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Many advertisers have argued that 15-second television commercials (:15s) should be used only to reinforce effects created by longer commercials. However, this recommendation is based on studies that have several weaknesses, including use of single exposure levels, established commercials, and learning as the primary dependent variable. The authors report the findings of a laboratory experiment in which they compared the effectiveness of :15s and :30s by using novel commercials with different message appeals (informational vs. emotional), exposing subjects multiple times, and employing multiple dependent variables. They find that informational :15s are as effective as informational :30s in several situations and can be used as stand-alone units. They also show that emotional :30s are superior to emotional :15s in influencing a viewer's learning of brand name and attitude. The reasons for and the implications of these findings are considered.

The Effects of Length, Content, and Repetition on Television Commercial Effectiveness

Since 15-second television commercials (:15s) were introduced into the U.S. market in 1983–1984, they have captured a major share of network and non-network advertising. By mid-1989, 35% of all network commercials and 40% of all daytime commercials were 15 seconds long (*Business Week* 1989). Though we know little about their effectiveness, many advertisers consider :15s a good value at one half the price of :30s.

However, :15s are not nearly as good a bargain now as they once were. Initially, :15s were priced at 50% of the :30s price; however, by 1987, local TV stations were charging as much as 85% of the :30s price (Alsop 1987). As the prices of :15s rise, the issue of their effectiveness in comparison with :30s becomes crucial: Are :15s a good buy at 60, 70, or 85% of the price of :30s?

The general belief in the industry is that :15s are from 50 to 90% as effective in creating learning and attitudinal

change as their counterpart :30s. This belief is based largely on three studies: the J. Walter Thompson/ABC study (Mord and Gilson 1985), the ARS study (Fabian 1986), and the study by Patzer (1991). Though widely considered definitive, these studies have several critical shortcomings.

First, these studies used :15s adapted from campaigns already running :30s. Because viewers were familiar with the :30s advertising campaigns, the effectiveness ratings of the tested :15s may have been artificially high. Second, these studies measured viewers' reactions after only a single exposure to the test commercials. We know from wearout studies that the size of advertising effects on learning and attitudes generally decreases after the first exposure. Third, both the J. Walter Thompson/ABC and ARS studies used recall as the primary dependent variable, ignoring important attitudinal variables. Finally, no study offers a theoretical basis for predicting why :15s are less effective than :30s.

We report a laboratory study designed to ascertain the effectiveness of 15-second commercials in comparison with their 30-second counterparts. We used multiple dependent variables, including recall, attitude toward the ad (A_{ad}), attitude toward the brand (A_B), and purchase intention (PI). We employed commercials that were unfamiliar to the subjects and evaluated their effectiveness over repeated exposures.

We also incorporated message appeal as a third in-

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The study was funded in part by the University of Kansas General Research Fund and School of Business Research Fund. The ideas and opinions expressed herein are solely those of the authors. The authors thank Suresh Divakar, Sanjay Mishra, and Neeli Bendapudi for their technical assistance and Barbara Yerkes for her editorial help. They are grateful to the anonymous *JMR* reviewers for their valuable insights.

dependent variable, because message characteristics influence viewers' reactions to advertising. More specifically, we studied two types of message appeals, emotional and informational. The conceptual distinction between informational and emotional advertising is a significant one. Puto and Wells (1984, p. 638) define an informational ad as one that "provides consumers with factual (i.e., presumably verifiable), relevant brand data in a clear and logical manner." In contrast, an emotional ad uses ". . . psychological appeals such as fear and love to touch our feelings" (Wells, Burnett, and Moriarty 1989, p. 330).

We begin by developing hypotheses; then we describe the method used in the study and report the results. Finally we discuss the implications, contributions, and limitations of the study.

HYPOTHESIS DEVELOPMENT

We develop several hypotheses relating message length to learning, attitude toward the commercial (A_{ad}), attitude toward the brand (A_B), and purchase intention (PI) by drawing on literature that links opportunity to process information to these dependent variables. Our hypotheses are guided by the theoretical model in Figure 1. More specifically, we hypothesize that message length influences both learning and attitudinal measures of commercial effectiveness; however, the nature of this influence may depend on how frequently the message is repeated as well as what type of message appeal is used.

:15s VERSUS :30s—LEARNING EFFECTS

The Effect of Message Length

Over the years, many studies have shown that longer commercials generally facilitate learning of commercial content (Fabian 1986; Mord and Gilson 1985; Singh and Rothschild 1983). If the amounts of information contained in the longer and shorter versions of a commercial are about the same, longer ads should be superior to shorter ads on learning measures for at least two reasons. First, a longer commercial can repeat the same information more times within a single presentation than a

shorter commercial. This repetition increases the redundancy of the information and hence facilitates better encoding. Second, a longer commercial, in comparison with a shorter one, gives the viewer more time to process the message and thus enhances viewer learning (Pechmann and Stewart 1988; Rethans, Swasy, and Marks 1986). This second reason is consistent with the "total time hypothesis," which suggests "a simple linear relationship between time available to commit something to memory and the amount retained" (Baddeley 1976). This discussion leads to our first hypothesis.

- H_1 : Viewers recall brand names and claims better from 30-second commercials than from 15-second commercials.

The Effect of Length Over Repeated Exposures

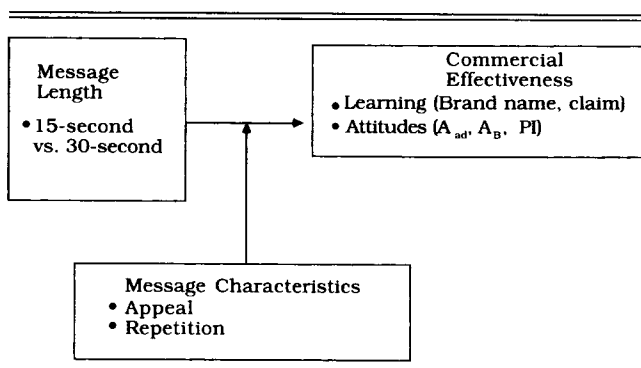
The predicted difference between shorter and longer commercials may diminish as repetitions of the message increase. Several previous studies in marketing (Rethans, Swasy, and Marks 1986; Singh and Rothschild 1983) and years of prior research on verbal learning in psychology confirm that as repetitions increase, learning increases. We anticipate, though, that viewers benefit more from the initial added exposures to :15s than to :30s because at low exposure levels processing is more constrained by the :15s than the :30s. Of course, after a certain point, learning from both :15s and :30s levels off because a significant amount of learning has already taken place and there is not much left to learn. This line of reasoning leads to the following hypotheses.

- H_{2a} : Though viewers learn more from 30-second commercials than 15-second commercials, the difference decreases as repetitions increase from low to moderate to high.¹
- H_{2b} : The rate of change in learning from low to moderate exposures is significantly higher for the :15s than the :30s, but there is no significant increase in learning for either the :15s or the :30s when exposures increase from moderate to high.

