SOCIAL MEDIA ENGAGEMENT MITIGATES AD DECAY EFFECTS FOR SUPER BOWL ADVERTISEMENTS

MYA PRONSCHINSKE GROZA, *Northern Illinois University*
SANDY DOMAGALSKI, *Northern Illinois University*

The confluence between social media engagement and brand television advertising during the 2016 National Football League Super Bowl championship broadcast was the focus of this study. The impact of social media upon recall of mass media, be it free recall or aided recall, was investigated and analyzed. While limited to only the mass media surrounding one Super Bowl and the associated social media, it was learned that social media's positive impact upon recall was limited to corrected aided recall, and not free recall. Further research involving other, traditional mass media, social media, metrics, and audiences is suggested in order for firms to maximize the Return on Marketing Investment (ROMI) of their promotional campaigns.

INTRODUCTION

In what has become akin to a national holiday, an average of nearly 112 million Americans tuned in to watch the Super Bowl on February 7, 2016, making it the third most watched broadcast in television history (Pallotta and Stelter, 2016). The actual number of people who saw the 50th playing of the championship football game, however, was undoubtedly much larger. The numbers provided by research giant Nielsen do not include viewers outside of their homes, such as individuals watching at a party, bar or restaurant, and those viewing the event online. These basic metrics do not end with viewers, but carry over to advertising dollars with companies paying lavish amounts – $5 million for a thirty-second spot – to run television commercials during the game, an increase of nearly 14% from 2015. The $345.4 million total spending on Super Bowl commercials in 2016 was up from $331.8 million spent the prior year, excluding the development and production costs associated with creating the ads making the total outlay even greater (Vrancia, 2016).

Companies continue to pour advertising money into the event, in spite of the rising costs. As reported in USA Today, Kantor Media notes the top five Super Bowl advertisers over the past decade are Anheuser-Busch InBev, Pepsi Co, Coca-Cola, Fiat Chrysler, and General Motors (Woodyard, 2016). Some of these companies use the Super Bowl to anchor their annual media campaigns. For other companies, however, Super Bowl commercials are a significant amount of the annual advertising budget, as was the case with the two spots aired in 2007 by shirt maker Phillips-Van Heusen. The first-time Super Bowl advertiser spent about $5.2 million for the event as compared to a total spend of $2 million for 2005 and $700,000 during the first three quarters of 2006 (Thompson, 2007).

But why all the interest from advertisers and what makes advertising during the Super Bowl relevant? The Super Bowl attracts more media attention for its commercials than any other annual event in the United States (Tomkovick, Yelkur and Christians, 2001). A company advertising during the Super Bowl is guaranteed a large audience by teaming up with the National Football League (NFL), arguably the most successful sports franchise in the United States. In fact, twenty (20) of the fifty (50) most valuable sport teams in the United States are NFL franchises; the next most successful sport is Major League Baseball with twelve (12) teams (Badenhausen, 2015).

Commercials during the Super Bowl have become a cultural phenomenon that has remained powerful in a backdrop of changing media channels and varying consumer attitudes towards television advertising. "Super Bowl ads get people talking – good or bad," says author and branding consultant Erika Napoletano. "Every commercial finds its lovers and haters, and either way, they'll talk" (Woodyard, *2016*). The ad viewing during the game has become a

fundamental part of watching the event with prior publicity, postgame discussions, and analysis by a variety of means, most notably the *USA Today* Ad Meter (Chong, Filbeck, and Tompkins, 2007). "Several studies have proven that 50% of the Super Bowl audience tunes in just to watch the ads," writes advertising executive and Super Bowl commercial veteran Rob Siltanen. "The PR value and the 'replay value' of a great Super Bowl spot alone can be worth the game's high media cost" (Siltanen, 2014).

In analyzing the relationship between the Super Bowl advertising and stock prices, Raithel, Taylor, and Hock, (2016) found such large expenditures can be worth the money in selected circumstances, such as when the advertisements enhance customer-based brand equity. Super Bowl advertising, however, is not without a substantial amount of risk. A poorly received ad or a commercial that receives a low rating can result in substantial losses. New research from Stanford University suggests that not all Super Bowl ads generate sales gains, especially when there are two brands of the same product type advertising during the same game. "When two major soda brands both advertise, they receive no profit gain to offset their advertising investments," reports Stanford Marketing Professor Wesley Hartmann (Parker, 2015). A past analysis conducted by research firm Communicus has suggested that 80% of the commercials do not result in increased sales (Neff, 2014). Though a company may not receive an increase in sales if they advertise when a competitor advertises during the Super Bowl, they do run the risk of losing market share if they do not advertise when a competitor chooses to advertise during the Super Bowl.

Paralleling the growth of Super Bowl viewership has been the popularity of social media in the United States. Social media has transformed the ways in which consumers are able to communicate. Nearly 70% of adults are now regular social media users, up from about 25% only a decade ago, with the number spanning all key demographic characteristics, including income, gender, location, and race (Pew, 2017). Dominated by Facebook and its 191 million domestic users (Statista, 2017), the social media landscape includes a host of smaller firms, such as Twitter, Instagram, Snapchat, and Pinterest. Essentially a platform for connecting people with other individuals, news, information, and entertainment, social media networks have strong implications for advertising, especially when used as part of an integrated plan with more traditional forms of marketing. Companies now utilize social media for a growing number of marketing objectives, including research, branding, promotions, and customer relationship management (Ashley and Tuten, 2015).

The focus of this study is to better understand how traditional media and social media can work together to better benefit brands. All advertisements experience ad decay, which is a decreased awareness in the consumer's mind and thus lose its effectiveness over time. The current study investigates if social media engagement with the advertisements has the potential to slow down the rate of ad decay in consumers' minds. Does interacting with an advertisement on social media (i.e., viewing the advertisement again, liking or sharing the advertisement content) help to reduce the effects of ad decay? This study seeks to investigate the relationship between traditional advertising during the Super Bowl broadcast and social media engagement with the advertisements prior to and after the Super Bowl.

