Pechmann, Cornelia and David W. Stewart (1988), "Advertising Repetition: A Critical Review of Wearin and Wearout," in *Current Issues and Research in Advertising*, James H. Leigh and Claude R. Martin Jr., eds. Ann Arbor, MI: University of Michigan, Division of Research, School of Business Administration, 285–330.
- Petty, Richard E. and John T. Cacioppo (1979), "Effects of Message Repetition and Position on Cognitive Response, Recall, and Persuasion," *Journal of Personality and Social Psychology*, 37 (January), 97–109.
- and ——— (1986), *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York: Springer-Verlag.
- , ———, and R. Goldman (1981), "Personal Involvement as a Determinant of Argument-Based Persuasion," *Journal of Personality and Social Psychology*, 41 (November), 847–55.
- and Duane T. Wegener (1998), "Attitude Change: Multiple Roles for Persuasion Variables," in *The Handbook of Social Psychology*, Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindzey, eds. Boston: McGraw-Hill, 323–90.
- Price, Linda L. and Eric J. Arnould (1999), "Commercial Friendships: Service Provider–Client Relationships in Context," *Journal of Marketing*, 63 (October), 38–56.
- Raj, S.P. (1982), "The Effects of Advertising on High and Low Loyalty Consumer Segments," *Journal of Consumer Research*, 9 (June), 77–89.
- Ratneshwar, S. and Chaiken Shelly (1991), "Comprehension's Role in Persuasion: The Case of Its Moderating Effect on the Persuasive Impact of Source Cues," *Journal of Consumer Research*, 18 (June), 52–62.
- Ray, Michael L. and Rajeev Batra (1983), "Emotion and Persuasion in Advertising: What We Do and Don't Know About Affect," in *Advances in Consumer Research*, Vol. 10, R.P. Bagozzi and A.M. Tybout, eds. Ann Arbor, MI: Association for Consumer Research, 543–48.
- Rethans, Arno J., John L. Swasy, and Lawrence J. Marks (1986), "Effects of Television Commercials Repetition, Receiver Knowledge, and Commercial Length: A Test of the Two-Factor Model," *Journal of Marketing Research*, 23 (1), 50–61.
- Roney, Christopher, E. Torry Higgins, and James Shah (1995), "Goals and Framing: How Outcome Focus Influences Motivation and Emotion," *Personality and Social Psychology Bulletin*, 21 (November), 1151–60.
- Rossiter, John R. and Larry Percy (1987), *Advertising and Promotion Management*. New York: McGraw-Hill.
- Russell, James A. (1978), "Evidence of Convergent Validity on the Dimensions of Affect," *Journal of Personality and Social Psychology*, 36 (10), 1152–68.
- Schumann, D.W., Richard E. Petty, and D.S. Clemons (1990), "Predicting the Effectiveness of Different Strategies of Advertising Variation: A Test of the Repetition-Variation Hypotheses," *Journal of Consumer Research*, 17 (September), 192–202.
- Sethuraman, Raj and Gerard J. Tellis (1991), "An Analysis of the Tradeoff Between Advertising and Pricing," *Journal of Marketing Research*, 31 (May), 160–74.
- Sheppard, Blair, Jon Hartwick, and Paul R. Warshaw (1988), "The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research," *Journal of Consumer Research*, 15 (December), 325–43.
- Shiv, Baba, Julie A. Edell, and John W. Payne (1997), "Factors Affecting the Impact of Negatively and Positively Framed Ad Messages," *Journal of Consumer Research*, 24 (3), 285–94.
- Singh, Surendra N. and Catherine A. Cole (1993), "The Effects of Length, Content, and Repetition on Television Commercial Effectiveness," *Journal of Marketing Research*, 30 (February), 91–104.
- Stayman, Douglas M. and David A. Aaker (1988), "Are All the Effects of Ad-Induced Feelings Mediated by A_{Ad}?" *Journal of Consumer Research*, 15 (December), 368–73.
- Sternthal, Brian and C. Samuel Craig (1973), "Humor in Advertising," *Journal of Marketing*, 37 (October), 12–18.
- Stewart, David W. (1992), "Speculations on the Future of Advertising Research," *Journal of Advertising*, 21 (September), 1–46.
- and David H. Furse (1986), *Effective Television Advertising: A Study of 1000 Commercials*. Lexington, MA: Lexington Books.
- Tellis, Gerard J. (1988), "Advertising Exposure, Loyalty, and Brand Purchase: A Two Stage Model of Choice," *Journal of Marketing Research*, 15 (May), 134–44.
- (1998), *Advertising and Sales Promotion Strategy*. Reading, MA: Addison Wesley.
- , Rajesh K. Chandy, and Pattana Thavavich (2000), "Which Ad Works, When, Where, and How Often? Modeling the Effects of Direct Television Advertising," *Journal of Marketing Research*, 37 (February), 32–46.
- and Claes Fornell (1988) "Advertising and Quality Over the Product Life Cycle: A Contingency Theory," *Journal of Marketing Research*, 15 (February), 64–71.
- and Doyle Weiss (1995), "Does TV Advertising Really Affect Sales?" *Journal of Advertising*, 24 (3), 1–12.
- Vakratsas, Demetrios and Tim Ambler (1999), "How Advertising Works: What Do We Really Know?" *Journal of Marketing*, 63 (1), 26–43.
- Vaughn, Richard (1980), "How Advertising Works: A Planning Model," *Journal of Advertising Research*, 20 (5), 27–33.
- Weinberger, Marc C. and Charles S. Gulas (1992), "The Impact of Humor in Advertising: A Review," *Journal of Advertising*, 21 (4), 35–59.
- Wells, William (1993), "Discovery-Oriented Consumer Research," *Journal of Consumer Research*, 19 (March), 489–504.
- Winer, Russell S. (1999), "Experimentation in the 21st Century: The Importance of External Validity," *Journal of the Academy of Marketing Science*, 27 (Summer), 349–58.
- Yalch, Richard F. and Rebecca Elmore-Yalch (1984), "The Effect of Numbers on the Route to Persuasion," *Journal of Consumer Research*, 11 (June), 522–27.