The Combined Effect of Length and Message Appeal

In general longer commercials should promote learning in comparison with shorter commercials, especially if the longer commercials repeat the brand name more times than the shorter commercials. However, the strength of this length effect may depend on the message appeal and on the measure of learning. Specifically, longer emotional commercials may promote brand name learning better than shorter emotional commercials, whereas commercial length may not as dramatically affect brand name learning from informational commercials. Several factors may contribute to this effect. First, Friestad and

Figure 1
THEORETICAL MODEL



¹"Low repetition" implies one or two repetitions, "moderate repetition" means three to five repetitions, and "high repetition" connotes six or more repetitions (Cacioppo and Petty 1986).

Thorson (1986) argue that viewers of emotional commercials, who experience fairly intense emotional reactions during commercial exposure, may form stronger episodic memory traces than viewers of neutral commercials. Longer emotional commercials (vs. shorter ones) should give viewers opportunity to form even stronger memory traces. Not only are emotional commercials emotively powerful, but they incorporate brand name information into the central part of the message. Consequently, a second reason for the length effect for emotional commercials is that the longer commercials may provide more contextual details than the shorter messages so that viewers can encode the brand name more richly after exposure.

Similarly, longer informational commercials may present more and repeat more facts than a shorter informational message, enabling the viewer to encode more claims. Commercial length may not as dramatically affect claim recall from emotional commercials because claims are usually presented incidently in such commercials and viewers may not perceive such information as relevant. Batra (1991), for instance, points out that one consequence of the emotional message may be that people could be more easily distracted from the brand message.

In summary, the length effect on brand name recall should be most pronounced for emotional commercials and least pronounced for informational commercials. However, the length effect on claim recall should be most pronounced for informational commercials and least pronounced for emotional commercials.

- H₃: Though viewers recall brand names from longer commercials better than brand names from shorter commercials, the difference is smallest for informational commercials and greatest for emotional commercials.
- H₄: Though viewers recall claims from longer commercials better than claims from shorter commercials, the difference is smallest for emotional commercials and greatest for informational commercials.

The Joint Effects of Length, Message Appeal, and Repetition

As viewers are exposed to the same message repeatedly, both the length and message effects begin to be neutralized. For example, as repetitions increase, the length effects on learning diminish because, as discussed in relation to H₂, the additional repetitions remove the constraint on processing imposed by the short commercials. In addition, as repetitions increase, the appeal effects diminish because the images/feelings conveyed by the emotional ads too begin to crystalize in viewers' minds, resulting in smaller appeal effects (Puto and Wells 1984). We therefore hypothesize the following effects.

- H₅: For both types of commercials, the length effects expected for the learning variables diminish at moderate and high levels of repetition, in part because

the performance of :15s on learning measures increases more rapidly between low and moderate repetitions than the performance of :30s.

:15s VERSUS :30s—ATTITUDINAL EFFECTS

The Effect of Message Length

Recent advertising models (MacInnis and Jaworski 1989) suggest that message effectiveness for persuasive ads declines when the opportunity to process the message declines. Longer commercials, in comparison with shorter ones, enable the message recipient to "realize the message argument's cogency and favorable implications which, in turn, enhances persuasion" (Rethans, Swasy, and Marks 1986). Because exposure to commercials is not self-paced, :15s, in comparison with :30s, limit the viewers' opportunity to elaborate on the commercials.

However, evidence from marketing studies about length effects on message persuasiveness is mixed. Rethans, Swasy, and Marks (1986) did not find any effect of message length on attitudinal responses, whereas Wheatley (1968) and Wells, Leavitt, and McConville (1971) did. As these studies compared :30s with :90s (Rethans, Swasy, and Marks 1986) and :30s with :60s (Wells, Leavitt, and McConville 1971; Wheatley 1968), it is difficult to say whether these results are applicable to :15s versus :30s. However, the overall weight of evidence seems to favor longer commercials. We therefore expect to observe a positive impact of length for attitudinal variables.

- H₆: Viewers form more positive attitudes (A_{ad} , A_B , and PI) after viewing 30-second commercials than after viewing 15-second commercials.

The Effect of Length Over Repeated Exposures

Attitudinal reactions to advertising change over repeated exposures. As the repetitions increase, two distinct and opposing psychological processes—positive habituation and tedium—come into play (two-factor theory, Berlyne 1970). Positive habituation implies that, as exposures to a novel stimulus increase, people's uncertainty and feelings of conflict about the stimulus decrease. However, as exposures to a stimulus increase further, people's affect toward the stimulus decreases because they experience boredom, tedium, and reactance. Rethans, Swasy, and Marks (1986) found support for the tedium component of two-factor theory (but not the habituation effect).

Though we argue in H₆ that :15s are generally less effective than :30s, as the number of repetitions increases from moderate to high, the feelings of tedium created by :15s may not increase as quickly as those created by :30s. Rethans and his coauthors argue that shorter commercials provide less time for the audience to generate negative thoughts about the ad. Simply put, :15s may initially receive lower evaluation than :30s, but :30s wear out more quickly than :15s.

H₇: Though viewers form more positive attitudes after viewing 30-second commercials than after viewing 15-second commercials, they become bored more quickly by 30-second commercials as repetitions increase beyond some moderate level. In other words, :15s wear out more slowly than the :30s.

The Combined Effect of Length and Message Appeal

There are at least two theoretical reasons to believe that emotional commercials may generate more positive attitudes than informational commercials. First, emotional commercials attempt to create positive emotions as opposed to presenting logical facts. These feeling states could transfer to various product-related responses such as A_{ad} , A_B , and PI through either a direct affect-transfer mechanism or classical conditioning (Machleit and Wilson 1988). Second, emotional ads, in comparison with informational ads, might induce lower reactance among the viewers. If a communication's message arouses reactance through a "hard sell," the reactance will lessen the message's capacity to generate compliance (Brehm and Brehm 1981, p. 335).

Though in H₆ we posit that longer commercials generate more positive attitudes than shorter commercials, we now propose that the size of the length effect depends on the type of appeal. Specifically, longer emotional commercials may induce significantly higher positive affective responses than the shorter ones, but longer informational commercials have the potential of arousing greater reactance than the shorter ones. The presence of two opposing trends in informational commercials (increasing length generates more positive attitudinal responses but also tends to generate feelings of reactance) means that the length effect is muted in informational commercials. Hence, we propose:

H₈: Though longer commercials produce more positive attitudinal responses than shorter commercials, this effect is more pronounced for the emotional commercials than for the informational commercials.

The Joint Effect of Length, Message Appeal, and Repetitions

The attitudinal effectiveness of long and short emotional and informational commercials seems likely to change with repetitions. For example, Hitchon, Thorson, and Zhao (1988) have shown that emotional television commercials wear out more slowly than unemotional ones. For unemotional commercials, attitude toward the ad declined by the fourth exposure; for emotional ads, in contrast, attitude toward the ad did not decline even after 12 exposures. One possible explanation for these results is that emotional and informational ads persuade in fundamentally different ways: emotional ads tend to elicit "imagery" processing whereas ads with verbal arguments elicit "discursive/cognitive" processing (MacInnis and Price 1987). This line of reasoning and our previous discussions suggest the following results.

H₉: Though viewers respond more favorably to longer commercials than to shorter commercials and though this length effect is more pronounced for emotional than informational commercials, these differences diminish as repetitions increase because the 15-second emotional commercials wear out most slowly, followed by 30-second emotional and then 15-second informational commercials. The fastest wearout occurs for the 30-second informational commercials.