LITERATURE REVIEW

Various hierarchical models of communication have been developed to better understand the response route a consumer goes through in moving from the initial learning stage, such as seeing an ad for the first time, to the final stage, such as purchasing the product. These models simultaneously look at how the marketing efforts influence the consumer response. The AIDA model represents the steps that a salesperson goes through during the personal selling process (Strong, 1925). The model views the response process as grabbing the prospect's attention, stimulating his interest in the product, building the individual's desire that ultimately leads to the consumer taking the action of buying the product.

The innovation adoption model is an outgrowth of previous research done on diffusion of innovation, which represents the series of steps

a consumer passes through when adopting a new product (Rogers, 1962). The model views the consumer response route beginning with awareness and proceeding to the stages of interest, evaluation, and trial, ultimately ending with the adoption of the product. The information processing model views the consumer as a processor of persuasive communications (McGuire, 1978). The consumer responds using the following route: presentation, attention, comprehension, yielding, retention, and behavior. These various models demonstrate there are several steps that a consumer passes through in order to reach the ultimate goal of purchasing a product. Advertising and marketing can exert an influence on the steps outlined in each of these models. A critical follow-up to all of the above models focuses on whether the advertising message can be recalled by the consumer.

If advertising is to have a positive impact upon the marketing function and be financially effective, its message must be retained over an extended period of time. If the ad is forgotten before a meaningful psychological impact is accomplished the ad impact will be minimal (White and Miles, 1996). Laskey and colleagues argue, "the effectiveness of a commercial depends on whether consumers remember the message, understand it, are persuaded by it, and, of course, ultimately buy the advertised product" (Laskey, Fox, & Crask, 1995, p. 33).

Marketers implicitly assume the effects of television advertising dissipate over time but debates remain regarding the rate of *decay* and impact upon viewer recall. The assumption that advertising can influence consumer decision-making over an extended period of time and not immediately drop to a level that would exist without advertising is well accepted. The total effect of advertising as it is spread out over time is referred to the *decay effect* (Lee et al., 1989). Because there is typically a lag between consumers' exposure to advertising and their opportunity to purchase the advertised brand, significant research regarding advertising decay, and methods by which decay can be minimized, has been conducted but with varied results. But the fact that decay has a significant impact upon the timing and spacing of advertising cannot be argued (Strong, 1977).

Memory fades due to the passage of time (Thorndike, 1914). Appel (1971) finds that advertising effectiveness also changes over time and there is an increase in recall followed by steady decline. Time-dependent decay and consumer response to advertising is of obvious interest to marketers resulting in mathematical models such as those produced by Zielske and Henry (1980) suggesting that about 9% of the people who can recall an ad in week t will have forgotten the ad by week t + 1. This assumption is also inherent in the MEDIAC model among others (Gensch, 1973; Little and Lodish, 1969; Ward, 1976). Krugman (1972) argues that continued advertising is needed as consumers filter advertising messages but must have them available when ready to make a purchase. Greenberg and Suttoni (1973) find that ads for infrequently purchased products decay slower than those for more frequently purchased items. Up to 90% of advertising effects dissipate after 3-15 months (Assmus, Farley, and Lehmann, 1984).

Other researchers have studied advertising decay in the form of recency planning (Ephrn 1997), and adstock modeling (Broadbent, 1979; Goerlich, 2001). Even econometricians have tried to derive advertising lag from econometric analysis (Bass and Clarke, 1972; Berkowitz, Allaway and D'Souza, 2001). Some have used laboratory and case studies to measure how long lasting advertising is and how it relates to specific cognitive processes (Cook and Flay, 1978; Hutchinson and Moor, 1984; King and Tinkham, 1990).

Information presented in an ad may be retained by consumers at various levels of memory but the information content of the ad retained by the market declines over time (Assael, 1992). While Keller (1987) found through a laboratory experiment that advertising retrieval cues facilitated access of elements from ad memory and subsequently affected brand recall and evaluations, it has also been found that competitive ad interference and consumer processing goals during the ad exposure also affected both consumer ad memory and brand evaluations (Groza, 2015). Previous work by Bagozzi and Silk (1983), Bettman (1979), Percy and Rossiter (1980) and Sawyer (1974) link ad recall to the amount of ad interference

caused by competitive ads within the same category.

Tellis et al. (2000) developed a model for the effects of television advertising for a toll-free referral service at the hourly level. They find that while ads do stimulate direct response, ad effectiveness dissipates very rapidly and that ad effectiveness varies by ad creative, the station on which the ad is aired, and the time of day it is aired. However, it was found that much of an ad's effect dissipated within eight hours of exposure and that prior studies exaggerate the duration of an ad's effectiveness. Tellis et al. (2005) again find that advertising decays very rapidly with most effects dissipating within eight hours and peak carryover effect occurring in the current hour for daytime advertising but in latter hours for morning advertising.

Hill et al. (2008) in their work with respect to advertising effectiveness and presidential campaigns find that 50-75% of advertising effectiveness dissipates within the first week and nearly all is gone by the end of the second week. Gerber et al. (2007) find similar results surrounding political campaigns with advertising effectiveness lasting only one day. Gelman and King (1993), however, argue that longer campaigns may have a cumulative education effect. But while some voters are capable of long-term learning, the conditions necessary to produce such learning is rare. Gerber et al. (2011) argue that with regard to campaign ads, within just a week or two advertising effectiveness has all but worn off. On the other hand, advertising may have an impact on Consumer-Based Brand Equity over a period of years (Loftus and Loftus, 1980). In their work involving online advertising, Havlena and Graham (2004) found a "measurable but weak relationship between time since last exposure and branding effectiveness" (p. 327). Thus, what effect can social media have on traditional advertising? That is, can engagement through social media reduce the effects of ad decay or does it perhaps speed up the process? In the next section, the hypotheses are developed situating social media engagement with traditional advertising mediums.