Additional Considerations

Many hypotheses, though not explicitly stated, are implicit in our preceding discussions. For instance, we expect repetitions of commercials to increase viewer learning but, beyond some moderate level, further learning increases should taper off. Similarly, emotional commercials are expected to lead to greater brand name learning, lower claim learning, and more positive attitudinal effects than informational commercials. Finally, for repetition by message interactions, we anticipate that with increasing repetitions informational commercials will create greater reactance among viewers than emotional ones.

METHODS

Experimental Design

The research design was a 3 (levels of commercial repetition: 1, 4, and 8) by 2 (commercial lengths: 15-second and 30-second) by 2 (types of commercials: emotional vs. informational) split-plot design. Repetition levels and message length were between-subjects factors, whereas commercial type was a within-subjects factor. Each subject saw both types of ads, but at only one of the three repetition levels and at only one length.

Subjects and Procedure

Subjects were 138 undergraduate university students who signed up for two half-hour convenient viewing periods over two consecutive days.² Videotape treatments were assigned randomly to the time slots, thereby randomly assigning subjects to cells. Also, subjects within a cell were randomly assigned to view different commercial orders. The cell sizes ranged from 21 to 28.

The purpose of the study was withheld from the subjects. When they arrived for the first viewing session, they heard tape-recorded instructions telling them that they were about to see two late night news shows taken from different network affiliate stations from outside their own viewing area. In groups of five to seven persons, they then viewed the shows and filled out an evaluation form comparing the news from the two stations. After viewing two other news shows the next day, they again filled out the news evaluation forms and then finally completed a questionnaire related to the commercials.

²We exclude from the analysis 15 subjects (distributed evenly across the cells) who guessed the purpose of the study.

Dependent Variables

Each subject received an aided recall test first, followed by tests for measuring affective and evaluative attitudes toward the ad (A_{ad}). Attitude toward the brand (A_B) and purchase intention (PI) tests were administered last. (See Appendix A for the details about the dependent variables).

Stimulus Materials: Commercials and Videotapes

Eleven 30-second commercials were selected from a pool of 200 regional commercials by two judges who were familiar with the purpose of the study. In a pretest, a group of 29 subjects (with characteristics similar to those of the participants in the main study) evaluated each commercial, using Puto and Well's (1984) scales.³ For the final experiment, we selected four food and beverage commercials as the experimental treatment commercials: two commercials that scored highest on the emotional (transformational) dimension (a hotdog and a rootbeer commercial) and the two that scored highest on the informational dimension (an oil/margarine and a hamburger substitute commercial). To create the 15-second experimental commercials, the four 30-second experimental commercials were professionally edited so that the shorter commercials shared the unique selling proposition and the theme of the :30s. None of the brands advertised were sold in the test city.

Two sets of videotapes were prepared, each containing two nonlocal, non-network newscasts edited to run about 13 minutes. Commercials were inserted into two breaks in each 13-minute program (between news and sports and between sports and weather). Thus, each videotape had four commercial breaks. Because of the length manipulation, about half of the videotapes contained the experimental :15s and the other half contained the experimental :30s. To prevent recency and primacy effects, nonexperimental fillers were used in the first and last positions on the two sets of tapes.

Each subject saw a total of eight commercials—four fillers (two on the first session videotape and two on the second session videotape) and four test commercials. Whereas the total number of commercials each subject saw remained invariant, the number of repetitions of the test commercials as well as the length of the test commercials to which a subject was exposed varied, depending on the experimental cell to which the subject was assigned. Subjects saw both emotional and infor-

mational test commercials (as this was the within-subjects factor) but only at one repetition level (1, 4, or 8) and only one length (15-second or 30-second). See Appendix B for additional details.

ANALYSIS

Manipulation Check of Stimulus Materials

We conducted a manipulation check, independently from the major study, in which two groups of 23 subjects (similar to the ones used in the main experiment) were assigned randomly to view the news programs with either 15- or 30-second commercials and to complete a short questionnaire containing scales to measure informational, rational, transformational, and emotional dimensions of each ad, as well as felt involvement with each product (see Table 1).⁴ We verified that (1) the :15s and :30s were similar in terms of appeal, (2) the emotional and informational commercials differed in terms of appeal, and (3) product involvement did not vary across the four product categories.

Analysis for Main Experiment

Separate ANOVAs were conducted for each dependent variable.⁵ The means and standard deviations of the variables are reported in Table 2. The ANOVA results themselves are summarized in Table 3. However, we tested most hypotheses by a series of planned comparisons using *F*-ratio tests (Kirk 1968; Tukey 1977). These contrasts represent our interest in particular combinations of conditions—not necessarily in the overall experiment (Keppel 1982, p. 165).

:15s VERSUS :30s—LEARNING EFFECTS

The Effect of Length

H_1 , that longer commercials promote more learning, is partially supported by the ANOVA, which shows that length has a significant effect on brand name recall ($F = 5.9, p < .02$). However, length does not have a significant effect on claim recall.

⁴In this manipulation check the data for the two emotional commercials were combined, as were the data for the two informational commercials. We performed ANOVA analyses with a between-subjects factor (commercial length :15 vs. :30) and one repeated measures factor (message appeal: emotional vs. informational). We found no significant length effects; however, we found significant appeal effects. As expected, our emotional commercials were significantly more transformational and emotional and significantly less rational and informational than our informational commercials.

⁵In both the manipulation check analysis and the experimental analysis, we tested whether we could combine the dependent variables for the hotdog and rootbeer commercials into emotional commercial scores and whether we could combine the dependent variables for the hamburger and oil/margarine commercials into informational commercial scores by using Box's *M*-test for the homogeneity of variance. Of these 24 comparisons, two were significant at the .05 level, two additional comparisons were significant at the .10 level, and one additional comparison was significant at the extremely conservative .20 level.

³We operationalize informational and emotional advertising through the Puto and Wells (1984) scale (less one item, "I would have less confidence in using [this brand] now than before I saw this commercial," because we used all novel commercials). We used this scale because it classifies commercials on informational and transformational dimensions (the transformational ads are supposed to transform the experience of using the advertised brand), and because it also assesses the emotiveness of the commercials. In an independent test (discussed subsequently), we verified that the transformational ads were indeed emotional. The Cronbach alpha reliability estimates on the scales for each commercial ranged from .69 to .93.

Table 1
DESCRIPTION AND RATINGS OF THE FOUR COMMERCIALS

Product	Description of commercial	Appeal	Length (seconds)	T ^a	I ^b	E ^c	R ^d	Inv ^e	No. of brand/claim mentions ^f
Oil and margarine	Shows vegetables being stir fried, corn-on-the-cob with margarine, the oil bottle and margarine package. A voiceover makes claims about cholesterol, taste, flavor, and availability. A jingle uses the brand name.	Informational	15	2.10	4.75	1.96	3.67	9.71	5/2
			30	2.37	4.34	2.02	3.73	10.00	9/3
Hamburger substitute	A man cooks the hamburger substitute patty and places it on a bun, near the package. The voiceover makes claims about fat content, cholesterol, juiciness, and location in the supermarket. A jingle uses the brand name.	Informational	15	2.08	4.93	2.07	3.92	7.69	4/5
			30	2.31	4.34	2.22	3.69	8.94	4/5
Rootbeer	Tells a story about a man following a highway. He begins in a barn loft, drives through town in a convertible with friends, and finally drives alone in the countryside. He drinks the rootbeer throughout. The background upbeat music urges you to spend time doing things you like to do with this brand of rootbeer.	Emotional	15	4.35	1.66	5.32	1.13	9.54	4/2
			30	4.01	2.16	5.43	1.34	10.55	6/3
Hotdogs	Tells a story about a softball. An umpire makes a call, hotdogs are grilled, the victorious team raises a trophy, and then the team enjoys the hotdogs at a picnic. The vocalist sings about how these franks make your everyday experiences (like picnics) great.	Emotional	15	4.46	1.69	5.36	1.17	10.01	6/3
			30	4.13	2.27	5.22	1.28	9.72	11/4

^aThe 15-item transformational scale (Puto and Wells 1984) includes statements such as "I would like to have an experience like the one shown in the commercial." Coefficient alpha = .93; reported scores are the average score on the 15 items. Maximum average score = 6.

^bThe 7-item informational scale (Puto and Wells 1984) includes statements such as "I learned something from this commercial that I didn't know before about Brand X." Coefficient alpha = .78; reported scores are the average score on the seven items. Maximum average score = 6.

^cThe 3-item emotional scale includes statements such as "The commercial is trying to appeal to my sentiments (emotions)." Reported scores are the average score on the 3-item scale. Coefficient alpha = .83. Maximum score = 6.

^dThe 4-item rational scale includes statements such as "The commercial makes arguments for buying the brand." Reported scores are the average score on the 4-item scale. Coefficient alpha = .84. Maximum score = 6.

^eThe 4-item involvement scale (Mittal 1990) includes statements such as "To me Product Class Y is significant." Coefficient alpha = .81. Maximum score = 28.

^fBrand name mentions appear before the slash; claim mentions appear after the slash. For emotional commercials, claims are implied, not explicit.

The Effect of Length Over Repeated Exposures

H_{2a} indicates that the length effect diminishes as repetitions increase. Consistent with the hypothesis, contrasts on the brand name recall variable reveal that at one repetition there is a significant length effect ($F_{1,116} = 6.16, p < .02$), but at four and eight repetitions these contrasts are not significant (4 repetitions: $F_{1,116} = 1.36, p < .24$; 8 repetitions: $F_{1,116} = .38, p < .54$). In addition, consistent with H_{2b}, for :15s the change in brand name recall between one and four repetitions is not only significant ($F_{1,116} = 19.59, p < .001$), but this 121% increase is larger than the 53% increase for :30s between one and four repetitions. Furthermore, between four and eight repetitions there are no significant increases in brand name recall for either :15s or :30s.

For claim recall, we find no significant length effects

at any repetition level. However, consistent with H_{2b}, there is a significant 74% increase in claim recall for :15s between one and four repetitions ($F_{1,116} = 3.81, p < .06$), but only a small 13% increase in claim recall for :30s between one and four repetitions. No significant increases in claim recall after four repetitions are found for either :15s or :30s. This pattern of results indicates that, as specified in H_{2a} and H_{2b}, the length effect is qualified by the repetition level of the commercial.

The Length and Message Appeal Effect

H₃ and H₄ specify that the way the length affects brand name and claim recall depends on the message appeal. Consistent with H₃, when we inspect differences in brand name recall using contrasts, we find a significant length effect for emotional commercials ($F_{1,121} = 4.33, p <$

Table 2
BRAND NAME RECALL, CLAIM RECALL, AFFECTIVE AND EVALUATIVE ATTITUDES TOWARD THE COMMERCIAL, ATTITUDE TOWARD THE BRAND, AND PURCHASE INTENTIONS: MEANS AND STANDARD DEVIATIONS

	Brand name recall				Claim recall				Affective attitude toward commercial				
	N	T ^a	I ^b	P ^c	T	I	T	I	T	I	T	I	
<i>1 repetition</i>													
15 seconds	23	.87 ^c	(.69) ^d	.39	(.50)	.13 ^c	(.46)	.87	(.81)	136.96	(15.94)	127.44	(18.45)
30 seconds	21	1.48	(.60)	.62	(.74)	.29	(.56)	1.19	(.81)	143.19	(14.93)	114.95	(12.77)
<i>4 repetitions</i>													
15 seconds	19	1.58	(.61)	1.21	(.86)	.26	(.56)	1.47	(1.07)	131.16	(17.6)	116.58	(24.9)
30 seconds	19	1.68	(.48)	1.53	(.70)	.32	(.67)	1.37	(.76)	138.26	(22.62)	116.37	(18.26)
<i>8 repetitions</i>													
15 seconds	23	1.61	(.58)	1.35	(.71)	.26	(.62)	1.74	(.92)	130.04	(23.58)	118.43	(21.30)
30 seconds	18	1.61	(.70)	1.47	(.52)	.53	(.72)	1.72	(.75)	130.83	(25.62)	102.61	(18.83)
	Evaluative attitude toward commercial				Attitude toward brand				Purchase intentions				
	N	T	I	P	T	I	T	I	T	I	T	I	
<i>1 repetition</i>													
15 seconds	23	111.44	(14.79)	102.83	(15.11)	52.70	(11.00)	48.91	(9.75)	22.61	(8.2)	18.09	(6.3)
30 seconds	21	123.29	(21.23)	93.95	(27.12)	58.33	(10.74)	44.30	(13.34)	25.80	(8.2)	16.05	(6.75)
<i>4 repetitions</i>													
15 seconds	19	107.63	(18.87)	92.53	(22.56)	46.53	(10.23)	47.63	(16.77)	21.26	(7.58)	18.05	(6.97)
30 seconds	19	119.63	(22.13)	94.47	(26.92)	57.11	(10.53)	49.89	(16.28)	26.37	(7.06)	18.95	(7.92)
<i>8 repetitions</i>													
15 seconds	23	107.13	(19.73)	93.65	(18.30)	49.39	(13.34)	46.70	(14.46)	21.17	(8.48)	18.00	(8.05)
30 seconds	18	112.89	(24.91)	83.89	(19.97)	56.83	(12.65)	40.56	(15.02)	24.56	(7.43)	15.33	(6.87)

^aT represents transformational commercials.

^bI represents informational commercials.

^cBrand name recall is the number of correct brands recalled (maximum 2).

^dStandard deviations are in parentheses.

^eClaim recall is the number of correct claims recalled.

.04), but not for informational commercials $F_{1,120} = 2.03$, $p < .15$). Inconsistent with H_4 , we find no significant length effects when claim recall is the dependent variable for either type of appeal.

To explore these results further, we attempted to separate the effect of length *per se* (i.e., longer commercials afford the viewer greater opportunity to process and encode the message) from the *mention effect* (i.e., longer commercials can repeat the same information more often than the shorter ones). To do this, we conducted a series of logistic regressions using brand (claim) recall (recall vs. no recall) as the dependent variable and message length and number of brand name (claim) mentions respectively in the commercials as the independent variables. Each analysis involved running a series of nested models.