Social Media

Social media platforms allow enormous amounts of information to be dispensed at near real-time speeds through a combination of online and mobile devices. The unprecedented surge of social media users has changed the way individuals interact with others, share information, and interrelate with companies of all types. Social media is a formidable tool among consumers because people often trust others more than mass marketing communications fostering what can essentially be considered an electronic version of word of mouth advertising (Goldsmith, 2008; Kim, Sung, and Kang, 2014).

Social media outlets give companies the opportunity to distribute marketing messages to both mass audiences and smaller targeted key groups of consumers (Wallace, Wilson, and Miloch, 2011; Pegoraro, 2010). The more precise targeting coupled with fast response time allows marketers to create more advertising impressions in the same amount of time than with the more traditional advertising medium of television (Fulgoni and Lipsman, 2014).

Past research has linked growing brand awareness with consumers and companies with a large social media presence (Kwon and Sung, 2011). Research suggests that marketing managers are increasingly relying on social media for newsgathering, creativity, and entertainment to better understand and target individual customer needs (Killian and McManus, 2015). With multi-tasking during television viewing events – such as with the Super Bowl – commonplace, marketers need to better understand audience behavior and determine how to best use social media as part of an integrated marketing plan.

Ad Memory

Assessing a consumer's ad memory is routine in advertising research. It helps to evaluate the advertising effectiveness of each advertisement. Ad memory has been shown to be linked to brand knowledge, attitude, likeability, trust, and purchase intention (Ambler and Burne, 1999; Keller, 1987; Shen and Chen, 2006). Ad memory is a quantitative measure assessing

consumer's recall and recognition. Moorman and colleagues (2007) through a thorough content analysis suggest and utilize in their own studies the measures of free recall, corrected aided recall, and proven recall to best capture a consumer's ad memory. Free recall is defined as the ability to remember advertisements without any prompting or cues. Corrected aid recall is correctly identifying the advertisements (and receiving negative points whenever a wrong advertisement is chosen). Proven recall is defined as the ability to mention one or more specific elements about the advertisement when given the chance to provide a response. Thus based on the literature review, the following hypotheses are put forth:

H₁: Free recall of advertisements will be lower after the two-week delay than the day after the Super Bowl.

H₂: Corrected aided recall of advertisements will be lower after the two-week delay than the day after the Super Bowl.

Social Media Advertisement Engagement

Ideally, brands want consumers to engage with their advertisements. The belief is that engaged consumers will be more likely to attend to – and process – the advertising and in turn, talk more highly about the brands (Wang, 2006). Social media provides platforms for consumers to be engaged with the advertisements. They have the opportunity to share their views about brand advertisements through word-of-mouth and thus potentially influence the sales (Keller and Fay, 2012). When an advertiser is able to invoke higher levels of emotional engagement in a consumer, it has been shown to yield more online buzz (Seifert et al., 2009). Thus, social media advertisement engagement is defined as the ability to connect with and share traditional television advertisements on social media.

Consumers enjoy interacting on social media via their smartphone or tablet while watching television; this idea is termed as "social TV" (Deighton and Kornfeld, 2013). The Super Bowl broadcast allows the potential for this interaction between social media and traditional television advertising. In 2016, twenty-seven (27) of the fifty (50) advertisements had hashtags embedded in the commercials, encouraging viewers to share and discuss the

advertisements. The "sharing" of advertisements allows marketers to monitor social media and perhaps, increase the effectiveness of the television message through the volume of mentions and/or the sentiment analysis of the advertisement (Deighton and Kornfeld, 2013). Consumers provide color commentary in real time along with the Super Bowl advertisements being broadcasted. With Twitter's acquisition of Bluefin Labs, there is possibility to monitor the social media data to see how consumers are responding to the advertisements and thus evaluate its effectiveness.

Announcements of Super Bowl advertisements through traditional media sources influence post-game online social conversations (Nail, 2007). Nail (2007) find that prior to the big game, firms made formal announcements indicating they would have a Super Bowl commercial. The advertisers who announced early and promoted their affiliation with the Super Bowl experience higher postgame coverage and discussion (Nail, 2007). Thus, social media advertisement engagement was increased through the pre-game announcement setting the stage for the postgame coverage.

One way, beyond just announcing a forthcoming advertisement, to perhaps increase engagement with consumers is through the act of pre-releasing advertisements. Essentially, the options for Super Bowl advertising brands is to pre-release the full ad, provide a teaser ad, or wait until the Super Bowl to reveal their ad. The act of pre-releasing Super Bowl advertisements began in 2011 when Volkswagen's "The Force" Super Bowl commercial could be seen on YouTube the Wednesday before the Super Bowl (Sanburn, 2015). Volkswagen as a pioneer paved the way and marked a fundamental shift in Super Bowl campaigns as the potential for social media advertisement engagement could be realized even before the Super Bowl aired. In 2016, four days before the Super Bowl on February 3, thirteen (13) brands had already pre-released their full Super Bowl commercial. Thus, building on prior research on pregame releases and the effect on social media advertisement engagement, H₃ and H₄ are proposed as:

H₃: Free recall of advertisements will demonstrate less decay for those

respondents who engaged with the Super Bowl advertisements on social media platforms before the Super Bowl.

H₄: Corrected aided recall of advertisements will demonstrate less decay for those respondents who engaged with the Super Bowl advertisements on social media platforms before the Super Bowl.