- Model 1 (M1): intercept + length
- Model 2 (M2): intercept + length + mentions
- Model 3 (M3): intercept + mentions

Using chi square difference tests, we compared M1 and M2 to obtain information on the importance of brand name (claim) mentions. Comparing M1 and M3 yielded information on the importance of length.

When we analyzed the brand name recall data for

emotional commercials only, the following estimates of chi square and associated degrees of freedom were obtained: M1 55.14, 9; M2 56.05, 10; and M3 58.51, 10. Comparing models M1 and M2 for emotional ads, we find that brand name mentions do not have a significant effect on brand recall ($\chi^2_{M2-M1} = .91$; d.f._{M2-M1} = 1, $p > .10$) whereas length does have a marginally significant effect on brand recall ($\chi^2_{M3-M1} = 3.37$; d.f._{M3-M1} = 1, $p < .10$). Looking at the brand name recall data for the informational commercials, we see that the estimates for the three models are M1 19.34, 9; M2 57.05, 10; and M3 20.02, 10. For informational ads, then, length is not a significant factor ($\chi^2_{M3-M1} = .68$, d.f._{M3-M1} = 1, $p > .10$), but mentions are ($\chi^2_{M2-M1} = 37.71$, d.f._{M2-M1} = 1, $p < .005$).

These analyses suggest that emotional :30s score significantly higher than the emotional :15s on the brand name recall measure because brand name recall for these commercials is affected by the length *per se*. Informational :30s, in contrast, do not exceed informational :15s because brand name recall for these commercials is influenced only by the number of times the brand name is mentioned and :30s (with 13 brand name mentions) do not differ significantly from the :15s (9 mentions) on this criterion (see Table 1).

Table 3
RESULTS FROM ANOVA ANALYSES

Source	d.f.	Dependent variables											
		Brand name recall ^a		Claim recall ^a		Affective attitude toward commercial ^b		Evaluative attitude toward commercial ^c		Attitude toward brand ^d		Purchase intentions ^e	
		F	P<	F	P<	F	P<	F	P<	F	P<	F	P<
<i>Between-subjects effects</i>													
Repetition (R)	2	20.8	.001	5.42	.006	3.98	.02	2.57	.081	.73	.48	.60	.55
Length (L)	1	5.9	.02	.98	.32	.64	.42	.53	.47	1.78	.18	1.59	.20
R × L	2	.8	.44	.48	.62	1.09	.34	.64	.53	.96	.39	.65	.52
<i>Within-subjects effects</i>													
Commercial (C)	1	46.2	.001	197.77	.001	90.93	.001	93.28	.001	28.01	.001	47.6	.001
C × R	2	5.9	.004	3.72	.03	.06	.94	.06	.94	2.26	.109	.41	.66
C × L	1	.2	.68	.40	.53	12.71	.001	14.14	.001	15.81	.001	8.46	.004
C × R × L	2	2.3	.10	.82	.44	.75	.47	.66	.52	.31	.74	.09	.91
Error	116												

^aTwo judges coded the brand name and claim recall data. They agreed on 95% of the brand name and 87% of the claim recall judgments. Differences were resolved through discussion.

^bCoefficient alpha for the A_{ad}-affective scale was .84.

^cCoefficient alpha for the A_{ad}-evaluative scale was .93.

^dCoefficient alpha for the A_B scale was .95.

^eCoefficient alpha for the PI scale was .93.

Though it is not surprising that length did not affect claim recall for emotional commercials, it is less obvious why length did not affect claim learning for informational commercials. Consequently, we conducted another series of logistic regressions on the claim recall scores for the informational commercials. For informational commercials the chi square and the associated degrees of freedom for the three models M1, M2, and M3 are M1 19.23, 9; M2 53.02, 10; and M3 19.88, 10, respectively. Mathematically, we see that length does not have a significant effect ($\chi^2_{M3-M1} = .65$; d.f._{M3-M1} = 1, $p > .10$) on claim recall, but the number of claim mentions does ($\chi^2_{M2-M1} = 33.79$, d.f._{M3-M1} = 1, $p < .005$). Therefore, because informational :15s and :30s have the same number of claims (see Table 1), they do not differ significantly on claim recall.

The Joint Effect of Length, Message Appeal, and Repetition

H₅ suggests that the length effects should be tested for each message type at each repetition level because length and message appeal effects are neutralized through repetitions. The only significant length effect is at one repetition, where 30-second emotional commercials produce significantly higher brand name recall than their 15-second counterparts.

Looking at the changes in learning across length, appeal, and repetition, we see that the brand name recall for the 30-second emotional commercials peaks at one exposure as there are no significant changes in it as exposures increase further. Brand name recall for 15-second emotional, 30-second informational, and 15-second

informational commercials peaks at four repetitions. Claim recall for the 15-second informational commercials peaks at four repetitions; there are no significant changes for any other commercial on this dependent variable across repetitions.

Additional Considerations

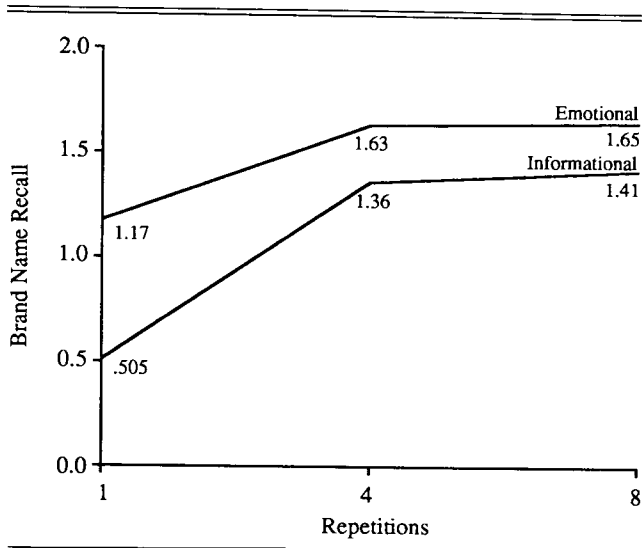
As expected, there is a significant repetition main effect on learning for both brand name ($F = 20.8$, $p < .001$) and claim recall ($F = 5.42$, $p < .006$). Also, a significant main effect for the message appeal is observed. In addition, the two-way message appeal by repetition interactions are significant for both brand name and claim recall (see Figures 2 and 3). For both the emotional and informational commercials, brand name recall increases significantly between one and four repetitions, but there are no significant changes between four and eight repetitions. Moreover, claim recall for emotional commercials increases between one and four repetitions but not between four and eight, whereas claim recall for emotional commercials does not change significantly as repetitions increase.

:15s VERSUS :30s—ATTITUDINAL EFFECTS

Dependent Variables

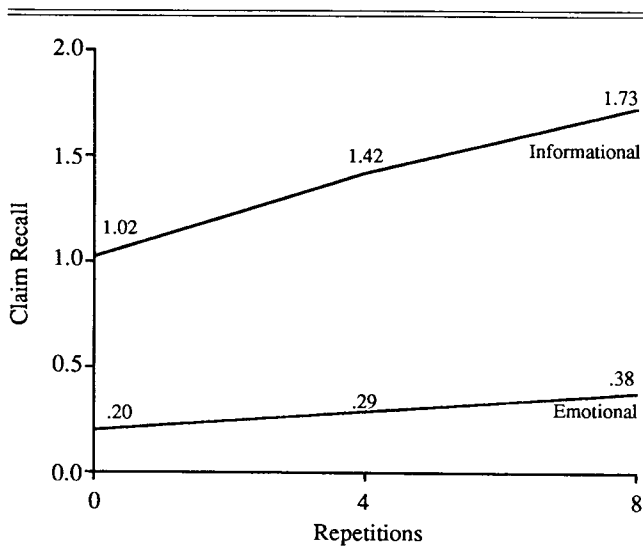
For attitudinal effects our dependent variables are A_{ad}-affective, A_{ad}-evaluative, A_B, and PI. As mentioned in Appendix A, a factor analysis identified multiple underlying factors for A_{ad}-affective. Like previous researchers, we found that the 15 items in the A_{ad}-affective scale loaded primarily on two factors (Madden, Allen,

Figure 2
BRAND NAME RECALL: COMMERCIAL BY REPETITION INTERACTION



and Twible 1988). Factor 1 had seven items, each with a loading above .58: good, happy, cheerful, pleased, amused, stimulated, and soothed. The items on this factor were summed to form a "good mood" subscale ($\alpha = .83$). The second factor had seven items, each with a loading above .65: insulted, angry, irritated, impatient, repulsed, confused, and shocked. These items were summed to form a "felt irritation" subscale ($\alpha = .85$). The one item (calm) that loaded on a third factor was not considered further.

Figure 3
CLAIM RECALL: COMMERCIAL BY REPETITION INTERACTION



Length Effects

The ANOVA results for A_{ad} , A_B , and PI indicate no significant length effects. Consequently, contrary to H_6 , length alone does not appear to affect attitudinal responses to commercials.

The Effect of Length Over Repeated Exposures

H_7 suggests that the length effect may vary across repetition levels. Consequently, we compared short and long commercials on the A_{ad} , A_B , and PI criteria at each repetition level. We find only one significant length effect at eight repetitions such that the long and short commercials differ significantly on the good mood subscale of the A_{ad} -affective scale ($F_{1,133} = 4.59, p < .03$), indicating that the shorter commercials generate more positive affective responses than longer commercials. This effect seems to occur because the score on the good-mood subscale of the :30s declines significantly between four and eight repetitions ($F_{1,113} = 3.33, p < .07$), suggesting that the longer commercials start to wear out after four repetitions.

The Combined Effect of Length and Message Appeal

H_8 predicts that the length effect may depend on the type of appeal used. Indeed, we find significant commercial by length interactions (Figures 4-7) for the attitudinal dependent variables. For A_{ad} -affective (Figure 4), length has no effect on emotional commercials, though there is a significant decline in A_{ad} -affective as informational commercials get longer. The informational commercial length has no significant effect on A_{ad} -evaluative, A_B , or PI, but longer emotional commercials create more positive A_{ad} -evaluative, A_B , and PI than shorter ones (Figures 5-7). Hence, the prediction from H_8 that the length effect would be most pronounced for emo-

Figure 4
AFFECTIVE ATTITUDE TOWARD THE COMMERCIAL: COMMERCIAL BY LENGTH INTERACTION

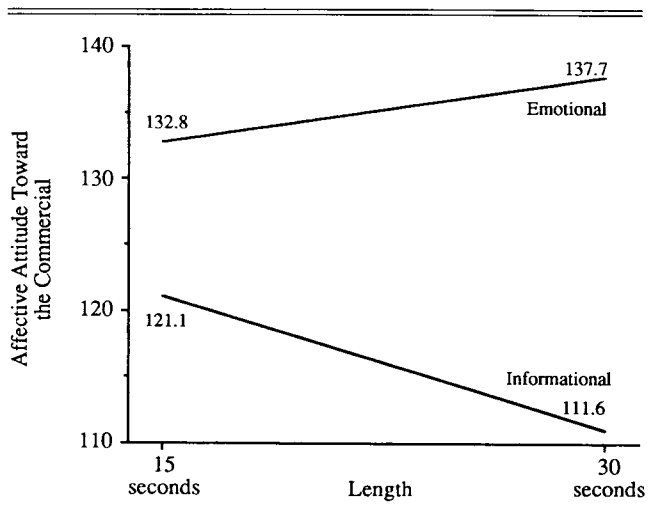
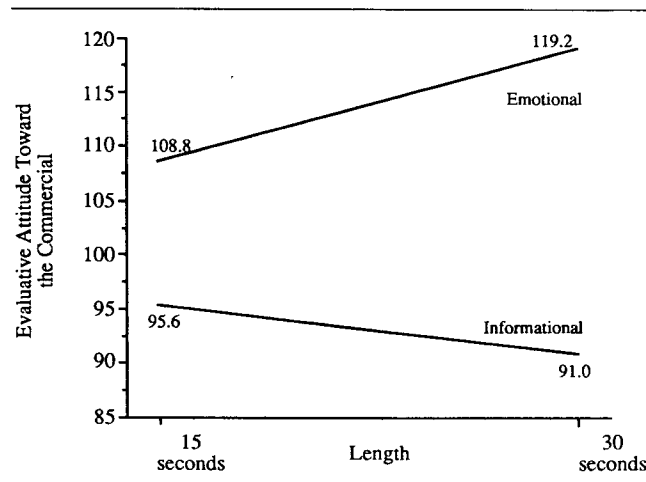


Figure 5
EVALUATIVE ATTITUDE TOWARD THE COMMERCIAL:
COMMERCIAL BY LENGTH INTERACTION



tional commercials and least pronounced for informational commercials seems to hold with one exception: on the A_{ad} -affective scale, longer informational commercials score worse than shorter informational commercials. The subscale analysis sheds some light on the reason. Longer informational commercials leave viewers in a worse mood than shorter commercials, but these negative feelings do not seem to influence A_{ad} -evaluative, A_B , or PI.