Following the Super Bowl, consumers have the opportunity to continue to interact with the advertisements. Companies and consumer-created videos of the Super Bowl advertisements are easily shown and distributed through multiple social media platforms (e.g., YouTube). Therefore, consumers have the opportunity to view again, like, and share amongst their social networks. Nail (2007) indicates three-quarters of the social media discussion surrounding Super Bowl advertisements occurred after the game. We therefore suggest the following hypotheses:

H₅: Free recall of advertisements will demonstrate less decay for those respondents who engaged with the Super Bowl advertisements on social media platforms between the day after the Super Bowl and two weeks after.

H₆: Corrected aided recall of advertisements will demonstrate less decay for those respondents who engaged with the Super Bowl advertisements on social media platforms between the day after the Super Bowl and two weeks after.

METHOD

Sample

Student volunteers in a marketing principles class at a large Midwestern U.S. university participated in the study for extra credit. The study was conducted at two different points in time (the day after the Super Bowl and two weeks following the Super Bowl). The Super Bowl broadcast occurred on February 7, 2016. One hundred eighty-two (182) respondents who watched Super Bowl commercials during the broadcast completed both surveys at both Time 1 (day after the Super Bowl) and Time 2 (two weeks following the Super Bowl).

A screening question as the first question in the survey, asked the respondents to indicate the amount of commercials they viewed during the Super Bowl broadcast. The screening question was asked as follows: What proportion of Super Bowl 50 commercials did you see during the game on February 7, 2016? The choice options were: "I saw none of the commercials", "I saw less than half of the commercials", "I saw half of the commercials", "I saw more than half of the commercials", and "I saw all of the commercials". Respondents who chose "I saw none of the commercials" were taken to the end of the survey and not included in this analysis.

Just over 58 percent of the respondents were male, and 58.7 percent of the respondents were White/Caucasian, 9.5 percent indicated they were African American, 16.2 percent were Hispanic, and 13.4 chose Asian as their ethnicity. Finally, 2.3 percent of the respondents preferred not to answer. Being single and never married made up the majority of respondents at 90 percent. Participants were subsequently questioned regarding their social media usage. Approximately 1.7 percent of the respondents indicated they did not check their social media accounts daily. Respondents who checked their accounts once a day accounted for 8.4 percent of the sample. Thirty-three percent of respondents checked their accounts 2-5 times per day. Respondents who checked their accounts 6-10 times a day accounted for 21.8 percent of the sample. Roughly, 20.1 percent checked their social media accounts 11-20 times per day. Approximately, 7.3 percent of respondents answered they checked their accounts 21-29 times a day. Some respondents revealed they checked their social media accounts over 30 times a day, accounting 7.8 percent of the sample.

Measures

Due to the design of the study being longitudinal (desires to capture the decay in advertisements), time is an independent variable. Social media-ad engagement (SM-ad engagement) is used as an independent variable. Respondents were asked if they interacted with any commercials on any social media platforms before/after the Super Bowl broadcast. Before the Super Bowl broadcast, 73 (40% of the sample) respondents engaged with the Super Bowl ads on social media before the

actual television advertisement was aired during the broadcast. During the two weeks following the Super Bowl broadcast, 51 (28% of the sample) respondents engaged with the Super Bowl ads on various social media platforms. The dependent variables will be discussed next.

Free recall was measured by asking respondents in an open-ended question to list which advertisers had a commercial during the 2016 Super Bowl broadcast. No cues were provided and thus this measure of free recall was the first measure asked in the survey (similar to Moorman, Neijens, and Smit, 2007; Moorman et al., 2012).

Corrected aided recall involves creating a score for each respondent by taking the number of correctly recalled ads minus the number of falsely recalled ads (Moorman et al., 2007; Moorman et al., 2012). The corrected aided recall measure was chosen to rule out the possibility for guessing and false positives by the respondents (Slater, 2004: Smith and Graesser, 1981). A list of 20 brands was presented to the respondents in which half (10) of the ads appeared during the Super Bowl and the other half did not present advertisements during the Super Bowl. Respondents were given the option to choose which brands advertised during the Super Bowl. The respondents were not aware there were only ten correct answers. False brands were chosen as direct competitors of correct brands and which compete in the same industry and product category. For example, if an advertisement for T-Mobile aired during the Super Bowl, Verizon was offered as a false brand to present to the respondents. The correct brands which aired a Super Bowl commercial are as follows with the false brand presented in the parentheses: Advil (Tylenol), Axe (Old Spice), Colgate (Crest), Dollar Shave Club (Harry's), Marmot (Patagonia), McDonald's (Jack in the Box), Persil ProClean (Tide), Skittles Mars, Inc. (Reese's Hershey), T-Mobile (Verizon), and TurboTax Intuit (H&R Block).

All twenty brands (ten correct and ten false) were pre-tested by using the Brand Awareness scale adapted from Yoo et al. (2000) and Netemeyer et al. (2004). The following five items were included in the pre-test for all twenty brands: "I can recognize (brand X) among other competing brands", "I am aware of (brand X)", "Some characteristics of (brand X) come to my mind quickly", "I can quickly recall the symbol or logo of (brand X)", and "I have difficulty in imagining (brand X) in my mind" (r). Additionally, respondents were given the opportunity "please list any competitors you know of for *brand X*". All of the false brands chosen by the research team were validated through the pre-test as respondents indicated the advertising Super Bowl brand as direct competitors of each of the false brands.