Figure 6
ATTITUDE TOWARD THE BRAND: COMMERCIAL BY
LENGTH INTERACTION

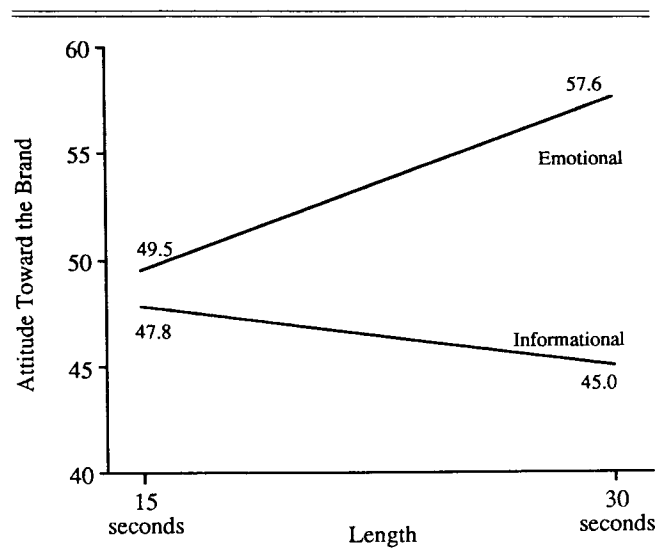
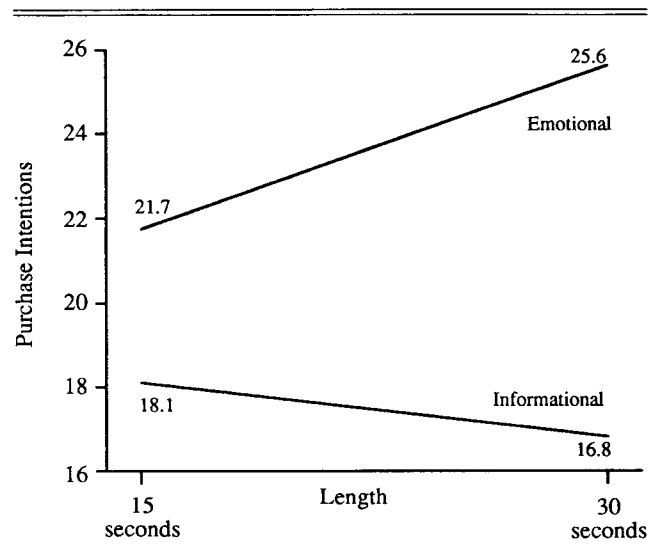


Figure 7
PURCHASE INTENTIONS: COMMERCIAL BY LENGTH
INTERACTION



The Joint Effect of Length, Message Appeal, and Repetitions

H_9 states that commercials wear out at different rates, depending on their appeal type and length. However, none of the three-way interactions are significant, nor are the contrasts. Hence, the results do not support H_9 .

Additional Considerations

The main effects in the ANOVAs indicate that (1) the emotional commercials outperform the informational commercials on the A_{ad} -affective, A_{ad} -evaluative, A_B , and PI criteria and (2) repetition decreases A_{ad} -affective, but none of the other dependent measures.

DISCUSSION AND IMPLICATIONS

The primary purpose of our study was to determine whether :15s can be effective stand-alone alternatives to :30s (and not just suitable as reminders of already running :30s). We expected that :30s would be superior to :15s, but we also expected that the length effects would be moderated by the message appeal and repetitions.

On the brand name learning criterion,⁶ commercial length had only a limited effect. For example, emotional :30s compared with emotional :15s at one repetition have markedly superior brand name recall scores, but all other differences between :15s and :30s are nonsignificant. It is understandable that :15s and :30s do not differ significantly at four and eight repetitions because repetitions should reduce the length advantage of :30s. What

⁶We also analyzed the learning variables as proportions (i.e., amount recalled divided by total number of brands/claims mentioned). However, the results did not change much from the reported contrasts.

is interesting is that though the emotional :30s score significantly higher than the emotional :15s after one repetition, informational :30s do not differ from their 15-second counterparts at any repetition level. The results from the logistic regression suggest that the *length per se* affects brand name recall for emotional commercials, but frequency of brand *mentions*, not length, affects brand name recall for informational commercials.⁷

Another unexpected finding of our study is that :30s and :15s do not differ on claim recall at any repetition level. Though it is not surprising that length did not affect claim recall for emotional commercials, it is less obvious why length did not give informational commercials an advantage in claim learning. The results from the logistic regression suggest that because the informational :15s and :30s had the same number of claim mentions and because length *per se* does not affect claim recall for informational commercials, commercial length did not affect claim learning.

On the attitudinal criteria, we observed that how the message length affects attitudes toward the ad and the advertised product depends on the message appeal. For instance, longer informational commercials produced more reactance and lower A_{ad} -affective than the shorter ones. However, informational :15s and :30s did not differ significantly on A_{ad} -evaluative, A_B , and PI. Rethans, Swasy, and Marks (1986) offer two possible explanations for these results. First, it is possible that when forming initial affective response toward the ad and advertised brand, the audience engages in very limited cognitive processing. Hence, giving the audience more time to process a message does not mean they will necessarily do so. A second explanation for the finding may be that for most low involvement consumer products (of the type used in our study), brand attitudes, once formed, can be altered only with the acquisition of additional, more detailed information, which may come from external sources or through first-hand experience of using the brand.

The second explanation may also explain why the tedium caused by the added exposures to the informational commercials did not transfer to A_{ad} -evaluative, A_B , and PI. Additionally, even if repetitions of an ad cause tedium, viewers may be able to separate their feelings of irritation from their other attitudes such as A_B and PI. Perhaps these two sets of opposite affective responses are stored in different locations in memory (Pechmann and Stewart 1988).

In contrast to the informational commercials, the emotional :30s were significantly better than the :15s on A_{ad} -evaluative, A_B , and PI, but only marginally better on the A_{ad} -affective criterion. Thus, whereas informational :15s

seem to be as effective as the :30s, emotional :15s appear to be at a disadvantage in comparison with their counterpart :30s on attitudinal criteria.

One reason for these results may be that by reducing the length of a 30-second emotional ad to 15 seconds, we shortened the duration for which a viewer might experience the positive emotions elicited by the ad. Also, when we created the :15s from the :30s, our editing reduced the length of jingles and vignettes. We may have inadvertently also lowered the quality of the ad itself. Taken together, these factors could have restricted not only the magnitude but also the duration of the positive emotional experience the audience received from the :15s. Because positive emotions induced by an ad may directly influence A_{ad} , A_B , and PI (as discussed previously), we see emotional :30s outperforming their :15 versions.

The results of our study have several practical implications for the use of 15- and 30-second commercials. If the goal of the advertiser is to communicate factual information for a low involvement product, the advertiser would probably use informational commercials, set learning objectives, and recognize that the audience would not necessarily need to like the ads (Rossiter, Percy, and Donovan 1991). Because our research indicates that informational :15s and :30s did not differ significantly on the learning or on most of the attitudinal variables, it is clear that informational :15s at 60% of the cost of informational :30s represent a good buy.

One caveat is in order, however. The informational :15s and :30s that we used in our research contained approximately equal numbers of brand name and claim mentions. However, a 30-second commercial certainly has the potential to repeat or contain more information than a 15-second commercial. In addition, our logistic regression results indicate that increasing the information in the informational commercials would increase viewer learning. Whether or not a 30-second commercial should be loaded with information, though, is a matter of strategy.

In other instances, the advertiser may want to promote a product by using an emotional/low involvement strategy. This advertiser must set objectives not only for brand name learning, but also for ad and brand attitudes (Rossiter, Percy, and Donovan 1991). In such cases, emotional ads are the logical choice. Here :30s have an advantage over :15s—as our study shows, emotional :30s do better than :15s on the brand name and attitudinal criteria.

However, further analysis suggests that even though these :30s outperform the :15s, the shorter commercials may still be a good buy. For brand name recall, :15s produce 59% of the recall of :30s at one repetition, where the differences in the :15s and the :30s are maximal. Moreover, even on attitudinal criteria, :15s are more than 80% as effective as their 30-second counterparts on attitudinal variables. Advertising creative staff may increase the effectiveness of emotional :15s in relation to

⁷A reviewer noted that our learning measures are primarily verbal, but actual viewer learning was at least partly nonverbal (emotional). A longer exposure to an emotional commercial may be needed for a viewer to (1) formulate a retrievable response and (2) pair emotional cues with verbal ones.

emotional :30s by designing their emotional ads in the 15-second frame from the start. If so, it should be possible to make the emotional :15s a very good buy.