ANALYSIS AND RESULTS

The first hypothesis states Super Bowl advertisements will experience a decay effect in consumer's free recall and thus the consumer will recall less brands two weeks after the Super Bowl (Time 2) than the day after the Super Bowl (Time 1). A repeated-measures analysis of variances (ANOVA) compared the means. The sphericity assumption was not met and thus requiring Greenhouse-Geisser correction for degrees of freedom. The main effect of time of measurement was not significant $F(1, 178) = .52$, n.s. Free recall of advertisements two weeks after the Super Bowl (M = 2.35, SD = 3.03) does not differ significantly from the free recall of advertisement the day after the Super Bowl (M = 2.23, SD = 2.85, n.s.) and H_1 was not supported.

The second hypothesis states the decay in consumer's aided recall of Super Bowl advertisements will be higher two weeks after the Super Bowl (Time 2) than the day after the Super Bowl (Time 1), that is respondents will be able to correctly recognize and identify less brands as time goes on. The sphericity assumption was not met and thus requiring Greenhouse-Geisser correction for degrees of freedom. The main effect of time was significant $F(1, 178) = 5.43$, p < .05. Correctly being able to recall advertisements that occurred during the Super Bowl after a two week delay (M = .83, SD = 2.14) was significantly lower than the corrected aided recall of Super Bowl advertisements the day after (M = .52, SD = 2.07, p < .05). Thus, H_2 was supported. Table 1 contains the means and standard deviations for the effects of ad decay.

To test H_3, we conducted a mixed-model repeated-measures ANOVA of the influence of time on the free recall with SM-ad engagement with the advertisements before the Super Bowl broadcast as a between-subjects factor. Consumers who engaged with Super Bowl advertisements before the Super Bowl broadcast and at Time 1 (M = 3.19, SD = 3.02) revealed similar free recall scores as to those consumers who did not interact with any advertisements on social media before the Super Bowl broadcast (M = 2.85, SD = 3.26). Additionally, at Time 2 consumers who engaged with Super Bowl advertisements on social media since the Super Bowl broadcast (M = 3.01, SD = 2.49) did not reveal significant differences from those consumers who have not engaged with any advertisements from the Super Bowl on social media (M = 2.49, SD = 3.04). Thus, the decay of consumer's free recall of advertisements after a two week delay was not enhanced through engaging with the Super Bowl advertisements on social media before the Super Bowl $F(1, 136) = 1.21$, n.s. and H_3 was not supported.

To investigate H_4, we conducted a mixed-model repeated-measures ANOVA of the

influence of time on the corrected aided recall with SM-ad engagement with the advertisements before the Super Bowl broadcast as a between-subjects factor. Results show a statistically significant main effect for corrected aided recall, $F(1, 136) = 6.24$, p < .05. Follow-up tests showed that the consumers who engaged with the Super Bowl advertisements before the Super Bowl broadcast and at Time 1 (M = .92, SD = 2.23) did not see a significant drop in their memory corrected aided recall measure at Time 2 (M = .79, SD = 2.37). However, consumers who did not engage with any Super Bowl advertisements before the Super Bowl broadcast experienced a large decrease in the number of corrected aided recall of the Super Bowl advertising brands (Time 1: M = 1.26, SD = 2.56; Time 2: M = .53, SD = 2.28). Thus, H_4 was supported. Table 2 contains the means and standard deviations for the effects of social media engagement prior to the Super Bowl broadcast.

To test H_5, we conducted a mixed-model repeated-measures ANOVA of the influence of time on the free recall with SM-ad engagement with the advertisements after the Super Bowl broadcast as a between-subjects factor.

TABLE 1:
Means for Ad Decay

Measure	Time 1	Time 2
Free recall (H_1)	2.23 (2.85)	2.35 (3.03)
Corrected aided recall (H_2)*	0.52 (2.07)	0.83 (2.14)

Note. * p < .05.

TABLE 2:
Means for Ad Decay with Social Media Advertisement Engagement Prior to the Super Bowl

Time	Free recall (H_3)	Corrected aided recall (H_4)*
No SM-ad engagement		
Time 1	2.85 (3.26)	1.26 (2.56)
Time 2	2.49 (3.04)	0.53 (2.28)
SM-ad engagement		
Time 1	3.19 (3.02)	0.92 (2.23)
Time 2	3.01 (2.49)	0.79 (2.37)

Respondents' free recall of advertisements after a two week delay was not significantly enhanced by engaging with Super Bowl advertisements after the Super Bowl (between Time 1 and Time 2), $F(1, 136) = .36$, n.s. Respondents who did not engage with the Super Bowl advertisements (Time 1: M = 2.97, SD = 3.39; Time 2: M = 2.65, SD = 3.67) versus those consumers who reported they have viewed Super Bowl advertisements on social media platforms during the two weeks following the Super Bowl (Time 1: M = 2.91, SD = 3.08; Time 2: M = 2.96, SD = 3.04) do not reveal significantly different means from each other. H_5 was not supported.

H_6 was investigated using a mixed-model repeated-measures ANOVA of the influence of time on the corrected aided recall with the SM-ad engagement with the advertisements after the Super Bowl broadcast as the between-subjects factor. Consumers who engaged with the Super Bowl ads on social media during the two weeks following the Super Bowl broadcast revealed yielded a statistically significant main effect for corrected aided recall, $F(1, 136) = 7.86$, $p < .01$. Consumers who engaged with the Super Bowl advertisements since the Super Bowl broadcast and at Time 1 (M = 1.12, SD = 2.08) did not see a significant drop in their memory corrected aided recall measure at Time 2 (M = .82, SD = 2.14). However, consumers who did not engage with any Super Bowl advertisements since the Super Bowl broadcast experienced a large decrease in the number of corrected aided recall of the Super Bowl advertising brands (Time 1: M = 1.05, SD =

3.01; Time 2: M = .27, SD = 2.80). Thus, H_6 was supported. Table 3 contains the means and standard deviations for the effects of social media engagement since the Super Bowl broadcast.

DISCUSSION AND MANAGERIAL IMPLICATIONS

The role that social media plays in the promotion of products continues to grow as Americans spend larger portions of their time engaged in social media and firms invest a larger percentage of their promotional budgets in a host of social media platforms (Pew, 2017; Ashley and Tuten, 2015). This study does not, however, fully support the effectiveness of social media in addressing a key promotional metric – ad decay. Only when ad recall is aided does social media have a significant, positive effect on ad decay. The use of social media does not appear to have a positive effect with the free recall of advertisements under the conditions tested.

While the financial investment in a Super Bowl ad is truly exceptional, most forms of television advertising can represent a significant monetary outlay to firms. The assumption that a well-integrated, social media-television advertising campaign will provide superior results to a television campaign that is not coordinated with a social media initiative cannot be assumed. Careful planning is essential in the design and execution of an integrated marketing communications plan that relies heavily upon social media to enhance ad recall and

TABLE 3:
Means for Ad Decay with Social Media Advertisement Engagement Since the Super Bowl

Time	Free recall (H_5)	Corrected aided recall (H_6)*
No SM-ad engagement		
Time 1	2.97 (3.39)	1.05 (3.01)
Time 2	2.65 (3.67)	0.27 (2.80)
SM-ad engagement		
Time 1	2.91 (3.08)	1.12 (2.08)
Time 2	2.96 (3.04)	0.82 (2.14)

Note. * $p < .05$.

awareness of the product/service/or brand being promoted as well as other elements of the adaptation model including interest, desire, or action.

The inherent advantages of integrated marketing communications would seem to grow significantly with not only the advent of social media but the growth with which social media is used by American consumers. The specific communication vehicles employed and the precision with which they are used are changing as both information technology and customer interests become increasing dynamic and varied. As mass media advertising is used less frequently today due to its high costs and lower effectiveness (Pride and Ferrell, 2016), many firms are quick to take advantage of the latest social media options without conducting due diligence to determine specific advantages of the new media or goals and metrics that will be implemented to measure effectiveness. Fortunately, analytical tools such as Google Analytics offer the marketer outstanding options by which media campaigns can be planned, implemented, and ROMI (as well as other metrics) evaluated. This study, if anything, illustrates the value that social media *can play* in a successful promotional campaign, as well as the limitations social media *may have* when used in conjunction with mass media advertising.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study dealt only with undergraduate college business students, the vast majority being of traditional college age. It was also limited to Super Bowl ads and the select social media surrounding the ads. Further research involving the impact of a wider variety of social media on other forms of mass media promotions and the ever-changing social media options is essential. While the role of traditional media may be waning, its use in conjunction with social media in a truly integrated marketing communications framework may offer viable opportunities for both consumer goods and B2B firms. Studying the wide array of traditional-social media promotional options that are available to firms is daunting. This study provides a look at only a small sample of promotional media combinations that, used in

conjunction, could provide significant enhancements with aided and unaided recall of ads. Researchers are encouraged to investigate the plethora of traditional-social media options available as the marketplace embraces social media and all it has to offer.

Additionally, this survey relied on self-report measures where the student sample indicated what proportion of the Super Bowl commercials they viewed during the Super Bowl broadcast. It is difficult to know if they actually watched what they stated they did. Thus, further research that utilizes other methodologies that allow researchers to capture behavioral measures rather than attitudinal measures would greatly increase the external validity and our understanding of consumer interactions with Super Bowl commercials. Furthermore, future research should consider the effect of respondents only viewing half of (or some other proportion of) the advertisements versus all of the advertisements.

The free recall and corrected aided measures chosen in this study mirror the work of Moorman and colleagues (2007; 2012). We acknowledge that other metrics exist that might have strengthened our analysis. For example, researchers in the future may wish to consider the use of signal detection theory (Singh and Churchill, 1986; Swets, Tanner, and Birdsall, 1961), which suggests the use of a sensitivity index linking true and false recognition utilizing the z-transformations of hit rates (HR) and false alarm rates (FAR). High hit rates reveal high true recognition and high false alarm rates reveal high false recognition. Future researchers could capture the data and utilize the following formula to assess sensitivity: $(d' = Z (HR) - Z (FAR))$. Future research could pursue a replication study but instead of utilizing free recall and corrected aided recall measures, put into place the sensitivity index of signal detection theory.

REFERENCES

Ambler, T., & Burne, T. (1999). The impact of affect on memory of advertising. *Journal of Advertising Research*, *39*(2), 25-34.

Appel, V. (1971). On advertising wear out. *Journal of Advertising Research*, *11*(1), 11-13.

Ashley, C., & Tuten, T. (2015). Creative strategies in social media marketing: An exploratory study of branded social content and consumer engagement. *Psychology & Marketing*, *32*(1), 15-27.

Assael, H. (1992). *Consumer Behavior and Marketing Action,* Boston, MA: PWS-Kent.

Assmus, G., Farley, J. U., & Lehmann, D. (1984). How advertising affects sales: Meta-analysis of econometric results. *Journal of Marketing Research*, *21*(1), 65-74.

Badenhausen, K. (2015). The world's 50 most valuable sports teams 2015, http://www.forbes.com/sites/kurtbadenhausen/2015/07/15/the-worlds-50-most-valuable-sports-teams-2015/#58314fbe57fd

Bagozzi, R. P. & Silk, A. J. (1983). Recall, recognition, and the measurement of memory for print advertisements. *Marketing Science*, *2*(2), 95-134.

Bass, F., & Clarke, F. (1972). Testing distributed lag models of advertising effect. *Journal of Marketing Research*, *9*(3), 298-308.

Berkowitz, D., Allaway, A. & D'Souza, G. (2001). The impact of differential lag effects on the allocation of advertising budgets across media. *Journal of Advertising Research*, *41*(2), 27-36.