Another finding about the effects of repeated exposures has practical implications for designing advertising campaigns. Ideally, an advertiser would like to create a commercial that will have its full impact upon the very first exposure so that the campaign can concentrate on building reach instead of frequency. However, our study and others (e.g., Singh and Rothschild 1983) show that learning is still increasing as repetitions increase to four. Hence, an advertiser probably will set an intended frequency goal greater than one. Unintended exposures will occur when a viewer is inadvertently exposed to more than the target goal because of overlap in the media mix. If this overexposure (beyond four) is massed (shown in a concentrated cycle) as in our study, it may cause reactance and tedium in the viewers, especially for informational commercials. It is here that the commercial length plays a significant role because, other things being equal, shorter informational commercials are less annoying than the longer ones at higher repetition levels. Thus, a reason for recommending using :15s may be to forestall tedium.

CONTRIBUTIONS, LIMITATIONS, AND CONCLUSIONS

Our study makes contributions to both theory and practice. We learned that a blanket comparison of :15s and :30s could lead to misleading conclusions because length effects depend on the message appeal. Also, by comparing :15s and :30s over repeated exposures, we learned that the popular belief that :15s wear out more quickly (e.g., Mord and Gilson 1985) is incorrect. Finally, the issue of whether the length effects are due to length *per se* or to greater within-message repetitions afforded by the longer commercial is also an important one (MacInnis, Moorman, and Jaworski 1991). Our study provides valuable insight into this issue by showing that the length *per se* effect is applicable to the emotional but not the informational commercials.

The contributions of our study must be interpreted in the light of several limitations. The study was a laboratory experiment, and our dependent measures were taken immediately after exposure. Because we created the :15s from the parent :30s, our :15s may have been creatively worse than the :30s when they were shortened. Thus, for our findings to have ecological validity, they must be replicated in natural field experiments with :15s that are not lift-offs from the :30s and with both immediate and delayed measurements. In addition, the effectiveness of the :15s may be influenced by the cognitive processing capabilities of the audience. Because :15s provide limited opportunity for cognitive elaboration, some age groups (e.g., the very young and very old) may have difficulty in comprehending such messages.

Since the advent of the :15s in 1983–1984, questions have been raised about whether networks are trying to

eliminate the :30s and make :15s the standard unit, just as they replaced :60s with :30s. Some observers argue that :15s may eventually become the standard unit. However, we believe that despite the fact that :15s can be used independently as stand-alone units, they are not about to replace the :30s. Thus we subscribe to the more moderate viewpoint of Clagget (1986), who envisions commercial units tailored to the needs of individual creative messages. Depending on their advertising goals, advertisers will use commercials of all lengths—:15s, :30s, and :60s—just as they use print ads that differ in size and detail.

APPENDIX A DEPENDENT VARIABLES

Aided Recall

Subjects were given the product categories of the stimulus commercials they had seen previously and were asked to recall the brand name and claim(s) made by the respective commercials. Unlike most industry studies, which measure day-after recall and recall of all ad elements, ours measured immediate recall of advertised brand names and claims. This was done to keep our results comparable to those of other academic studies on length effects (e.g., Rethans, Swasy, and Marks 1986; Singh and Rothschild 1983).

Attitude Toward the Ad-Affective (A_{ad} -affective)

A_{ad} -affective was measured on a 15-item semantic differential scale proposed by Madden, Allen, and Twible (1988). Subjects were asked to recall how they felt during the exposure to the stimulus commercial. For each of 15 adjectives, they then responded to the prompt, "Did the commercial for [stimulus brand] make you feel . . ." according to a scale ranging from 7 (very much so) to 1 (not at all). There were eight positive and seven negative adjectives in the scale: insulted, good, angry, happy, cheerful, irritated, impatient, pleased, repulsed, amused, confused, stimulated, calm, shocked, and soothed.

Attitude Toward the Ad-Evaluative (A_{ad} -evaluative)

The A_{ad} -evaluative scale was also adopted from Madden, Allen, and Twible (1988). Subjects' evaluative judgments of the stimulus commercials were measured on a 13-item, 7-point semantic differential scale. The adjectives used were pleasant/unpleasant, refined/vulgar, likable/unlikable, interesting/boring, tasteful/tasteless, entertaining/unentertaining, artful/artless, familiar/novel, good/bad, insulting/uninsulting, believable/unbelievable, convincing/unconvincing, informative/uninformative.

Using factor analysis, we confirmed that the two A_{ad} dimensions (affective and evaluative) could be discriminated from one another. When we combined all 28 items from the two scales and conducted a principal components analysis using varimax rotation, four factors emerged. Three factors contained only items from the A_{ad} -affective scale; the fourth factor contained only items from the A_{ad} -evaluative scale.

Attitude Toward the Brand (A_B)

Attitude toward the brand (A_B) was measured on a 7-item, 7-point semantic differential scale. End descriptors were like

very much/dislike very much, useful/useless, valuable/worthless, important/unimportant, beneficial/not beneficial, fond of/not fond of, and enjoyable/unenjoyable.

Purchase Intentions (PI)

Purchase intent was assessed by a 3-item, 7-point semantic differential scale. The adjectives were probable/improbable, likely/unlikely, and possible/impossible.

APPENDIX B

EXPERIMENTAL CONDITIONS

For the one-repetition condition, the videotape shown in the first session contained only filler commercials. For the second session, two sets of four videotapes were prepared. One set contained all four 30-second test commercials and the other had all four 15-second ones. (The first and last commercials on each tape were fillers.) In each set, test commercials appeared once on each tape but in different commercial break positions, that is, each test commercial appeared equally often in each position to counterbalance possible positioning effects. For the one-repetition condition, then, we prepared nine tapes. Each subject in the one-repetition condition saw no test commercials in the first session but saw all four test commercials in the second session.

In the four-repetition condition, each commercial break contained two test commercials. Subjects were exposed to the test commercials twice in the first session and twice in the second session. Once again, test commercials were rotated across positions, necessitating preparation of eight tapes (four for the first viewing and four for the second viewing) per commercial length (:15s vs. :30s), or 16 tapes in all. For illustration, the order in which test and filler commercials appeared on four videotapes prepared for the first viewing (of 30-second commercials) follows.

	Commercial break			
Tape 1	F1T1T2	T3T4	T2T1	T4T3F2
Tape 2	F1T3T4	T1T2	T4T3	T2T1F2
Tape 3	F1T2T1	T4T3	T3T2	T1T4F2
Tape 4	F1T4T3	T2T1	T1T4	T3T2F2

(F1 and F2 were fillers and T1 to T4 were 30-second test commercials.)

Similarly, 16 videotapes were prepared for operationalizing the eight-repetition condition, with each commercial break containing all four experimental commercials. The first and last commercials on each tape were fillers. In addition, on all tapes no commercial was shown twice in a row. A total of 41 videotapes were prepared to operationalize the $2 \times 2 \times 3$ design.

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Reprint No. JMR301107

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