Betttman, J. R. (1979). *An Information Processing Theory of Consumer Choice,* Reading, MA: Addison-Wesley.

Broadbent, S. (1979). One way TV advertisements work. *Journal of the Market Research Society*, *21*(3), 139-166.

Chong, P., Filbeck, G., & Tompkins, D. L. (2007). Advertising Strategy and Returns on Advertising: A Market Value Approach. *The Business Review*, *8*(2), 17-23.

Cook, T. D., & Flay, B. R. (1978). The persistence of experimentally induced attitude change, *Advances in Experimental Social Psychology.* New York: Academic Press.

Deighton, J., & Kornfeld, L. (2013). Bluefin Labs: The Acquisition by Twitter.

Ephron, E. (1997). Recency planning. *Journal of Advertising Research*, *37*(4), 61-65.

Fulgoni, G., & Lipsman, A. (2014). Numbers, please: Digital game changers: How social media will help usher in the era of mobile and multi-platform campaign-effectiveness measurement. *Journal of Advertising Research*, *54*(1), 11-16.

Gelman, A., & King, G. (1993). Why are American presidential election campaign polls so variable when votes are so predictable? *British Journal of Political Science*, *23*(4), 409-451.

Gensch, D. (1973). *Advertising Planning,* New York: Elsevier Scientific.

Gerber, A. S., Gimpel, J. G., Green, D. P., & Shaw D. R. (2007). The influence of television and radio advertising on candidate evaluations: Results from a large scale randomized experiment. Presented at the *Annual Meeting of the Midwest Political Science Association.*

Gerber, A. S., Gimpel, J. G., Green, D. P., & Shaw D. R. (2011). How large and long-lasting are the persuasive effects of televised campaign ads? Results from a randomized field experiment, *American Political Science Review*, *105*(1), 135-150.

Goerlich, B. (2001). A consumer's guide to marketing mix models. *Admap*, *30*(11), 8-9.

Goldsmith, R. E. (2008). Electronic word-of-mouth. In *Electronic Commerce: Concepts, Methodologies, Tools, and Application*s: IGI Global, 2143-2149.

Greenberg , A., & Suttoni, C. (1973). Television commercial wearout. *Journal of Advertising Research*, *13*(5), 47-54.

Groza, M. P. (2015). Advertising interference: Factors affecting attention to Super Bowl advertisements and their effectiveness. *Marketing Management Journal*, *25*(2), 123-133.

Havlena, W. J., & Graham, J. (2004). Decay effects on online advertising: Quantifying the impact of time since last exposure and branding effectiveness. *Journal of Advertising Research*, *44*(4), 327-332.

Hill, S. J., Lo, J., Vavreck, L., & Zaller, J. (2008). The duration of advertising effects in the 2000 presidential campaign. *2008 American Political Science Association Annual Meeting.*

Hutchinson, J., & Moor, D. (1984). Issues surrounding the examination of delay effects in advertising. *Advances in Consumer Research*, *11*, 650-55.

Keller, E., & Fay, B. (2012). Word-of-Mouth Advocacy. *Journal of Advertising Research*, *52*(4), 459-464.

Keller, K. L. (1987). Memory factors in advertising: The effect of advertising retrieval cues on brand evaluations. *Journal of Consumer Research*, *14*(3), 316-333.

Killian, G., & McManus, K. (2015). A marketing communications approach for the digital era: Managerial guidelines for social media integration. *Business Horizons*, 58(5), 539-549.

Kim, E., Sung, Y., & Kang, H. (2014). Brand followers' retweeting behavior on twitter: how brand relationships influence brand electronic word-of-mouth. *Computers in Human Behavior*, *37*, 18-25.

King, K. W., & Tinkham, S. (1990). The learning and retention of outdoor advertising. *Journal of Advertising Research*, *30*(6), 47-51.

Krugman, H.E. (1972). Why three exposures may be enough. *Journal of Advertising Research*, *12*(6), 11-14.

Kwon, E., & Yongjun, S. (2011). "Follow me! Global marketers' Twitter use." *Journal of Interactive Advertising*, *12*(1), 4-16.

Laskey, H. A., Fox, R. J., & Crask, M. R. (1995). The relationship between advertising message strategy and television commercial effectiveness. *Journal of Advertising Research*, *35*(2), 31-39.

Lee, J.-Y., Brown, M. G., & Fairchild, G. F. (1989). Some observations on the impact of advertising on demand, *Agribusiness*, *5*(6), 607-618.

Little, J. D. C., & Lodish, L. M. (1969). A media planning calculus, *Operations Research*, *17*(1), 1-35.

Loftus, E. F., & Loftus, G. R. (1980). On the Permanence of Stored Information in the Human Brain, *American Psychologist*, *35*(5), 409-420.

McGuire, W.J. (1978). An information-processing model of advertising effectiveness. In H.L. Davis & A.H Silk (Eds.), *Behavioral and management science in marketing* (pp. 156-180). New York: Ronald Press.

Moorman, M., Neijens, P. C., & Smit, E. G. (2007). The effects of program involvement on commercial exposure and recall in a naturalistic setting. *Journal of Advertising*, *36*(1), 121-137.

Moorman, M., Willemsen, L. M., Neijens, P. C., & Smit, E. G. (2012). Program-involvement effects on commercial attention and recall of successive and embedded advertising. *Journal of Advertising*, *41*(2), 25-38.

Nail, J. (2007). Visibility versus surprise: Which drives the greatest discussion of Super Bowl advertisements?. *Journal of Advertising Research*, *47*(4), 412-419.

Neff, J. (2014). Study: 80% of super bowl ads don't help sales: Ads in big game fare worse than others as brand recall lags." http://adage.com/article/special-report-super-bowl/study-80-super-bowl-ads-sales/290907/

Netemeyer, R. G., Krishnan, B., Pullig, C., Wang, G., Yagci, M., Dean, D., & Wirth, F. (2004). Developing and validating measures of facets of customer-based brand equity. *Journal of Business Research*, *57*(2), 209-224.

Pallotta, F., & Stelter, B. (2016). Super bowl 50 audience is third largest in TV history. http://money.cnn.com/2016/02/08/media/super-bowl-50-ratings/

Parker, C. B. (2015). Do super bowl ads really work? Not all big game TV commercials drive enough sales to offset the ad's cost. https://www.gsb.stanford.edu/insights/do-super-bowl-ads-really-work

Pegoraro, A. (2010). Look who's talking—athletes on Twitter: A case study. *International Journal of Sport Communication*, *3*(4), 501-514.

Percy, L. & Rossiter, J. R. (1980). *Advertising Strategy: A Communication Theory Approach*, New York: Praeger.

Pew Research. (2017). Social Media Fact Sheet. http://www.pewinternet.org/fact-sheet/social-media/

Pride, W., & Ferrell, O.C. (2016). *Marketing,* 18th edition, CENGAGE Learning, USA.

Raithel, S., Taylor, C. R., & Hock, S. J. (2016). Are Super Bowl ads a super waste of money? Examining the intermediary roles of customer-based brand equity and customer equity effects. *Journal of Business Research*, *69*(9), 3788-3794.

Rogers, E. M. (1962). *Diffusion of Innovations*, New York: Free Press.

Sanburn, J. (2015). The ad that changed Super Bowl commercials forever. *Time Business*. http://time.com/3685708/super-bowl-ads-vw-the-force/

Sawyer, A. G. (1974). The effects of repetition: Conclusions and suggestions about experimental laboratory research", *Buyer/ Consumer Information Processing,* G. David Hughes, G. D. & Ray, M. L., Chapel Hill, NC: University of North Carolina Press, 190-219.

Seifert, C. J., Kothuri, R., Jacobs, B., Levine, B., Plummer, J., & Marci C. D. (2009). Winning the Super "buzz" Bowl: How biometrically based emotional engagement correlates with online views and comments for Super Bowl advertisements. *Journal of Advertising Research*, *49*(3), 393-303.

Shen, Y. C., & Chen, T. C. (2006). When east meets west: The effect of cultural tone congruity in ad music and message on consumer ad memory and attitude. *International Journal of Advertising*, *25*(1), 51-70.

Siltanen, *R. (2014).* Yes, A Super Bowl ad really is worth $4 million. http://www.forbes.com/sites/onmarketing/2014/01/29/yes-a-super-bowl-ad-really-is-worth-4-million/#c7afe914d821

Singh, S., & Churchill, G. A. (1986). Using the theory of signal detection to improve ad recognition testing. *Journal of Marketing Research*, *23*(4), 327-336.

Smith, D. A., & Graesser, A. C. (1981). Memory for actions in scripted activities as a function of typicality, retention interval, and retrieval task. *Memory & Cognition*, *9*(6), 550-559.

Statista. (2017). Number of Facebook users in the United States from 2015 to 2021 (in millions). https://www.statista.com/statistics/408971/number-of-us-facebook-users/

Strong, E. C. (1977). The spacing and timing of advertising, *Journal of Advertising Research*, *17*(6), 25-31.

Strong, E.K. (1925). *The Psychology of Selling*, New York: McGraw-Hill.

Swets, J. A., Tanner Jr, W. P., & Birdsall, T. G. (1961). Decision processes in perception. *Psychological Review*, *68*(5), 301.

Tellis, G. J., Chandy, R. K., MacInnis, D, & Thaivanich, P. (2005). Modeling the microeffects of television advertising: Which ad works, when, where, for how long, and why?, *Marketing Science*, *24*(3), 351-366.

Tellis, G. J., Chandy, R. K., & Thaivanich, P. (2000). Which ad works, when, where, and how often? Modeling the effects of direct television advertising, *Journal of Marketing Research*, *37*(1), 32-46.

Thompson, S. (2007). Phillips-Van Heusen buys its first Super Bowl ad. http://adage.com/article/special-report-superbowl07/phillips-van-heusen-buys-super-bowl-ad/114652/

Thorndike, E. L. (1914). *The Psychology of Learning,* New York: Teachers College Press.

Tomkovick, C., Yelkur, R., & Christians, L. (2001). The USA's biggest marketing event keeps getting bigger: An in-depth look at Super Bowl advertising in the 1990s. *Journal of Marketing Communications*, *7*(2), 89-108.

Vrancia, S. (2016). Super Bowl Ads Bring Lighter Tone, http://www.wsj.com/articles/super-bowl-ads-bring-lighter-tone-1454904272

Wang, A. (2006). Advertising engagement: A driver of message involvement on message effects. *Journal of Advertising Research*, *46*(4), 355-368.

Wallace, L., Wilson, J., & Miloch, K. (2011). Sporting facebook: A content analysis of NCAA organizational sport pages and Big 12 Conference athletic department pages. *International Journal of Sport Communication*, 4(4), 422-444.

Ward, R. W. (1976). Measuring advertising decay. *Journal of Advertising*, *16*(4), 37-41.

White, J. B., & Morgan, P. M. (July/August 1996). The financial implications of advertising as an investment, Journal *of Advertising Research*, *36*(4), 43-52.

Woodyard, C. (2016). For Big Game, Big Names. *USA Today*. January 29, 2016.

Yoo, B., Donthu, N., & Lee, S. (2000). An examination of selected marketing mix elements and brand equity. *Journal of the Academy of Marketing Science*, *28*(2), 195-211.

Zielske, H. A., & Henry, W. A. (1980). Remembering and Forgetting Television Ads. *Journal of Advertising Research*, *20*(2), 7-13.